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# WHAKAMOMORI

## MĀORI SUICIDE PREVENTION

A thesis presented in partial fulfilment of the  
requirements for the degree of

Doctor of Philosophy

in Māori Studies

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NICOLE MICHELLE COUPE

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## WHAKAMOMORI: MĀORI SUICIDE PREVENTION

### Abstract

**Introduction:** Suicidal behaviour is a major public health issue globally. The incidence of suicide and attempted suicide internationally is excessive, particularly among indigenous populations. The Māori (indigenous people of New Zealand) suicide and attempted suicide rates have exceeded the non-Māori rates in New Zealand. In an attempt to address the high incidence of Māori suicidal behaviour an epidemiological case control study was initiated.

**Method:** 250 consecutive cases of Māori who attempted suicide who were admitted to one of the three Auckland public hospitals were compared to 250 random, Māori community-based controls (found through door knocking). Participants were compared on a variety of measures including the General Health Questionnaire-28 (GHQ-28), Hospital Anxiety and Depression Scale (HADS), CAGE Alcohol Screening Test; Composite International Diagnostic Interview (CIDI-suicidality), Beck's Scale of Suicide Intent (SIS); and cultural identity validated questionnaires.

**Results:** Response rates were high for both cases (85.6%) and controls (81.2%). The multivariate analysis revealed that poor general health status was the key risk factor associated with attempted suicide among Māori.

Once the health indicator is taken out of the analysis, cultural identity, marijuana utilisation and interpersonal abuse are the next major risk factors in attempted suicide among Māori.

**Conclusion:** Suffering from poor general health can increase attempted suicide among Māori. Having a notional identity and not being connected to Māoritanga (those things Māori; Māori culture) is associated with the risk of suicidal behaviour.

## PREFACE

E ngā mana, e ngā reo, e ngā kāhui maunga huri noa te motu tēnā koutou kātoa. Tēnā koutou i runga i ngā māharahara ō rātou ma kua takahi nei te ara whānui ō Tane; ngā mate huhua ō te wā kua papa rakauhia ki tua ō te ārai, hei mihi, hei tangi, nō reira e ngā mate haere, takoto, okioki, whakangaro atu ra. Huri noa ki a tātou ō te hunga ora e whai ake nei ki te whakakikokiko i ngā moemoeā ō te tangata, ahakoa ko wai. He mihi whānui ki a koutou i manaaki nei i ahau ki te whakapuawai i tēnei mahi rangahau ki a koutou hoki i pānui nei te kaupapa whakatutuki, tauwahitia. He mihi hoki ki ngā kaimatautau i whakamātautau i tēnei mahi kua puāwai. Ko te mihi whakamutunga ki te Runga Rawa, nāna nei ngā mea kātoa.<sup>1</sup>

Tane took Kurawaka to wife and had Hine ahuone. Tane married his daughter, Hine ahurangi was the result. Tane married his granddaughter who had Hine Tītama. Tane married his great granddaughter. One day she asked “Who is my father?” Tane replied “I am both your father and your grandfather”. Then Hine was overcome with shame and rose up and went afar off in search of Tane-te-wai-ora (Tane of the waters of life). She said “I have fled from the Upper World. I have lain with my own father”.

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<sup>1</sup> Greetings to you all. Greetings in remembrance of those who have tramped the pathway of Tane, those who have passed on, beyond the veil, we mourn, rest in peace. Turning to those of us who remain in this world in pursuit of well-being for all. An extensive greeting to all those who have supported me in bringing this work to fruition, those who have made critical comment and those who will read it and feel supported. Greetings also to the examiners who will examine the fruits of this labour. The final greeting is to the Almighty the source of all things.

Ko tenei te whakapapa mo whakamomori. Ka tahuri a Taane ki te waihaka takata (Best, 1899).

*Te Piere*

*Te Malala*

*Te Totoe*

*Te Kawha=Tohika*

Hinei Te kurukurua taane

Te Haakaumatua

Te Waipunahau

Tahoraatea

Tahora a moa

Papanui ta hora

Te Pakihi

Hinei Mātātiki=Hine ahu one

Hineiteataariari=Tukoriahuru

Na reira ka moe a Taane ki te pito rakau ta raua tamiti kahore i puta mai ka tamariki

=Hine Titama Hine atauira

Tahu Kumea

Tahu Whakaero

Tahu Tuturi

Tahu Pepeke

Tahu Pukai

Tahu Araukai

Tahu Waimāria

The conception of this research was 10 years ago, when in 1994 as a research assistant for the Injury Prevention Research Centre (University of Auckland) I became concerned at the lack of research about Māori intentional injury. The only information came from annual compilation of statistics in which generally portrayed Māori as disadvantaged.

I had finished a masters of science in biostatistics two years earlier and subsequently applied for a position as a research assistant. The research centre was producing 'Intentional Injury in New Zealand' a compilation of incidence, risk factors, impact, economic costs, interventions, policy issues and recommendations (Coggan, Fanslow & Norton, 1995).

In 1996, the University of Otago advertised for interviewers for the National Nutrition Survey. As one of three Māori interviewers I was allocated the Northland region with its high population of Māori. At a hui (Māori gathering) the community asked why they had not been consulted about the research being performed in their rohe (region). When the hui had finished there were more questions unanswered than answered.

Some of those questions were: 'Why weren't there more Māori interviewers doing the research?' 'How are Māori going to benefit?' 'Why aren't Māori leading the research?' and 'Why should we help you?' These left me once again thinking about the appropriateness of research.

So here I was again doing research that might not assist Māori directly. Before the survey was completed a job vacancy arose at Te Pūmanawa Hauora, a Māori health research centre funded by the Health Research Council of New Zealand. I welcomed the opportunity to work with like-minded Māori researchers and to make a difference in Māori health.

At that point in my life (1998) I identified as Māori, had a limited knowledge of my whakapapa (genealogy), and had no ability in te reo Māori (the Māori language). But within this supportive environment gained confidence as a Māori and was encouraged to begin this thesis. An application for a postgraduate scholarship was successful in 1999 and the consultation, funding search and research began. In 2000, the Māori attempted suicide case control study was funded and work continued toward producing this thesis.

The author wishes to acknowledge and thank Professor Mason Durie for his inspiration and guidance during the production of this research thesis. As my mentor and supervisor, Mason provided the encouragement I needed to keep going when the going got tough. Mason ensured that common sense prevailed.

My second supervisor came to me through good luck rather than good management. Dr Simon Hatcher's contribution, thoughts and advice have been invaluable. Simon made sure there was structure and consistency throughout the research process. Thanks Simon for the humour while studying such a morbid topic.

There are three departments (Te Pūtahi-Ā-Toi, Division of Māori and Pacific Health, and Department of Population Health) between Massey and Auckland universities in New Zealand that require a very big thank you. Not only did they house the research project at different stages of its implementation but all the staff members provided the encouragement and support required by a four-year project.

The extent of this project and outcome would not have been the same if not for the funding received from the Health Research Council of New Zealand and the Māori managers that have ensured continuous funding. Thanks to Andrew Sporle, Belinda Borrell, Te Herekiele Herewini and, last but by far not least, Louisa Wall.

Thanks to the project investigation team including:

Professor Mason Durie (Ngāti Rangitane): Assistant Vice Chancellor, Massey University.

Dr Simon Hatcher: Psychiatrist, Waitemata Health, North Shore Hospital and Senior Lecturer, Faculty of Medical and Health Sciences, University of Auckland.

Professor Colin Mantel: (Kai Tahu) Tumuaki, Faculty of Medical and Health Sciences, University of Auckland.

Dr Carolyn Coggan: Director, ex-IPRC, Faculty of Medical and Health Sciences, University of Auckland.

Mrs Elizabeth Robinson: Biostatistician, Faculty of Medical and Health Sciences, University of Auckland.

Professor Robyn Norton: ex-IPRC, Faculty of Medical and Health Sciences, University of Auckland.

Tikanga and technical supporters have included:

Dr Te Maire Tau: (Kai Tahu) Māori historian and tikanga supervisor.

Psychiatric liaison teams in each of the hospitals that assisted in accessing the cases.

Associate Professor Tairarahia Black Te Pūtahi-Ā-Toi, te reo Māori advisor.

All the community development site co-ordinators for Kia Piki Te Ora O Te Taitamariki: New Zealand Youth Suicide Prevention Strategy.

Kahui Tautoko Ltd (for enabling me to reach the above community development sites to share the knowledge gained during this research).

Rhonda Hooper: Statistician data analyst and study design advisor.

The Ministry of Health steering and Ministry of Youth Affairs external advisory groups co-members.

Recruiters and interviewers:

Desiree Lloyd: Māori mental health nurse, recruiter and interviewer.

Barbara O'loughlin: Special education teacher, recruiter and interviewer.

Steven Pokere: Retired All Black, recruiter and interviewer.

Riki Pereira: Recruiter and interviewer.

Elizabeth (Lil) Paniora: Recruiter and interviewer.

Elixia Derby-Ngawaka: Recruiter and interviewer.

Moana Louisi: Recruiter and interviewer.

Te Wharewaiata Webster Wepiha: Recruiter and interviewer.

Gregory Coupe: Data entry and support person.

Cherie Lovell: Research nurse and case selector.

It is important to acknowledge and illustrate the expertise of each person who supported and looked after this important research project. Each brought within them a special koha (gift) to the study to assist in preventing Māori suicide. Not only were Māori involved as lead and co-investigators in this study but they were integral at all levels of the study.

The people that I need to thank the most for putting up with me during the research are my whānau. He mihi arohatinonui ki a koutou mo tō tautoko, awhi me ngā manākitanga e pa ana ki te kaupapa *Whakamomori: Māori Suicide Prevention*. There is a story that should be written about how the research was completed with respect to those who lived with me and maybe one day I will write that too. Thanks Nanna for my whakapapa, for without that this thesis would not exist. Mum, you always accepted me for who and what I am, I may not have shown it but I did appreciate it.

Thank you Bubbie for the brainstorm sessions, company, cooking, patience, love and understanding.

During the production of this thesis I lost my Nanna and my Dad, he was my stability in life, he made sure I remained real and stayed grounded. I can hear him saying, now that I have finished the PhD, ‘So what are you going to do when you grow up ... is it time to get a job yet?’

*I dedicate this to you, Dad*



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## GLOSSARY

Hapū	Sub-tribe
Hauora	Holistic health
Hine Titama	The first Māori woman
Hinengaro	Of the mind
Huarahi	Pathway
Hui	Gathering of people
Iwi	Tribe
Kai	Food
Kainamu	Attempted (almost)
Kaitiaki	Caretaker
Kānga pirau	Rotten or fermented corn
Karengo	Edible seaweed
Kaumātua	Elder
Kaupapa	Subject or topic
Kawa	Protocol
Koha	Gift
Kohunga	Māori pre-school
Kuia	Female elder
Mākutu	Bewitch, spell
Māoritanga	Of those things Māori, Māori culture
Mana	Influence, prestige, power; psychic force; having influence or power
Marae	Māori traditional village
Mate kino	Bad death
Mate Māori	Death
Mātua	Parent
Mauri	Life principle, source of emotions
Mihi	Greet, acknowledge
Mori	Base word meaning fondle or caress
Ngā	Many
Ngā ahuatanga noho-ā-tangata	Socio-economic status
Ngā peka	Branches of a tree
Ngā rau	Leaves of a tree
Ngā whakanekeneke	Change over time
Ngāti	Tribal prefix meaning 'the people of'
Paihere tangata	Human relationship
Pākehā	Person of European descent
Papakāinga	Home, traditional cultural centres



Pakeke	Adult
Pātai	Question
Pepuere	February
Pūtake	Tree roots
Rāhui	Protect by quarantine
Rangahau	Research
Rangatahi	Youth
Rohe	Region, boundary
Taiao	World
Taitamariki	Youth
Tangata whenua	People of the land (region)
Tapu	Under religious or superstitious restriction
Tārona	Strangle
Taurekareka	Captive taken in war, slave
Te ao Māori	Māori world; Māori culture and identity
Te Karere	Māori news on Television
Te Ohu Kaimoana	Māori Fisheries Commission
Te reo Māori	Māori language
Te Tiriti o Waitangi	The Treaty of Waitangi (te reo Māori version)
Tikanga	Māori protocol
Tinana	Of the body
Tipu	Grow
Tohunga	Wizard, priest
Tūpāpaku	Corpse
Tupuna	Ancestor
Urupā	Māori cemetery
Waka Huia	Māori television programme
Waiata	Song, singing
Wānanga	Māori educational environment
Whakakoreroia	Discussion
Whakamaramatanga	Understanding
Whakamomori	Commit suicide or any other act of desperation
Whakangahau Ohaoha	Socio-economic
Whakapāpā	Genealogy
Whānau	Family
Whenua	Land
Whenua tipu	Place where person grew up



## CHAPTER 1

### HE MIHI: INTRODUCTION

As a population group, Māori do not enjoy the same level of health as other ethnic groups in New Zealand. The Government and the Ministry of Health have made the reduction of health inequalities for Māori a key priority. If Māori are to live longer, have healthier lives, and fulfill their potential to participate in New Zealand society, then the factors that cause inequalities in health need to be addressed. For Māori, suicide is an issue, which impacts not only on Māori health but also on family heritage, whānau morale, security of identity, and the Māori economy.

Māori health research has focussed on non-Māori to Māori comparison. However, the establishment and development of Māori focused research has provided a body of knowledge that is based on Māori world views and perspectives of health. This study contributes to the development of Māori health research knowledge by exploring Māori attempted suicide within an epidemiology and kaupapa Māori framework.

Suicide is not a new phenomenon. Accounts of suicide across the millennia catalogue the same factors associated with suicide as those revealed by modern scientific study in western cultures (Goldsmith et al. 2002). Suicide has been researched and analysed within the philosophical, religious and sociological paradigms for centuries. Suicide was labelled:

- as sinful where the Judeo-Christian church taught that suicide is morally wrong and prohibited it and as criminal where the state punished people who harmed themselves by death and forfeiture of their estate (Goldsmith et al. 2002; Perring, C, 1998),
- as a sign of mental illness or weakness where people who commit suicide were classified as severely disturbed (Perring, C, 1998),
- as "The Great Death" in cultures who revere people who take their own lives e.g. daishi, samurai, kamikaze pilots and seppuku (Perring, C, 1998), and

- as a rational alternative where renaissance thinkers praised death as the place of refuge from the cruelties and disappointments of life. ‘Stoicism, a philosophical position that was enunciated in ancient Athens and Rome and has since become virtually a synonym for rational control, was in actuality a last defence against the murderous squalor of Rome itself’ (Perring, C, 1998).

Historically, suicide has been studied within the moral (philosophical and religious) parameters of society; whereas contemporary research explores the interdisciplinary approaches and findings from, sociology, psychology, medical and public health.

Goldsmith and colleagues (2002) like many other suicidologists declare that Durkheim (1897/1951) was the founder of present sociological suicide studies and suicide as an index of societal well-being. He divided suicide into four categories based on an individual’s motivation and the place of an individual within society. Egoistic suicide, focuses on individual functioning and lack of social integration; altruistic suicide occurs when there is insufficient independence and over identification with groups or cults; anomic suicide occurs when there is abrupt disruptions of normative restraint (wartime, after the shock of stock market crash or the effect of colonisation) and fatalistic suicide occurs with excessive constraints such as incarcerated populations.

The 19<sup>th</sup> Century saw the growth of the medicalisation of suicide where suicide was seen as an illness rather than social failing. There are advantages and disadvantages to this approach. Emphasis is on individual factors from both biological and psychological perspectives but tends to down play the significance of wider social forces.

Interdisciplinary research has multiplied over recent years demonstrating the potential to assist in the prevention of suicide. This type of research also illustrates how different disciplines together can be integrated to research suicide. The research reported in this thesis epitomises a multidisciplinary approach to the prevention of Māori suicide.

Hennekens & Buring, (1987) describe epidemiology as one of the disciplines based on two fundamental assumptions: first the human disease does not occur at random and second that human disease has causal and preventative factors that can be identified through systematic investigation of different populations or subgroups of individuals within a population in different places or at different times. The definition of epidemiology is the study of the distribution and determinants of disease frequency in human populations (MacMahon & Pugh, 1970;).

Epidemiology developed concurrently with medicine. Hippocrates suggested in 500 BC ‘that the development of human disease might be related to the external as well as personal environment of an individual’ (Hennekens & Buring, 1987 p.4). The following two millennia these causes were considered but it was not until the 17<sup>th</sup> century that patterns of disease were quantified (Graunt, 1939). By 1839 techniques were developed to collect routine medical statistics (Humphreys, 1885). Until the latter part of the 19<sup>th</sup> century the main causes of death throughout the world were tuberculosis, smallpox, dysentery, typhoid and diphtheria (Cairns, 1978), all infectious diseases characterised by short latency periods between exposure and onset. The control of these diseases paralleled the emergence of chronic diseases, characterised by long latency periods, as major causes of mortality. Due to changes in disease distributions the term epidemic has been broadened to include diseases (infectious or chronic) occurring at a greater frequency than usually expected. Hence, suicide research has found a place in epidemiology, as a rare event, though one that is occurring at a higher frequency than expected (Hennekens & Buring, 1987).

The challenge lies in continuing to build understanding of suicide, while at the same time using the available research knowledge on risk factors to develop, implement and evaluate a range of prevention, assessment and treatment approaches and interventions to reduce suicide risk (Ministry of Health, 2001).

Kaupapa Māori research like epidemiology is not a new approach to understanding complex problems and has foundations that reach well beyond the colonisation of New Zealand (Pihama, 1993). Nepe (1991) suggests that kaupapa Māori derives from distinctive cultural epistemological and metaphysical foundations. The concept of kaupapa implies a way of framing and structuring how we think about these ideas and practices (Smith, 1996). As an analytical approach Kaupapa Māori is about thinking critically, including developing a critique of Pākehā constructions and definitions of Māori and affirming the importance of Māori self-definitions and self evaluations (Smith & Cram, 1997).

Given the high Māori rate of suicide, it is essential that approaches to research and intervention be designed to be effective for Māori. Māori models for health and wellbeing provide a context for examining the whole spectrum of prevention so that the programmes are appropriate for Māori, and there is a strong focus on addressing the broader determinants within a Māori cultural framework. In the study of suicide this specific focus emphasises whānau, hapū and iwi development and the use of cultural practices as a means to strengthen and protect Māori youth against suicidal behaviour (Lawson-Te Aho, 1998). Kaupapa Māori

research is linked to Māori participation in health and research, placing Māori experiences at the heart of the matter rather than as peripheral to it.

There are ten chapters in this thesis.

Chapter 1: He Mihi: Introduction

Chapter 2: Mate Whakamomori Ā Taiao: International Trends in Suicide

Chapter 3: Kāinamu Whakamomori Ā Taiao: International Trends in Attempted Suicide

Chapter 4: Te Huarahi ō te Whakamomori Rangahau: Methodology for Māori Attempted Suicide Study

Chapter 5: Kainamu Whakamomori,

Whakamaramatanga: Description of Māori Attempted Suicide

Chapter 6: Kainamu Whakamomori Hauora: Māori Health Status and Attempted Suicide

Chapter 7: Kainamu Whakamomori Whakangahau Ohaoha: Socio-economic Indicators of Māori Attempted Suicide

Chapter 8: Kainamu Whakamomori: Te Ao Māori, Culture and Māori Attempted Suicide

Chapter 9: Kainamu Whakamomori Whakakorotia: Discussion of Māori Attempted Suicide

Chapter 10: Poroporoaki: Māori Perspectives of Suicide Prevention

Chapter one, He Mihi: provides a brief prologue outlining the structure of the thesis. The two following chapters (Mate Whakamomori Ā Taiao: International Trends in Suicide and Kainamu Whakamomori Ā Taiao: International Trends in Attempted Suicide) are more comprehensive assessments of suicidal behaviour, globally. Both of these chapters are organised in the same way. After a brief introduction, followed by a discussion of nomenclature and a review of literature, the body of the chapter is divided into two main sections. The first section discusses non-Māori suicide and attempted suicide and the second section examines Māori suicidal behaviour. Within the non-Māori section the differences between non-indigenous and indigenous populations' suicidal behaviours are explored. Māori suicide is examined in depth (Appendix One; Coupe, 2000c). Māori attempted suicide in chapter three is explained through hospitalisation data and published literature. Finally, these two chapters conclude by discussing the limitations of the reviews.

The fourth chapter (Te Huarahi ō te Whakamomori Rangahau: Methodology for Māori Attempted Suicide Study) outlines the research methodology and is divided into the conceptual framework and the sampling methods. Within the conceptual framework the

objectives and hypothesis to be tested are introduced, followed by the methodology rationalisation, its validity and precision, and participant selection. The second section is the more detailed expression of how the research is performed rather than the theoretical framework outlined earlier. The sampling method outlines the questionnaire development, data collection procedures including kaupapa Māori processes, research protocols (Appendix Three), data quality and management, statistical issues and ethics.

Chapter five (Kainamu Whakamomori, Whakamaramatanga: Description of Māori Attempted Suicide), the first of the four 'results' chapters, describes a medical record review of Māori attempted suicide from the three Auckland public hospitals and the application of univariate analysis on the two study populations. The chapter examines cases of attempted suicide and community-based controls with respect to individual cultural indicators, demographic, socio-economic, and environmental factors, health service utilisation, and health indicators including substance utilisation and suicidality.

The sixth chapter (Kainamu Whakamomori Hauora: Māori Health Status and Attempted Suicide) provides a description of the remaining health descriptors and then reports on a bivariate analysis of the key health indicators with respect to demographic, socio-economic, interpersonal abuse and substance utilisation indicators. A multivariate model of health is produced with respect to Māori attempted suicide.

The seventh chapter (Kainamu Whakamomori Whakangahau Ohaoha: Socio-economic Indicators of Māori Attempted Suicide) describes the remaining socio-economic descriptors and employs a bivariate analysis of the key socio-economic indicators. The New Zealand deprivation index is briefly discussed with respect to attempted suicide and a socio-economic multivariate model is proposed as a model for understanding Māori attempted suicide.

The eighth and final 'results' chapter (Kainamu Whakamomori: Te Ao Māori, Culture and Māori Attempted Suicide) describes the significance of cultural indicators which are subjected to a bivariate analysis with respect to demographics, socio-economics, health indicators, substance utilisation and interpersonal abuse. A cultural identity multivariate model is produced with respect to Māori attempted suicide. Each of the four results chapters is then summarised.

The two final chapters (Kainamu Whakamomori Whakakorerotia: Discussion of Māori Attempted Suicide and Poroporoaki: Māori Perspectives of Suicide Prevention) discuss the thesis as a whole and examine old and new concepts of Māori suicide prevention.





## CHAPTER 2

# MATE WHAKAMOMORI Ā TAIAO: INTERNATIONAL TRENDS IN SUICIDE

<b>Ngā Peka Whakamomori – Suicide Strands</b>	<b>Ngā Rau Whakamomori – Suicide Threads</b>
Broad Approach	Introduction Nomenclature
	Method of literature review
Non-Māori	Non Indigenous United States of America Canada Europe Asia Australia New Zealand Indigenous Native Americans and Alaskan Natives First Nations People of Canada Pacific Peoples Australian Aborigines
Māori	Historical Contemporary Youth Risk factors (precipitating) Cultural indicators Protective factors Suicidal behaviour as a continuum
Limitations	

## INTRODUCTION

This chapter is divided into four main sections. The first section discusses nomenclature and the literature review methodology. The second section describes non-Māori suicide and examines culture in other global contexts. The third details Māori suicide from historical and contemporary perspectives. The final section examines the limitations of the literature.

## NOMENCLATURE

A conference committee on suicide prevention convened in the 1970's was charged with recommending a system for defining and communicating suicidal behaviours (Beck et al. 1972). As a result the terms 'suicidal ideation', 'suicide attempts' and 'completed suicide' were proposed. These were revisited in the 1980s, at workshops held by the American Association of Suicidology, National Institute of Mental Health and Centre for Mental Health Services, and in discussions among suicidologists (O'Carroll et al. 1996). Much of the specific nomenclature and the proposed definitions were not appreciably different from those in the 1970s. However, despite reasonable consensus the terminology continues to be debated. 'Completed suicide' for example has been defined as:

*loss of life attributable to the victim's intentional self-directed actions*  
(Wasserman and Narboni, 2002, p. 17)

or

*death from injury, poisoning or suffocation where there is evidence (either explicit or implicit) the injury was self-inflicted and the deceased intended to kill himself/herself* (Rosenberg et al. 1988, p.1445)

or

*fatal self inflicted destructive act with explicit or inferred intent to die*  
(Goldsmith et al. 2002, p.27)

In practice, in New Zealand suicide is ultimately defined by a coroner and the court. Under the Coroners Act 1988, a coronial investigation is necessary for any death that appears to be:

- a) without known cause, or
- b) suicide, or
- c) unnatural or violent.



Section 4 of the Coroners Act 1988 specifies that all unexpected deaths, including suicides, must be reported to a coroner. Police attend the death scene and a coroner is then notified. If necessary, the coroner orders an autopsy. The police conduct interviews, write a report, and send the report to the coroner. If criminal proceedings or other official investigations are required (for example, in cases of suspected medical misadventure), the coroner waits for these to be completed before holding an inquest. The coroner's verdict on the cause of death is sent to the Births, Deaths and Marriages central registry. Births, Deaths and Marriages updates its records and forwards the coroner's finding to the New Zealand Health Information Service. The cause of death is assigned a code for New Zealand's national mortality statistics.

The entire process can take several years leading to delays in the release of cause of death statistics. Provisional causes of death are assigned while coroners' reports are waited on and annual mortality statistics are released when most of the coroners' cases have been released. The statistics include deaths only where the underlying cause has been determined by a coroner's inquiry as being suicide or self-inflicted injury. New Zealand death statistics in this thesis are presented according to the year of registration of death rather than the actual year of death. Some deaths such as those occurring in late December are not registered until the following year, and as a result the number of deaths registered in a year will differ slightly from the number of deaths actually occurring during that year.

The World Health Organization developed external causes of injury codes (E-codes) as a supplemental code for use with the International Classification of Diseases. These codes provide a systematic way to classify diagnostic information entered into medical records. The international standardisation of these codes permits comparison of data among communities and between countries. Since the late 1990s mortality and morbidity data has been coded using the clinical modification of the tenth revision of the International Classification of Diseases illustrated in Table 2-1 (ICD-10MA).

The Māori language has no exact equivalent to 'suicide', but this does not mean that suicide did not occur. The term for death (mate) can carry a range of descriptors usually referred to by the circumstances in which the death occurred. For example, death by malevolent magic or through the infringement of a customary prohibition might be termed mate mākutu, whereas death through injury would be mate tangata (Durie, pers comm.).

Table 2-1: Coding and classification of suicide and self-inflicted injury death.

Code	Description
E950-959	Suicide and self-inflicted injury by:
E950	Poisoning by solid or liquid substances (analgesics, antipyretics and antirheumatics, barbiturates, other sedatives and hypnotics, tranquillisers and other psychotropic agents, agricultural or horticultural chemical and pharmaceutical preparations, corrosive and caustic substances, and arsenic).
E951	Poisoning by gases in domestic use (gas distributed by a pipeline, liquefied petroleum gas or other utility gas).
E952	Poisoning by other gases and vapours (motor vehicle exhaust gas and other carbon monoxide).
E953	Hanging, strangulation and suffocation.
E954	Injury by submersion (drowning).
E955	Firearms and explosives.
E956	Cutting and piercing instrument.
E957	Jumping from high place.
E958	Other and unspecified means (jumping or lying before moving object, burns, fire, scalding, extremes of cold, electrocution, crashing of motor vehicle, crashing of aircraft, caustic substance excluding poisoning).
E959	Late effects of self-inflicted injury.

Source: World Health Organization

The Māori term whakamomori is often used as an equivalent to suicide of any type, but this usage is relatively recent and masks the precision with which Māori recognise different contexts for suicide. More correctly, whakamomori does not imply death directly, rather a loss of alternatives that can be so overwhelming to the individual as to lead eventually to their death. An example where the term ‘whakamomori’ would be applied is when a personal or family insult not acted on resulted in extreme personal and familial distress. The root word ‘mori’ has a variety of meanings, including longing, pining, unfulfilled desire, loss or broken attachment and depression, but also fondness physically expressed, as in stroking or fondling, and the smoothing of flesh in a culture where touch and massage are recognised as forms of comfort and ways of promoting well-being. Whakamomori includes all of these thoughts, feelings and actions, but are not necessarily fatal. Specifically, mate whakamomori would be a death occurring in such a state (Joseph, 1997).

## **METHOD OF LITERATURE REVIEW**

The review provides an overview for narratives that addresses suicide research from epidemiological and cultural perspectives. The information from the literature has been presented with a description of the way the studies were designed and undertaken. The chapter assesses the information derived from research approaches using several different

study designs. These study designs have included (with the appropriate identification) opinion articles, descriptive studies, review articles, case control studies, cohort studies, controlled trials, randomised-controlled trials and meta-analyses.

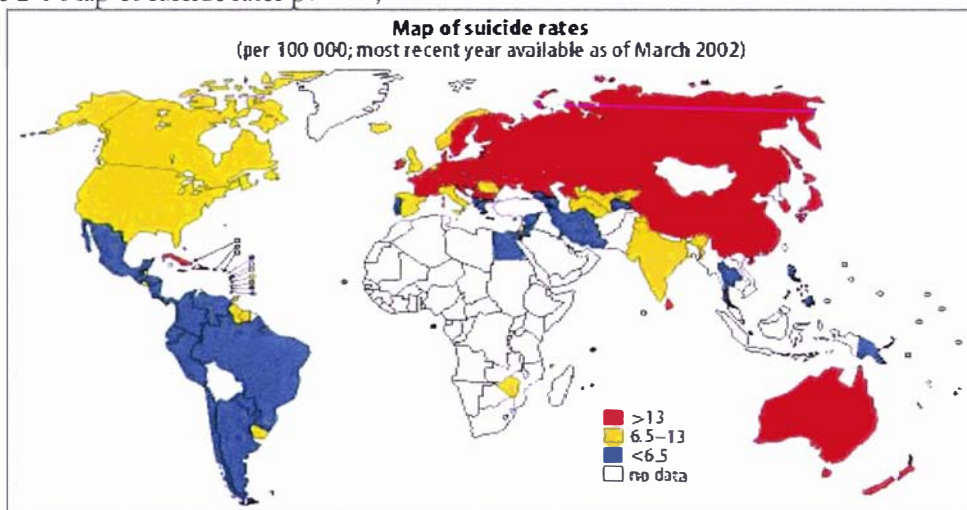
This thesis has used a semi-structured approach to the literature review. Search key words were: suicide, attempted suicide, self-harm, self-inflicted injury, mortality, morbidity, epidemiology, statistics, culture, acculturation, colonisation, indigenous, Māori, American Indian, Native Alaskan, First Nations, Canada, Australian, Aboriginal, United States of America, European, Pacific, Asia, risk & protective factors, mental health, and global suicide.

However, the review process being similar to that used by New Zealand Health Technology Assessment (1998) had inherent problems; studies were limited to English and Māori language and only the following databases were employed: Medline, Embase, Cinahl, Pyschlit, Centre for Disease Control (USA), Ministry of Health (NZ), Canadian Medical Association website and New Zealand University library online catalogues. The review has taken the most pertinent components of the research that may be relevant to preventing Māori suicide. The literature formed the basis for the questionnaire development and the research design.

## NON-MĀORI SUICIDE

Suicide is a global problem and a leading cause of death claiming approximately one million lives annually worldwide (World Health Organization, 2004; Figure 2-1). Internationally there is a geographic heterogeneity (Table 2-2), suggesting the environment, demography, health, society and cultural differences have a significant impact on suicide rates.

Figure 2-1 Map of suicide rates per 100,000.



Source: World Health Organisation, 2004



Goldsmith et al (2002) have investigated a number of studies internationally, finding higher rates of suicide in rural areas (Plotnikov, 2001; Yip, 2001; Yip, Callana & Yuen, 2000), particularly in China, where the rate is two to five times greater in rural regions (Ji, Kleinman & Becker, 2001; Jianlin, 2000; Phillips, Liu & Zhang, 1999; Yip, 2001), Australia (Wilkinson & Gunnell, 2000) and the Ukraine (Kryzhanovskya & Pilyagina, 1999).

Table 2-2: International suicide rates (per 100,000)

Country	Male	Female	Total	Year
Armenia	4.0	0.7	2.3	2002
Australia	20.1	5.3	12.7	2001
<i>Aboriginal &amp; Torres Strait Islander (Queensland)</i>			109.0	1998
Austria	30.5	8.7	19.3	2002
Azerbaijan	1.8	0.5	1.1	2002
Belarus	60.3	9.3	33.2	2001
Brazil	6.6	1.8	4.1	1995
Canada	18.4	5.2	11.7	2000
<i>Canadian native</i>	56.3	11.8	40.2	1991
<i>Nunavik</i>			82.0	1997
<i>Labrador</i>			30.0	1997
<i>Nunavut (Inuit 85% of population)</i>			77.0	1997
China	13.0	14.8	13.9	1999
<i>Rural area</i>	20.4	24.7	22.5	1999
<i>Urban area</i>	6.7	6.6	6.7	1999
Finland	32.3	10.2	21.0	2002
Germany	20.4	7.0	13.5	2001
Hungary	45.5	12.2	28.0	2002
India	12.2	9.1	10.7	1998
Ireland	20.3	4.3	12.2	2000
Italy	10.9	3.5	7.1	2000
Japan	35.2	13.4	24.1	2000
Kuwait	1.9	0.9	1.5	2001
Lithuania	80.7	13.1	44.7	2002
Mexico	5.4	1.0	3.1	1995
New Zealand	18.3	5.5	11.7	2001
<i>NZ Māori</i>	20.7	6.8	13.4	2001
Norway	18.4	6.0	12.1	2001
Poland	26.7	4.3	15.2	2001
Republic of Korea	20.3	8.6	14.5	2001
Russian Federation	69.3	11.9	38.7	2002
Sri Lanka			21.6	1996
Sweden	18.9	8.1	13.4	2001
Tajikistan	4.2	1.6	2.9	1999
Ukraine	52.1	10.0	29.6	2000
United Kingdom (Great Britain & Northern Ireland)	11.8	3.3	7.5	1999
United States of America	17.1	4.0	10.7	2000
<i>USA Whites</i>	19.1	4.4	11.7	1999
<i>USA Non-whites</i>	10.2	2.2	6.0	1999
<i>USA Native Alaskan &amp; American Indian</i>			12.1	1999
<i>USA African American</i>	10.0	1.6	5.6	1999

Sources: Bureau of Justice Statistics, 2001, Goldsmith et al. 2002, Ministry of Health 2004, Statistics Canada, 2004, World Health Organization, 2004a; and www.suicideprevention.ca

The differing international rates are illustrated in Table 2-2 with national rates as low as 1.1 per 100,000 (Azerbaijan) and as high as 44.7 per 100,000 (Lithuania). In addition it is evident

that within nations there is variation between ethnicities and location. With the exception of China, in all other countries the rate of male suicide was from 1.3 times (India) to 6.25 times (United States of America, African Americans) the female rate. The lowest male rate was in Azerbaijan (1.8 per 100,000) and the highest male rate was in Lithuania (80.7 per 100,000). The highest female rate was in rural China (24.7 per 100,000) and the lowest in Azerbaijan (0.5 per 100,000).

### **Non-Indigenous Suicide**

This section examines the non-indigenous global perspective of suicide with particular reference to suicide in the United States of America (USA), Canada, Asia, Europe, Australia and New Zealand. Comparisons are limited to some extent as countries have different evidentiary standards for ascertaining death by suicide. For the purposes of this thesis indigenous populations are those who are native to the country from which they originate. Therefore, non-indigenous populations are people who are not native to the country.

#### *United States of America*

Approximately 30,000 lives a year are lost in the USA through suicide. In 1999, the suicide rate was 10.7 per 100,000, greatly exceeding the rate of homicide (6.2 per 100,000) over the last 100 years (Bureau of Justice Statistics, 2001; Goldsmith et al. 2002). Suicide was the third leading cause of death in youth aged 15-24. White males over 85 years had the highest rate of suicide, about 65 per 100,000. Suicide rates are elevated in some ethnic groups, with native Alaskan and American Indian having higher suicide rates than both whites and blacks (Table 2-2). In 1998, firearms accounted for the majority of suicides in the general population (57%) and among youth (61%). Suffocation (18.7%; 25%), poisoning (16.6%; 7%) and falls (2%; 2%) follow (National Center for Injury Prevention and Control, 2000).

#### **African Americans**

Goldsmith et al (2002) cite studies on the prevalence of African Americans suicide and historically they have been lower rates than whites, American indigenous and non-white peoples (Table 2-2). In the 15 years between 1980 to 1995, suicide rates for black youth aged 10-19 more than doubled (2.1 to 4.5 per 100,000). Whereas suicide rates for elderly black men (12 per 100,000) was a third of that of elderly white men (37 per 100,000). The rising rates were noted as early as 1938 by Prudhome, who predicted that as blacks acculturated into white middle class society their suicide rates would increase. Others have suggested young black men like elderly white males, feel society has no place for them (Bell, 1986; Bell

& Clark, 1998; Robins, West & Murphy, 1977). Suicide rates for black women have been remarkably low and stable over the last 20 years (2 per 100,000). The relatively low suicide rates among African Americans, especially women, have been subject to debate. Spirituality, a belief in an afterlife, secular attitudes toward suicide and connections to community institutions (Comer, 1973) have all been proposed as contributions to the lower rates (Goldsmith et al. 2002).

#### *Canada*

Suicide has accounted for about two percent of annual deaths in Canada since the late 1970s. Between 1960 and 1991 the suicide rate in Canada increased from 7.8 to 12.8 per 100,000, peaking at 14 in 1986. This had plateaued in 2000 at 11.7 per 100,000 (Table 2-2) Eighty percent of all suicides reported in 1991 involved men and the male to female ratio for suicide risk was 3.8:1 (4:1 in 1960). In 1991 the highest suicide rate for males was in the group aged 20–24 years (33.3 per 100,000), followed by those aged 25–29 (29.7 per 100,000), and those aged 30–34 (29.2 per 100,000). The highest rate for females was in the group aged 40–44 years (8.3 per 100,000), followed by those aged 45–49 (7.7 per 100,000), and those aged 30–34 (7.3 per 100,000). Preferred methods of suicide remain unchanged. In 1991, males chose firearms (36%), hanging (30%) and by gas vapours (10%). Females chose ingesting solid or liquid substances (38%), hanging (24%) and drugs or medication (12%) (Statistics Canada, 1993).

#### *Europe*

Continental Europe comprises 51 countries and some 870 million citizens. It includes some of the richest and poorest nations in the world. Deprivation, hopelessness and an absence of resources are key factors in determining the incidence of suicide. The greatest risk of suicide in the United Kingdom (UK) occurs in inner-city urban communities, while conversely, rural areas pose the greatest risk in Eastern Europe (Table 2-3; Stone, Chishti and Roulston, 2002).

A European project entitled EUROSAVE – European Review of Suicide and Violence Epidemiology was initiated in response to the increasing level of suicide throughout Europe. The EUROSAVE project aimed to pool expertise in epidemiology and injury research from across the European Union (EU) to support and strengthen the community epidemiological network for monitoring suicide. For the purposes of this research the EU consisted of the original 15 member states listed in Table 2-3 investigated from 1984-1998. Finland had the highest suicide rate for 1997 (23.8 per 100,000) while Greece had the lowest (2.8 per



100,000). Significant downward trends occurred in Austria, Denmark, France, Germany, Greece, Netherlands, Portugal, Sweden and the UK, while significant upward trends were observed in Spain and Ireland. Significant downward trends in male mortality were observed for seven of the 15 EU countries, while 11 countries reported significant declines in female rates over the study period. Older males, who were separated and the unemployed were among the high-risk groups identified (Stone, Chishti & Roulston, 2002). The following research through Europe was amassed from the EUROSAVE project with a number of publications and technical reports produced (Brennan, 2001; 2001a; b; Chishti, 2001; a; b; c; Stone, Chishti & Roulston, 2002; Morrison, Stone & EURORISC Working Group, 2000; a; EUROSAVE Newsletter 1-3).

In contrast a large epidemiological study investigating injury mortality in the EU from 1984 to 1993 suggested that in most European countries the age-standardised mortality rates due to suicide and self-inflicted injuries have been declining (Chishti, 2001; Morrison, Stone & EURORISC Working Group, 2000; 2000a).

Table 2-3: Summary of European suicide

Country	Over time	♂:♀	At risk groups	Comment
Austria	Decline 1989-96			
Belgium	Initial increase then decrease after 1994			
Denmark	Greatest increase ♀ 1991		♂ aged 30-59	Individuals right, violent methods
Finland	Increasing			Poisoning
France	Leading cause of death, doubled	30.5:11.7		Hanging & firearms
Germany	Small decline		♂ aged under 25	Berlin Wall down
Greece	Increase since 1992		Same ♂; decrease ♀	
Ireland		~3:1	Increase ♂	
Italy	Increasing		Increase ♂; same ♀	
Luxembourg	Doubled peak 1991			
Netherlands	10% drop 1985 to 1992		Elderly ♂	Unemployment down & religion
Portugal	Decrease			
Spain	Consistent		Decrease ♂; increase ♀	
Sweden	Significant decline	5:1-2.6:1	Highest aged 45-64	
UK	Conflict about increases & decreases	♂ increase	♂ 83% increase, ♀ 11% increase, elderly decline	Hanging up & drowning down

Source: summary from the following sections

Diekstra (1996) reported that Austria had relatively high suicide rates compared to Southern European countries around the period 1986–1988. Rates were reported as 33.6 per 100,000 males and 13.3 per 100,000 females. The World Health Organization (1998) announced a

decline in both rates when comparing 1989 and 1996 (29 per 100,000 to 27 per 100,000 for males and 10 per 100,000 to 8 per 100,000 for females) (Chishti, 2001).

The annual rate of suicide in Belgium was reported as 30.5 per 100,000 males and 12.3 per 100,000 females between 1985 and 1989 (Befrienders International, 1995). Suicide rates rose greatly from 1980 to 1994, but declined thereafter. A European study (World Health Organization, 1998) reported no change in the suicide rates for 1989 and 1992 (22 per 100,000 males and 9 per 100,000 females) (Chishti, 2001).

Denmark has regarded suicide as an individual's right (Zinn et al. 1994) perhaps explaining why it has one of Europe's highest suicide rates. Most suicides have occurred among men aged 30–59. However, the largest rate observed in 1991 was among women aged 40–54. Violent methods such as hanging, shooting and suffocation were the most popular for males. Females preferred poisoning themselves with sleeping pills or other medicines. Drowning was the third most common method for both sexes (Chishti, 2001).

Ohberg et al (1995) reported that Finland was a country of high suicide mortality with an upward trend in suicide rates. Overall suicide rates in Finland rose significantly from 1947 to 1990. There was a significant increase in suicide rates in all age groups for males except for the group aged over 64. In females, the increase was significant for those aged 35–64 years. There was an increase in mortality rates by all methods of suicide but the increase was greatest for poisoning in all age groups for males and females aged over 34 (Chishti, 2001).

By 1992, France appeared to have one of the highest suicide rates in Europe (Zinn et al. 1994). Moreover, official suicide data may have underestimated the number of suicides because of underreporting. Mortality statistics for 1991 indicated that 2,552 people died of trauma and poisoning but there was no information on intent. A further 2,814 died as a result of accidents, but there was no indication of why or how the accidents occurred. The suicide rate was almost three times higher for males than females (30.5 per 100,000 compared with 11.7). Male suicide rates doubled from 17.7 per 100,000 in 1975 to 35.5 in 1989. During the same period the rate increased by almost 50% among men aged 20–29 (from 13 per 100,000 to 26). By 1992, suicide was the leading cause of death among the 25–34 age group. Forty percent of males committing suicide did so by hanging and 30% used guns. One in four females hanged themselves and another one in four used poison. Drowning was more common in females than males (one in five compared to one in 14) (Chishti, 2001).

The small decline in German suicide rates from 1989 to 1991 may have reflected the enthusiasm for the new political era, which began after the fall of the Berlin Wall (Zinn et al. 1994). The reduction in suicide rates at the time was not confined to any particular age group. However, men under the age of 25 may have been more likely to commit suicide because of unemployment and drug problems (Chishti, 2001).

Suicide rates in Greece in 1993 were reported as 6 per 100,000 for males and 2 per 100,000 for females (Befrienders International, 1995). The number of suicides in 1990 and 1992 declined, but has significantly increased since for both genders. The male suicide rates for 1989 and 1995 remained unchanged at 5 per 100,000 males. However, the female rate fell from 2 per 100,000 to 1 per 100,000 (Chishti, 2001; World Health Organization, 1998).

Studies in Ireland showed that from 1976 to 1995 the average national suicide rate for males was almost three times that of females (12.9 per 100,000 compared to 4.5) (Kelleher, 1997; Kelleher, 1998). The increasing number of male suicides was reflected in the increase in male to female suicide ratios. Between 1976 and 1985, the male to female ratio was 2.3:1. However, by 1994 this had risen to 3.4:1 (Chishti, 2001).

Annual Italian suicide rates 1985–1989 were reported as 12.2 per 100,000 for males and 4.1 per 100,000 for females (Befrienders International, 1995). Since then a marked upward trend has been experienced. World Health Organization (1998) reported an increase in male suicide rates, from 8 per 100,000 in 1989 to 9 per 100,000 in 1993, with no change in the female rate (3 per 100,000) (Chishti, 2001).

During 1985–1989 Luxembourg suicide rates were reported as 12.3 per 100,000 males and 5.1 per 100,000 females (Befrienders International, 1995). By 1993 the rates rose significantly to 24.6 per 100,000 males and 7.9 per 100,000 females. Although these increases were substantial, the rates had peaked in 1991 (28.4 per 100,000 males and 11.7 per 100,000 females) (Chishti, 2001).

From 1985 to 1992 a drop of 10% in suicide rates was observed for most groups (not males aged 30–39) in the Netherlands (Zinn et al. 1994). Suicide was most prevalent among elderly men. In 1992 the rates stood at 28 per 100,000 in the 70–79 age group and 46 per 100,000 in the group aged 80 or more. Hanging was the most common method of suicide for males and females (40%). Growing religious interest and a reduction in unemployment were suggested as possible reasons for the reduction in suicide rates among young adults. A more recent study in the Netherlands suggested that suicide acceptance is lower among individuals who

espouse religious beliefs than those who do not (Neeleman, 1998). Decreased suicide acceptance was associated with lower levels of permissiveness and higher levels of church attendance, religious affiliation, orthodoxy and salience of belief. Increased suicide acceptance was associated with young, urban residence, unemployment, single and childless status (Chishti, 2001).

The overall suicide rate in Portugal was 7.9 per 100,000 in 1993 (Befrienders International, 1995). During 1985–1989 the rates had been 15.2 per 100,000 males and 4.4 per 100,000 females. The rate for males was high over this period compared to other European countries. For the years following this period, suicide rates showed a gradual decline (Befrienders International, 1995). The WHO (1998) reported no change in either the male or female rate for 1989 and 1995 (9 per 100,000 males and 3 per 100,000 females) (Chishti, 2001).

Annual suicide rates in Spain were reported as 12.1 per 100,000 males and 3.4 per 100,000 females during 1985–1989 (Befrienders International, 1995). A decline in the male suicide rate was experienced in 1990. However, an increase in the rate was reported for females. Suicide rates for 1989 and 1993 remained consistent at 9 per 100,000 males and 3 per 100,000 females (Chishti, 2001; World Health Organization, 1998).

In Sweden, suicide rates have been reported to be highest among those aged 45–64 (National Centre for Suicide Research and Prevention of Mental Ill-health, 2003). From 1980 to 1997 Sweden experienced a significant decline in suicide rates in all age groups. Over the last century the ratio of male to female suicide rates rose from 5:1 in 1900 to 2.6:1 in 1997. From 1980 to 1997 suicide rates decreased among those aged 15 and over from 48.2 per 100,000 to 30.9 for males and from 19.1 per 100,000 to 11.8 for females (Chishti, 2001).

The 1970s and 1980s England and Wales saw a rise in male suicide rates in (Chishti, 2001). However, that trend has reversed and the suicide rate for both sexes is now decreasing (McClure, 2000; Yamey, 2000). McClure (2000) observed that from 1990 to 1997 the suicide rates for males and females decreased in all age groups. However, Middleton and Gunnell (2000) disagreed, arguing that suicide rates in males aged 25–34 year continued to increase and, while overall suicide rates were declining, these reductions masked rising trends in younger age groups. A study of gender differences in suicide trends among those aged 15–34 (Gunnell, 1999) was observed between 1968–1970 and 1993–1995, male suicide rates increased by a remarkable 83%, while female rates decreased by 11%. Suicide by hanging increased for both genders, while drowning decreased. Drug overdose was the preferred



method of suicide for females. Suicide rates in the elderly have been declining in England and Wales according to a study of mortality data for 1985 to 1996 (Hoxey & Shah, 2000). Rates for most methods of suicide were greater for males than females (Chishti, 2001).

From 1981–1983 to 1991–1993 suicide rates among males aged 15-29 increased by 66% in Scotland (McLoone, 1996). However, the rate among those aged 30 changed little. There was an increase in overall female suicide rates, but a 28% decrease in those aged 30 or over. There was a lower rate of suicide in affluent areas than in deprived areas, and although suicide rates for both sexes aged 15-29 rose in all areas, the rise was greatest in deprived areas. More generally, suicide rates in Scotland diverged from those in England and Wales in the late 1970s and early 1980s, with a rapid increase in rates among Scottish men and no clear trend in rates among women (Crombie, 1990; Stark & Mathewson, 2000). Further investigations suggest that suicide rates among men in these countries have continued to diverge in the 1990s (Chishti, 2001; Stark & Mathewson, 2000).

Europe has an estimated one million completed suicides per year (World Health Organization 1999) and suicide is considered one of the three principal causes of death among young Europeans (Webber, 2000). Although suicide rates are higher in some EU countries than in others, they do not reach the levels seen in Eastern Europe. The cause of such differences between countries is unknown (European Commission, 2000). The patterns of suicidal behaviour in Europe are divergent and sometimes unexpected. In some EU member states the rates are falling, while in others dramatic increases are being seen (Chishti, 2001).

### *Asia*

The incidence, patterns and trends of suicide differ considerably between Asian and Western countries. They also differ within Asian countries and regions. A higher risk of suicide appears to be associated with political reversion, low social status, migration and a higher level of social integration. There are some culture-related suicides in Asian regions associated with gender. These are dowry suicides among young married women and Suttee (self-cremation) among widows in India, hari-kari in men and shinju in Japan, and juramentado in Islamic men (Cheng & Lee, 2000).

Gender differences in suicide rates are less pronounced in Asian nations than in Western nations and tend to be less than two fold. China is unique in this regard, with more female than male suicides, although the gap has narrowed in recent years (World Health Organization, 2001).

## China

Suicide is an alarming social problem in China claiming about 300,000 lives each year (Brown, 1997; Murray & Lopez, 1996; World Health Organization, 1988–1995) and more women (14.8 per 100,000) than men (13.0 per 100,000), with higher rates in rural (22.5 per 100,000) areas than in urban (6.7 per 100,000, Table 2-2) and greater risks for the population aged 15–24 than the younger and the older (Macleod, 1998; Phillips et al. 1999; Pritchard, 1996; Qin & Mortensen, 2001; World Health Organization, 1988–1995; Yip, 2001; Zhang, 1996, 2000b). Researchers both in and out of China are trying to identify the factors that account for the high suicide rates among young rural Chinese women (Ji, Kleinman & Becker, 2001; Lester, 1994b; Yip, Callanain, & Yuen, 2000; Zhang, 2000a; Zi-Liang et al. 2002). To understand the causes and socio-environmental factors of completed suicide, psychological autopsy is one scientific method available to researchers (Clarke & Horton-Deutsch, 1992). Phillips, Liu and Zhang (1999) offered a multi-factorial model to explain the high rates of suicide in China. From that perspective, the macro-environment of the community (including cultural, political and economic factors), the local worlds of individuals (social identity and networks), and individual characteristics (personal resources, stressors and biological and psychological statuses) explain the unusual risk factors (rural residence and female gender) for suicide in China.

## India

Given the size of their population, almost 30% of all cases of suicide worldwide are in China and India alone, although the suicide rate of China practically coincides with the global average and that of India is almost half of the global suicide rate (Bertolote & Fleischmann, 2002). Suicide rates vary greatly in India between 8.1 and 58.3 per 100,000 (Gururaj & Isaac, 2001). The most common methods used were drowning, hanging, poisoning and self immolation (Nandan, 1994).

Indian history has recorded several instances of suicide, particularly by Rajput women to save their dignity when it was in danger. The mass suicide by self-immolation was called 'johar'. The 'sati' (system), which was prevalent in India, is an example of altruistic suicide. In India, the suicide rate was approximately 10.7 per 100,000, (1998, Table 2-2) although different rates have been reported in the literature: 38 per 100,000 (Aiyappan & Jayadev, 1985), 43 per 100,000 (Venkoba Rao, 1971); and 28.6 and 5.1 per 100,000 in two different districts in West Bengal (Nandi, Banerjee & Boral, 1978). Shukla, Verma and Mishra (1990) studied suicide in Jhansi city over a period of two years. The annual incidence reported in this study was 29 per



100,000. Sharma and Swang (1993) reported a rate of 22.8 per 100,000 in the Warangal district of Andhra Pradesh.

#### Japan

In Japan there a number of terms for suicide depending on the circumstances. A Japanese magazine (Japanzine, 2003) has listed a number of terms describing the circumstances and these include: *jisatsu* (plain suicide), commonly used in contemporary times, more historically significant terms include *hara-kiri* (Fuso, 1985), and *seppuku*, *inseki jisatsu*, (alleviate guilt), and *jyunshi* (following your lord in death). *Seppuku* has a sub-category called *jumonji-giri*, in which a second, even more painful vertical cut is added to the regular horizontal one, to show you're really sorry. Another famous term is *shinju* (double suicide; Ohara, 1985), more recently includes murder-suicide (Ohara, 1963, 1965; Inamura, 1977, 1993). If the suicides are both voluntary, they are called a *goi shinju* whereas murder-suicides are called *muri shinju* (Marzuk, Tardiff, and Hirsch, 1992); *oibara* (following your feudal lord in death by committing *seppuku*, which is further sub-divided into *maebarara* and *sakibara*, (whether you kill yourself just before or just after your lord dies), *kobara* (suicide for the sake of your children), and *rokubara* (suicide for the sake of your family). Archaic though these terms may be, General Nogi Marusuke committed *oibara* upon the death of the Mieji emperor in 1912, a famous writer Yukio Mishima committed *funshi* (suicide to express indignation) as late as 1970, and *inseki jisatsu* is still common among disgraced public officials and failed businesspeople.

In 1999 Japan had a record number of suicides attributed to the nations prolonged economic slump. Previous years reasons for suicides were largely associated with ill health (41% of cases). A notable increase was seen in suicides for those who were having financial difficulty. Japan's suicide rate in 2000 was 24.1 per 100,000 (Table 2-2), one of the highest in the world. Males accounted for 70% of the deaths and of those 40% were in their 40's (54.7 per 100,000) and 50's (65.8 per 100,000). To note however Japans female suicide rates are internationally relatively high (13.4 per 100,000) and have been in the past as high as 19.0 per 100,000 in 1955.

#### Pakistan

Very little information was available in the international literature about Pakistans' suicide rates and trends. Self-poisoning, especially with insecticides, was the most common method of suicide in Pakistan (Khan & Reza, 2000).

### Sri Lanka

Sri Lanka has the dubious distinction of reporting one of the highest rates of suicide in the world (LaVecchia, 1994). In 1995, the reported incidence of self-inflicted death was 47 per 100,000 people. In some regions of the country, the death toll has climbed to 118 per 100,000 (Ratnayeke, 1996). The rate reflects a nearly eightfold increase in the number of self-inflicted deaths over the last 50 years. Information about the number of suicides has only limited use. Beyond collecting descriptive statistics there has been little research about suicide in Sri Lanka. For several years, the most common means of suicide has been self-poisoning, especially in rural areas where agrochemicals (such as weed killers, pesticides and soil fumigants) and poisonous plants are freely available. The 1995 data on suicide deaths reported that men and women chose similar methods of suicide, with the largest proportion of each sex choosing self-poisoning. Other common means were hanging, drowning oneself in a well, and self-emolliating. Men were more likely to hang themselves and women were more likely to drown or burn themselves, but these differences were small (Marecek, 1998).

Gender differences in suicide rates are less pronounced in Asian nations than in Western nations and tend to be less than two fold. China is unique in this regard, with more female than male suicides, although the gap has narrowed in recent years (World Health Organization, 2001).

### *Australia*

In Australia, the 2001 reported suicide rates for males and females (20.1 and 5.3 per 100,000 respectively World Health Organization, 2004a) was similar to those in 1887 (20.6 and 5.5 per 100,000). However, data collected over a long period must be interpreted cautiously, as data collection procedures and standards will have changed (Australian Bureau of Statistics, 1994, 1997). In terms of trends, the overall rates have remained fairly constant. There was a peak for males during the 1920s depression, and then a further peak for both male and female suicides in the early to mid-1960s, coinciding with the prescription of barbiturates. A significant decline was evident later in the 1960s when a safer sedative, benzodiazepine, was made available (Oliver & Hetzel, 1973). The most striking observation about Australian suicides however is the huge difference between indigenous and non-indigenous rates (Table 2-2).

### *New Zealand*

Colin Tatz (1999) sums up the state of non-Māori suicide succinctly describing studies as: efficient, professional, compact and strongly directed towards the medical and psychiatric

model. Coggan and Norton (1994), who have completed work on youth suicide in Auckland and published strategy papers for reducing 'self-directed harm'. Their work illustrated two themes. First, self-harm, of the suicide variety, 'had significant individual and societal costs, compared with other health problems'. Secondly, a strategy was needed 'to improve the identification, referral and treatment of persons at high risk of suicide by caretakers and "gatekeepers" in the community' ('gatekeepers' in this context mean medical personnel). The work is typical of non-Māori suicide research, steeped in a medicalised public health model with occasional reference to cultural factors or socio-economic disadvantage (Tatz, 1999, p118). Rarely mentioned were the historical and political dimensions of suicide. New Zealand research has suggested there was more death and cost to the nation in suicide than in road accidents, alcohol consumption and drug abuse or criminal behaviour. Most of the research posits what Szasz (1996) and Hillman (1997) have shown to be quite ineffective in and handling of suicide 'treatment' by 'caretakers' and 'gatekeepers'(Tatz, 1999).

#### History

New Zealand's Health Information Service supplied suicide rates 1889 to 1988 from routinely collected records for the following section. The overall rate for women has been stable since the 1930s and the male rate showed marked peaks in the early 1930s and 1980s. Analysis of rates by age group revealed that the 1930s male peak was due to increases among middle-aged men. A more current peak is due to increases among young men. The crude rate show four different patterns: rising rates until the mid-1920s; marked peaks around the great depression; low rates from 1945 to mid-1960s; followed by an unremitting rise (Langford, Ritchie & Ritchie, 1998). Langford, Ritchie & Ritchie (1998) suggested on the basis of Durkheims' theories that the change in social conditions explained regional and temporal fluctuations in suicide rates. Suicide rates paralleled periods of economic recession and unemployment in New Zealand. It is possible the stable suicide rates for females was due to intrinsic individual factors and women being less affected by social and economic changes than men (Deavoll et al. 1993).

#### Contemporary

Suicide is a significant public health issue in New Zealand, and a major source of mortality and health costs (Ministry of Health, 2001). In 2001, 499 New Zealanders killed themselves, compared with 458 in 2000, 516 in 1999 and 577 in 1998 (Ministry of Health, 2004). Because suicide is, in statistical terms, an uncommon event and rates vary from year to year, it is better to look at the total pattern of suicide rates over several years.

The age standardised suicide rate for the total population was 11.7 per 100,000 in 2001 (Table 2-2), compared to 12.1 per 100,000 in 1990 (age-standardised rates are rates that have been adjusted to account of differences in age distribution of the population over time). The 2000 rate was the lowest since 1985 (9.3 per 100,000). The rate of suicide for males was 18.3 per 100,000 in 2001 compared with 19.7 per 100,000 in 1990. This is the lowest rate since 1986 (17.0 per 100,000). The rate of suicide for females was 5.5 per 100,000 in 2001 compared with 4.0 per 100,000 in 2000. In 2001 the all-ages sex ratio for suicide in New Zealand was 3.3 male suicides to every female suicide (Ministry of Health, 2004).

Mortality data in New Zealand has three sources (death certificates, post-mortem and death registration) that are informed by various individuals (for example general practitioners, pathologists and funeral directors), who provide information necessary to maintain the index. In New Zealand death is categorised according to the Australian version of the International Classification of Diseases, (Coupe, 2000a; National Center for Health Statistics, 2003; World Health Organization, 1993) as

*disease or injury, which initiated the train of events leading directly to death, or the circumstances of the accident or violence, which produced the fatal injury*

However, the definition of death through suicide and self-inflicted injury is problematic. Due to the extremely broad criteria used by different coroners (from various backgrounds) throughout New Zealand, suicides can be misclassified. For example single occupant motor vehicle accidents maybe classified as accidents rather than suicide (Coupe, 2000b). The external cause of death or E-codes are used to classify suicide and self-inflicted injury further and have been described in the nomenclature section at the beginning of this chapter (Table 2-1).

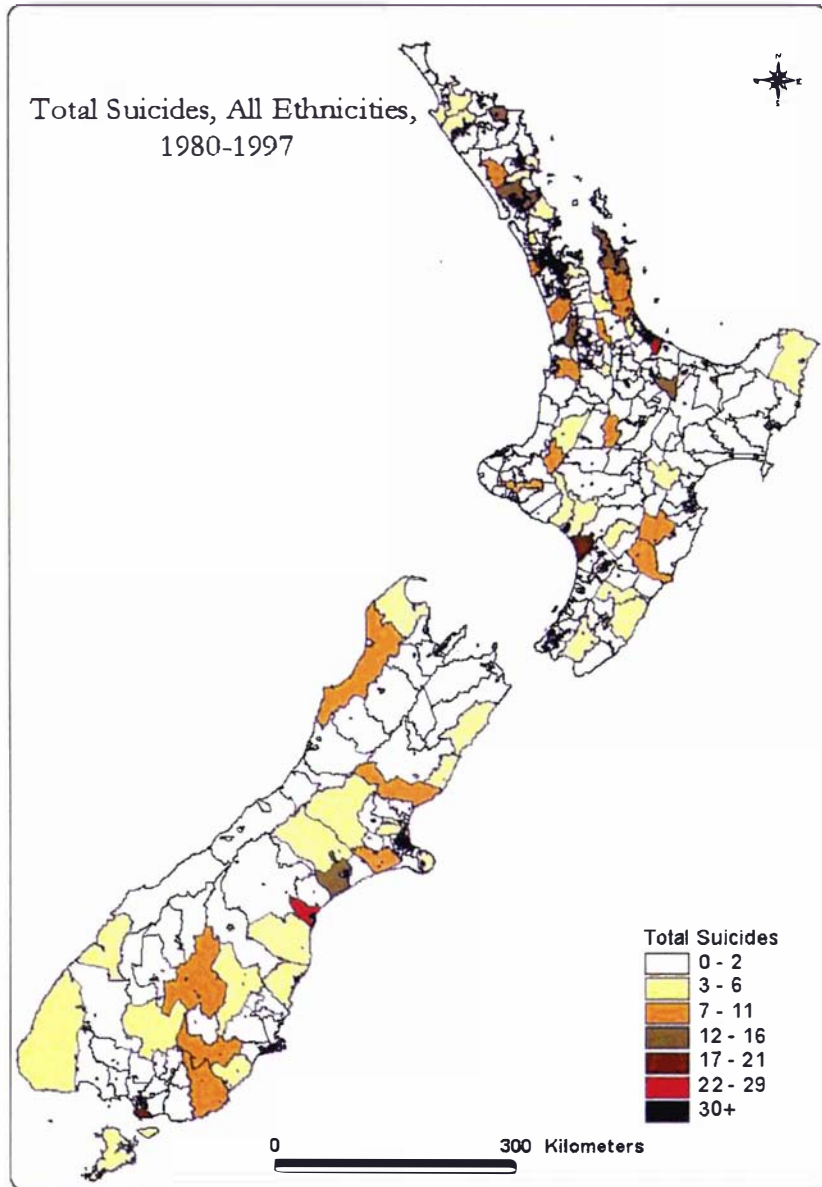
In 2001, the highest rates of suicide were among those aged 20–24 (25.3 per 100,000), followed by those aged 25–29 years and 30-34 years (21.7 and 21.2 per 100,000). Among males, those aged 20-24 years had the highest age specific suicide rate (42.8 per 100,000) followed by those aged 30-34 years and 40-44 years (35.8 and 34.4 per 100,000). Among females, 80-84 year olds (15.3 per 100,000), those 25-29 years and 15-19 years (12.8 and 9.5 per 100,000) had the highest rates (Ministry of Health, 2004).

### Regional variation

As Figure 2-2 shows the distribution of suicide in Aotearoa/New Zealand is wide and not concentrated in any one region. The highest number of suicides between 1980 – 1997 were in South Canterbury, Western Bay of Plenty and South Auckland regions (20-29 suicides).



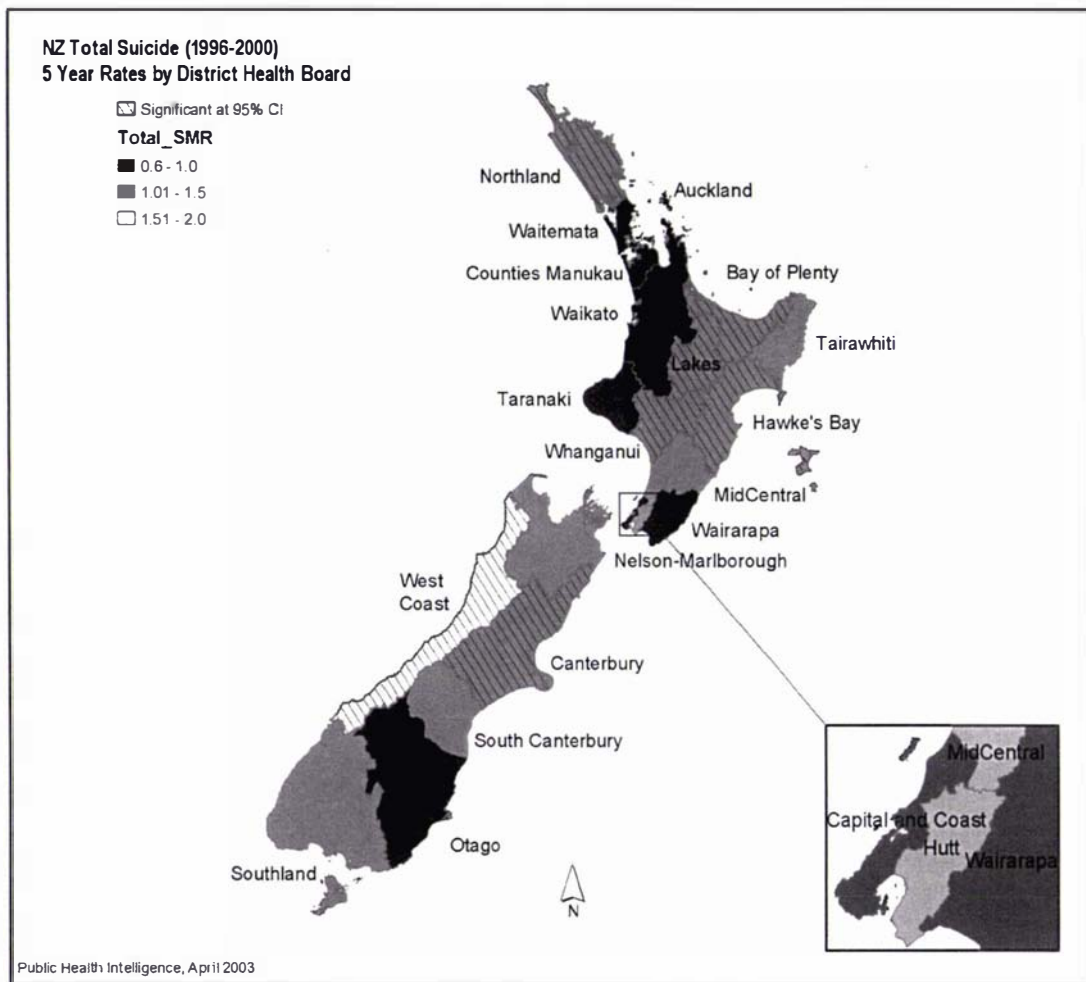
Figure 2-2 Map of Suicide in Aotearoa / New Zealand



Although there is some variation in suicide rates at the District Health Board level (Figure 2-3), no pattern is apparent. The Northland, Bay of Plenty, Lakes, Whanganui, Hawke's Bay, West Coast and Canterbury district health boards have suicide rates significantly higher than the national rate. Only the Auckland District Health Board suicide rate for males was significantly lower than the national rate. In the regions highlighted with stripes in Figure 2-3 the confidence interval above 95%. Other areas above the national average are not highlighted because the confidence level is below 95 percent (Ministry of Health, 2003).



Figure 2-3: Total population suicide rates by district health board sub region, 1996–2000 using standardised mortality ratio.



Source: *Public Health Intelligence, 2003*

Standardised mortality ratios (SMRs) are a means of comparing regional variations in mortality rates. In a regional analysis, SMRs compared subnational rates, in this case District Health Boards, with the national rate. The ratios indicate whether a region is below or above the national rate, i.e. below or above 100. SMRs are used when age-specific rates cannot be calculated (that is when data are missing or there are no cases) or where there are very small denominators (populations). In addition to SMRs, a 95% confidence interval (CI) indicates whether these differences (compared with the national rate) are likely to occur by chance.

The SMR for a DHB is significant if the CI does not include 100 (Ministry of Health, 2004). Shaded areas in Table 2-4 indicate regions with significantly higher or lower SMRs with high confidence levels (96% or above). In 2001, the SMR were significantly lower in Auckland,

Counties Manukau and Capital & Coast DHB's and significantly higher in Bay of Plenty, Hawkes Bay and the West Coast.

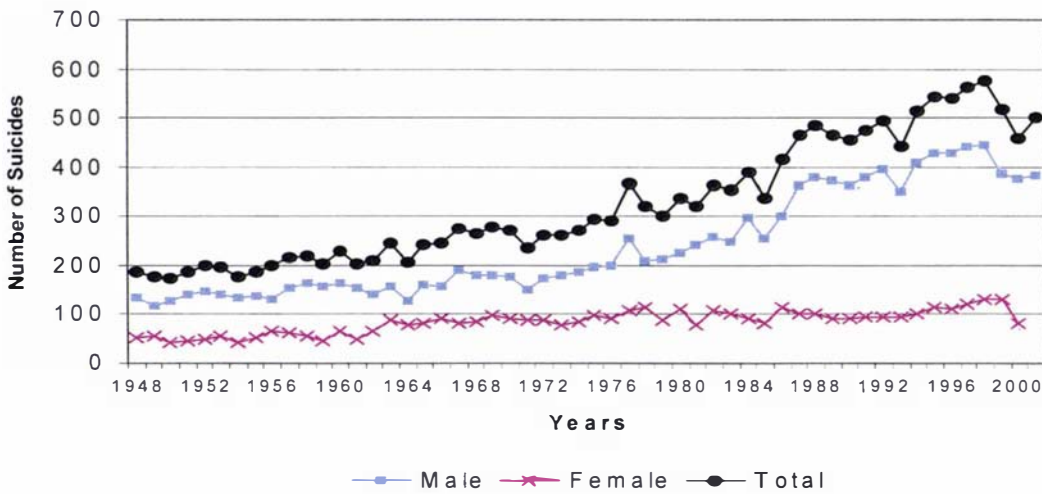
Table 2-4: Relative risk of suicide deaths by district health board region and gender, 1997–2001.

DHB	Male		Female		Total	
	SMR	95% CI	SMR	95% CI	SMR	95% CI
Northland	103.8	80.0–127.6	146.2	93.9–198.5	113.6	91.6–135.5
Waitemata	91.3	79.0–103.5	89.8	67.3–112.4	90.8	80.1–101.6
Auckland	82.7	70.6–94.9	104.3	78.7–129.8	87.1	76.1–98.0
Counties Manukau	83.8	71.0–96.6	88.3	64.1–112.5	84.4	73.2–95.7
Waikato	100.5	85.4–115.5	80.3	55.1–105.5	96.5	83.4–109.5
Lakes	121.6	91.1–152.1	150.9	87.9–214.0	128.1	100.5–155.7
Bay of Plenty	124.8	101.8–147.8	108.5	69.0–148.1	120.7	100.9–140.6
Tairāwhiti	127.6	80.4–174.9	45.9	6.0–97.9	108.4	70.3–146.6
Hawke's Bay	128.3	102.5–154.1	106.2	62.8–149.6	123.2	101.0–145.5
Taranaki	92.8	67.1–118.5	122.6	67.5–177.8	100.0	76.4–123.6
Mid Central	86.2	66.3–106.1	156.8	107.0–206.7	101.9	82.9–121.0
Whanganui	118.5	81.3–155.6	147.5	70.2–224.7	125.4	91.6–159.1
Capital & Coast	76.0	61.6–90.4	88.8	59.8–117.8	78.3	65.4–91.1
Hutt Valley	92.7	70.3–115.0	103.4	59.2–147.6	95.3	75.2–115.3
Wairarapa	71.9	34.2–109.5	53.0	7.0–113.1	67.8	35.6–100.1
Nelson Marlborough	129.5	102.0–157.1	96.8	52.1–141.5	123.6	99.7–147.4
West Coast	184.0	118.2–249.9	113.9	14.1–213.7	172.6	115.4–229.8
Canterbury	108.7	95.5–121.9	88.2	65.9–110.6	104.4	93.0–115.9
South Canterbury	130.2	87.6–172.7	88.6	23.0–154.2	121.9	85.4–158.3
Otago	94.7	75.2–114.3	82.5	48.8–116.2	91.6	74.7–108.5
Southland	117.6	89.5–145.8	88.4	42.1–134.7	112.7	88.1–137.2

Source: Ministry of Health, 2004.

The total number of suicides in New Zealand has increased from just under 200 deaths per year in 1948 to over 500 in the late 1990s (Figure 2-4). The number of females completing suicide has always been less than males.

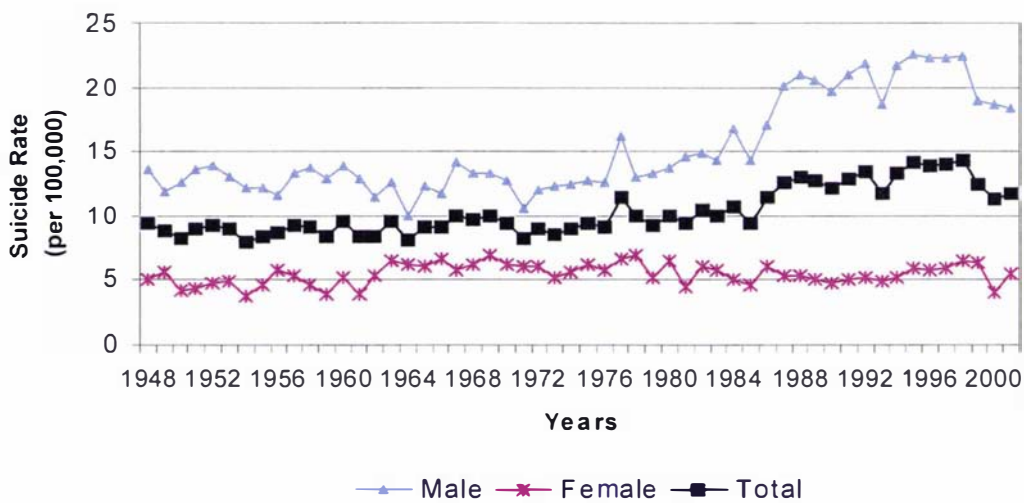
Figure 2-4: Number of suicides in New Zealand, 1948-2001.



Source: NZHIS

However, like the male rates, female rates have also increased. The difference between genders occurs in the rate of increase. Since the mid 1960s the male rate of increase has grown by 100 deaths every 10 years.

Figure 2-5: Suicide rates in New Zealand, 1948-1999.



Source: NZHIS

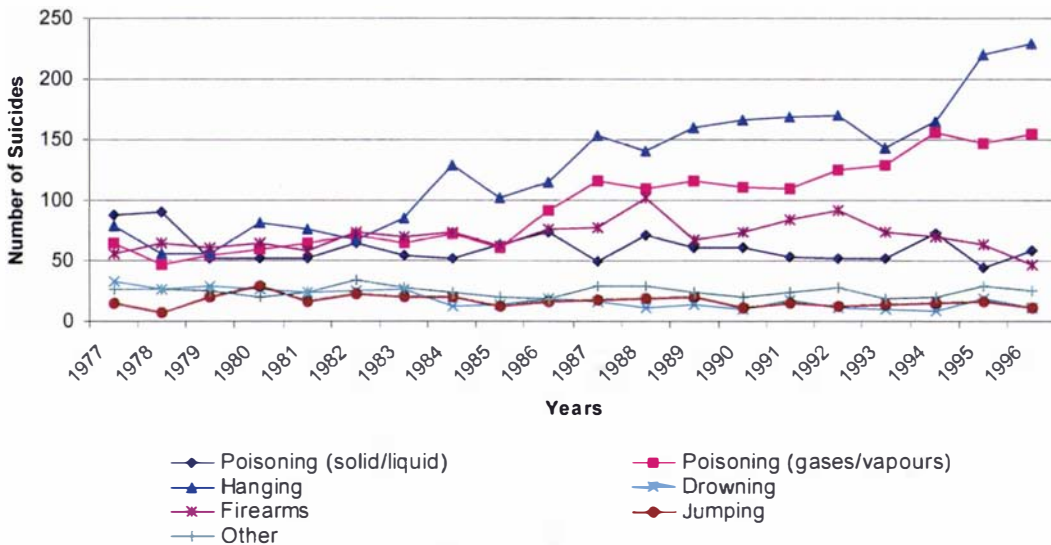
The age-standardised rates of suicide in New Zealand have shown a marked increase only since the late 1970s. Before the 1970s the male rate hovered between 10 and 15 per 100,000. Female rates have remained stable over the same time at approximately 5 per 100,000.

#### Method of suicide

In the late 1970s the dominant method employed to complete suicide was poisoning using solids or liquids. From the 1980s hanging and poisoning using gases and vapours superseded this method. The number using firearms and poisoning by solids or liquids remained

relatively stable 1977–1996, as did drowning, jumping and other methods, although at lower rates (Figure 2-6).

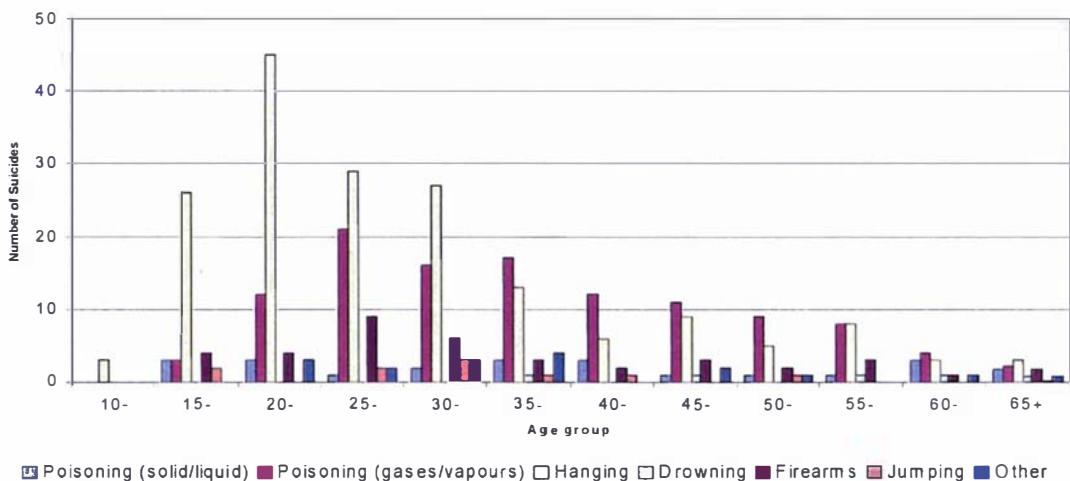
Figure 2-6: Number of suicides by method in New Zealand, 1977–1996.



Source: NZHIS

In 1996, the dominant method chosen by males was hanging (43%), followed by poisoning using solids or liquids (29%) and firearms (11%). The distribution by method over the last 20 years has remained relatively stable. Females also used hanging (36%), poisoning using solids or liquids (28%) and poisoning using gases or vapours (26%). However unlike males the distribution of female suicides by methods has changed. Poisoning by solids or liquids decreased slightly (from 40 to 30) while both hanging and poisoning by gases or vapours increased (19 to 40 and 10 to 31 respectively).

Figure 2-7: Number of suicides by method by age group in New Zealand, 1996.



Source: NZHIS



Figure 2-7 shows the number of suicides across age groups by method. Hanging was the most dominant method in the younger age groups (15–30 years), followed by poisoning by gases or vapours, which was the dominant method in the older age groups (35–60 years).

The Canterbury Suicide Project is internationally renowned. Researchers examined many facets of suicide including: risk factors among those aged 13-24, the prevalence of comorbidity disorders, childhood circumstances and adolescent adjustment among people who attempted suicide, access to firearms and the risk of suicide. Much of the material referred to dysfunctional or disadvantaged family circumstances, leading to increased vulnerability to psychiatric disorders and problems of personal adjustment and increasing the likelihood of suicide (Fergusson & Lynskey, 1995b, 1995c). Further, it was suggested the ‘odds’ of a serious suicide attempt were related systematically to the extent of exposure to disadvantageous childhood experiences and family circumstances, adverse socio-demographic factors, and an individual’s current psychiatric morbidity (Beautrais, Joyce & Mulder, 1996).

The research identified several factors that may contribute to a person engaging in suicidal behaviour. Findings from the Canterbury Suicide Project (Table 2-5) showed that people who died by suicide or who made a medically serious suicide attempt often had multiple risk factors including underlying psychological distress or mental illness, recognisable mental health or adjustment difficulties before the attempt, severe stress or life crisis around relationship breakdown immediately before the attempt, disturbed or unhappy backgrounds, or socially or educationally disadvantaged backgrounds. Beautrais, Joyce & Mulder (1996) found that about 90% of people who completed or attempted suicide had one or more recognisable psychiatric disorder (depression, alcohol misuse, cannabis misuse, drug abuse, or significant behavioural problems).

The Christchurch Health and Development Study (CHDS) and the Christchurch psychoautopsy case control study (CSP) results are outlined in Table 2-5. The studies have limited application for Māori since they were located in the South Island (where there is a smaller resident Māori population), focused on mental health rather than hauora (holistic Māori health model) and had low Māori participation (Disley, 1997), and one study focused on youth alone (Fergusson & Lynskey, 1995a). Applicability for Māori is significantly limited as cultural factors, accessibility and participant identity, were not among the domains investigated in either study (Coupe, 2000c). As a consequence, prevention models for Māori attempted and completed suicide could not be developed from these studies.



Table 2-5: Two New Zealand epidemiological studies.

Study Design:		Canterbury Suicide Project *	Christchurch Health & Development Study **
		OR (CI)	RR (CI)
		<i>Case Control</i>	<i>Cohort</i>
Psychiatric illness	Affective disorder	Adj 27.3 (11.8-63) p.37	16.8 (7.5-37.9)
	Substance abuse	Adj. 3.0 (1.3-6.7) p.37	11.5 (5.2-25.3)
	Anxiety disorder	p<0.001 p.37	4.9 (2.3-10.5)
Personality disorders	Conduct or antisocial disorder	Adj. 4.4 (1.7-11.3) p.33	13.2 (5.9-29.7)
Socio-demographic	No educational qualifications	7.5 (4.1-13.7)	2.2 (1.1-4.7) family
	Unemployed	2.3 (1.3-3.9)	
	Low income	Adj 5.1 (2.7-9.6) p.27	2.8 (1.2-6.8) family
	Recent residential change	2.2 (1.3-3.6)	2.8 (1.0-7.6)
Parental relationship	Poor parental relationship	3.1 (1.3-7.4) p.31	3.6 (1.5-8.3)
	Low maternal or parental care	4.9 (2.7-8.9)	-
	Parental separation	3.0 (1.7-5.3) p.30	-
	Parental alcohol problem	7.6 (2.2-26.5)	2.2 (1.0-4.8)
Past physical or sexual abuse	Sexual abuse	Adj. 3.7 (1.6-8.3) p.32	-
	Criminal offending	15.8 (4.7-53.2) p.40	8.3 (3.6-18.9)
Environmental	Interpersonal Conflict	7.3 (4.3-12.6) p.40	
	End Romantic relationship	p<0.0001	

Source: *New Zealand Health Technology Assessment, 1998 (October) p.27-43.* \* *Beautrais et al. 1997; Beautrais et al. 1996;* \*\* *Fergusson and Lynskey, 1995.*

Few New Zealand researchers have indicated whether their samples included Māori, or if they do, whether there is anything Māori-specific about causality, suicidal behaviour and responses to psychological or psychiatric tests of various kinds.

#### Youth suicide

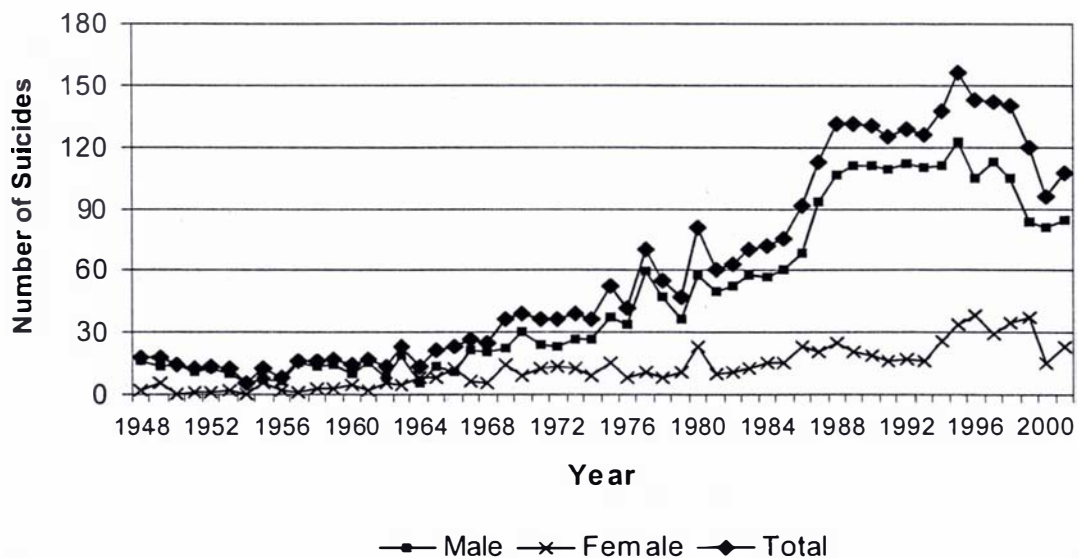
Research from New Zealand studies (Table 2-5) suggested that an increased rate of suicidal behaviour in young people is associated with a wide range of adverse family factors including parental disharmony; parental separation and divorce; and parental psychopathology including parental substance abuse; affective disorders and antisocial behaviours (Mullen et al. 1995); a family history of suicidal behaviour; high levels of exposure to parental and family discord; exposure to physical and/or sexual abuse during childhood; and impaired parent-child or inter-family relationships (Andrews & Lewinsohn, 1992; Fergusson & Lynskey, 1995a, 1995b, 1995c; Gould et al. 1996).

Young people at risk of suicidal behaviour tend to come from multiple-problem family backgrounds where several risk factors are commonly present. This suggests first, that it is the

density and chronicity of exposure to a range of risk factors, rather than the occurrence of a single risk factor, that contributes to increased family dysfunction and the development of subsequent mental health problems and suicidal behaviour. Second, the adverse family backgrounds that characterise young people at risk of suicidal behaviour are similar to those occurring for other adolescents and young adults with psychosocial disorders (Nightingale et al. 1994) and include depressive disorders, substance use and offending behaviours. It suggests the major life pathways and courses that lead to serious suicidal behaviour overlap and correlate substantially with those that lead to a range of adolescent and young adult psychosocial and mental health problems. The relevance of family disadvantage or abuse during childhood for Māori who attempt suicide has yet to be explored in a culturally relevant way.

Suicide is the leading cause of death for young people aged 20–25 and the second leading cause behind motor vehicle accidents for people aged 12–19 in New Zealand (Ministry of Health, 2002a). Until 1970 the number of youth suicides remained under 30 per year (Figure 2-8). After the 1970s the number approximately doubled each decade. The increase reached a plateau in the early 1990s, peaked in 1996 and has decreased until 2001. The number of youth deaths in 2001 increased to from 96 in 2000 to 107, equivalent to more than a decade earlier 113 in 1987.

Figure 2-8: Number of youth (15-24 years) suicides in New Zealand, 1948-2001.

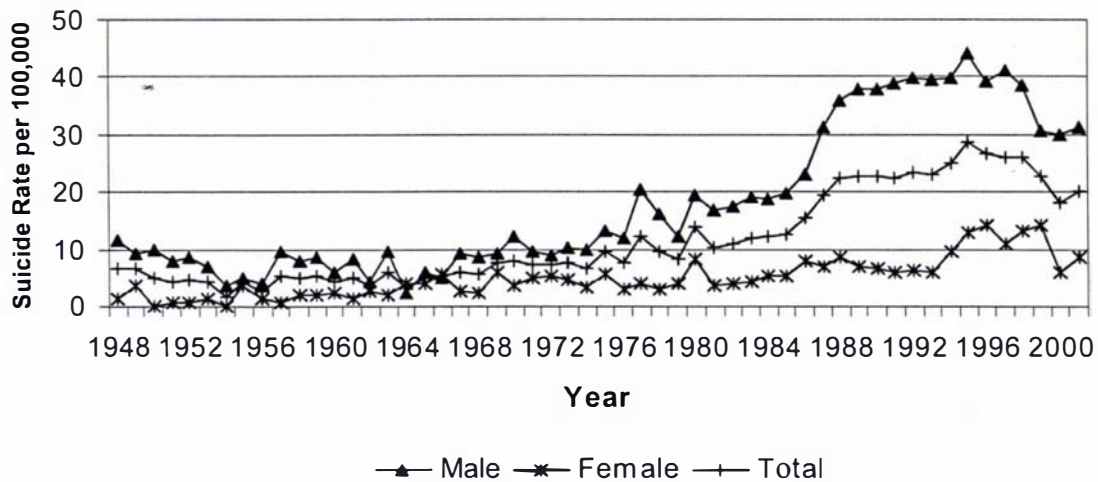


Source: NZHIS

The youth suicide rate decreased during five consecutive years 1996-2001 (Figure 2-9). However, relative to selected OECD countries (Australia, Canada, Finland, France, Germany, Japan, The Netherlands, Norway, Sweden, the UK, and the USA), New

Zealand males and females aged 15–24 have the highest rates of suicide (Ministry of Health, 2002a). The youth suicide ratio was 5.4 male suicides to every female suicide in 2000 (Ministry of Health, 2003).

Figure 2-9: Youth suicide rates, in New Zealand 1948–2000.



Source: NZHIS

The age-standardised rate of youth suicide in New Zealand is extremely high by international standards. The male youth rate more than doubled from under 20 per 100,000 in 1980 to more than 40 per 100,000 in 1996. Since then the male youth rate of suicide in New Zealand has decreased to levels seen in the late 1980s. The female rate has shown the greatest increase since the 1950s (less than 1 per 100,000) when suicide was relatively unheard of among New Zealand females aged 15–24. The rates in the 1990s were over 10 per 100,000.

The greatest youth suicide five year rates by District Health Board were in South Canterbury, Whanganui, Bay of Plenty, West Coast and Northland (more than 30 per 100,000; Table 2-6). The total number of deaths went from 143 in 1996 to 96 in 2000. The overall youth suicide rate of 24 per 100,000 was relatively high compared to international trends. Of the 21 District Health Boards listed in Table 2-6, the greatest number of youth suicides throughout New Zealand over the period 1996 to 2000 occurred in Canterbury (73) and the three Auckland regions of Counties Manukau (69), Waitemata (66) and Auckland (50). Over the same period numbers of suicides decreased in Canterbury (by 12), Capital coast (by 10), Otago (by 9) and Midcentral (by 9). The Bay of Plenty and Auckland had the largest increases (4) over the period.



Coggan & Norton (1994) discussed reducing self-directed harm among young people in five conceptual categories of suicide prevention programmes internationally. The categories included improving the identification, referral and treatment of those at risk of suicide by caretakers and gatekeepers in the community; decreasing individual vulnerability through educating the general population; improving accessibility to self-referral resources; treating underlying risk factors for suicide; and limiting the access to the means of suicide.

Table 2-6: Number of youth suicides by DHB, year, and five year rate per 100,000.

DHB	1996	1997	1998	1999	2000	1996-2000	5-Year Rate
Northland	6	1	7	9	3	26	31.1
Waitemata	13	13	12	14	14	66	23.6
Auckland	6	13	6	15	10	50	17.9
Counties Manukau	11	16	17	12	13	69	25.9
Waikato	9	17	10	8	5	49	19.6
Lakes	4	3	5	5	3	20	28.3
Bay of Plenty	2	15	4	9	6	36	35.8
Tairāwhiti	0	4	1	0	0	5	16.1
Hawkes Bay	6	2	7	5	7	27	27.7
Taranaki	2	3	4	1	2	12	16.9
Midcentral	9	6	9	6	0	30	22.6
Whanganui	7	4	4	3	1	19	38.1
Capital & Coast	14	7	8	3	4	36	19.6
Hutt Valley	9	2	5	5	5	26	26.8
Wairarapa	2	0	1	0	0	3	12.4
Nelson Marlborough	6	4	5	3	5	23	28.7
West Coast	1	2	3	0	1	7	32.1
Canterbury	22	20	15	6	10	73	22.1
South Canterbury	1	4	4	2	2	13	38.4
Otago	11	2	7	7	2	29	18.0
Southland	2	4	6	5	2	19	24.2
Overseas undefined	0	0	0	2	1	3	
Total deaths	143	142	140	120	96	641	23.5

Source: Statistics New Zealand.

Fanslow & Norton (1994) addressed the issues of suicide and parasuicide in the Auckland Region. Their definition of parasuicide distinguished between an act that mimicked an act of suicide but did not result in death, and self-inflicted injuries that were not life threatening. The document discussed the incidence and prevalence of suicide and parasuicide, available prevention and care services. It also contained plans developed after regional consultation to reduce suicide. Recommendations were made for the preparation of regular reports on

incidence and prevalence and the assessment and evaluation of existing programmes, as well as increasing the availability of overnight facilities for individuals at risk of suicide (Fanslow & Norton, 1994).

One qualitative research study of young people identified three themes perceived as being warning signs for a young person who might suicide: personality changes; risk-taking behaviour; and unusual actions. Another important finding was that a young person would either cope alone or turn to a friend if feeling suicidal. Lack of knowledge of existing services and resources were identified as barriers to young people obtaining help (Coggan, Paterson & Fill, 1997).

The New Zealand government has developed and is implementing a national youth suicide prevention strategy. New Zealand's national youth suicide prevention strategy is made up of two parts: *In Our Hands* (Ministry of Youth Affairs, 1998), which is the general population strategy and *Kia Piki Te Ora O Te Taitamariki* (Ministry of Youth Affairs, 1998), which focuses on specific Māori needs and processes. The strategy provides a framework for understanding and identifying actions to reduce youth suicide. *In Our Hands* presents youth suicide facts, risk factors for suicide attempts and how the strategy can be implemented.

Young people at risk of suicide have been the subject of two further government documents. The first guidelines were for the detection and management of youth at risk of suicide in primary care (Ministry of Youth Affairs, 1997). The second guidelines were for preventing, recognising and managing young people at risk of suicide at school (Beautrais et al. 1997).

It is increasingly acknowledged that suicidal behaviour has a considerable impact on both individuals and society in terms of acute physical and mental health problems, long-term disability, death, and resource provision (Disley & Coggan, 1996).

## **Indigenous Suicide**

For the purpose of this thesis the indigenous populations considered are those of the USA (American Indians and Native Alaskans but not Native Hawaiians), Canada (the First Nations), Pacific peoples (including Samoans, Fijians, Papua New Guineans and Micronesians), and Australia Aborigine & Torres Strait Islanders).

### *American Indians and Native Alaskan*

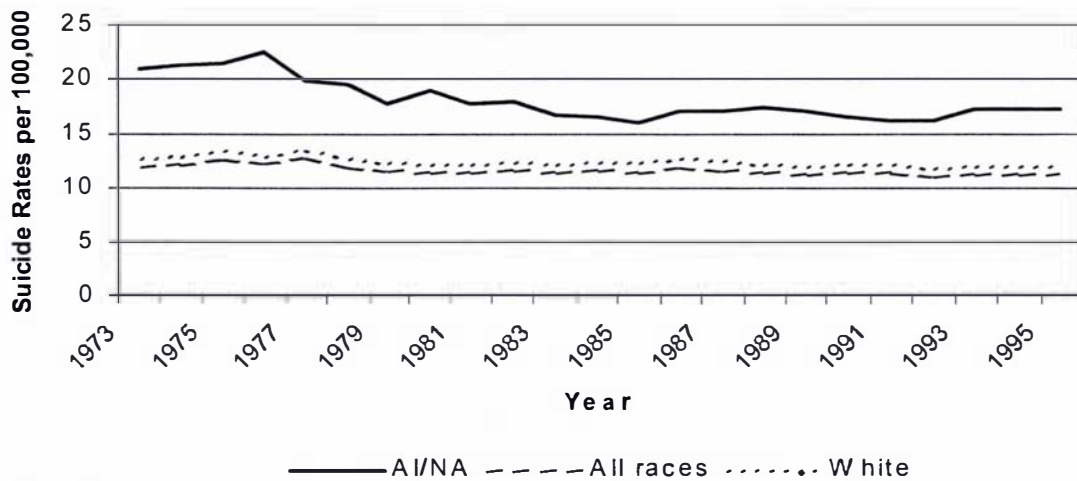
From the early 1970s the rate of American Indian and Alaska Natives suicide decreased from 21 to 19.3 per 100,000 in 1995. Compared with the overall and white populations in the



USA, the American Indian and Native Alaskan suicide rate was approximately 1.7 times greater (Figure 2-10).

The rates of American Indian and Native Alaskan suicide peaked at 22.5 per 100,000. Their rates decreased to 16 in 1984-1996. Since then their suicide rate has increased to 19.3 per 100,000 in 1995 (Indian Health Service, 1999; Goldsmith et al. 2002). Suicide deaths for American Indians were substantially higher overall than for other ethnic groups. American Indian and Native Alaskan suicide rates differed across the lifespan.

Figure 2-10: Suicide rates in the United States of America by ethnicity, 1973–1996.



Source: Indian Health Service (1999) and Goldsmith et al (2002). Note: AI = American Indian; NA Native Alaskan

For those aged 5–14 the rates were three times higher (Table 2-7) than the general population. For those aged 15–34 it was 2.5 times higher, and for those aged 35–44 1.5 times higher (Indian Health Service, 1999).

Table 2-7: American Indian and Native Alaskan suicide rates compared with all races and white populations in the United States if America, 1994-1996.

Ages	AI/NA				US All races	US White	Ratio of AI/NA	
	Number		Rate (per 100,000)				All races	White
	Actual	Adj*	Actual	Adj*	Rate	Rate		
5-14	24	24	2.7	2.7	0.9	1.0	3.0	2.7
15-24	212	247	29.1	33.9	13.4	14.0	2.5	2.4
25-44	346	387	28.4	31.8	15.3	16.4	2.1	1.9
45-54	51	54	15.7	16.6	14.6	15.9	1.1	1.0

Source: Indian Health Service (1999). \*Adjusted to compensate for misreporting of Indian race on state death certificates. Note AI = American Indian; NA = Native Alaskans; US = United States of America.

The male rate peaked at 67 per 100,000 in the 25-34 age group and was somewhat lower (54 per 100,000) for the next youngest age group (15-24 years). Young American Indian females aged 5-34 had rates of suicide 2.2 to 3.6 times higher than the general population; for those aged 35-44 the rate is 1.5 times higher, and for those ages 45-75 is about the same or slightly less. The suicide rate for Native Alaskans is twice that of the overall US population, and in Western Alaska, Eskimo suicide rates are even higher.

Not until the 1980s did the Alaskan state legislature fund suicide prevention programmes to address the high rates of suicide among native youth. Suicide rates from 1978 to 1988 for adolescent Native Alaskans between the ages of 15-24 ranged from 135 to 215 per 100,000 for males and 7 to 65 for females (Forbes, 1994).

The decrease in suicide rates in the 1980s was attributed to the changing ethnicity definition in the USA, arising from better enumeration and an increased tendency for self identification. However, in New Mexico where neither phenomenon occurred, American Indian suicide also decreased. Therefore the decrease among American Indians and Native Alaskans in other states may not necessarily be simply a reflection of the changing measurements and definitions, but may be attributed to other factors as well.

Most American Indians and Native Alaskans suicides are by gunshot, hanging and other violent means (Wallace et al. 1996). In studies of Alaska Natives, firearms were the dominant method of suicide at 75-85% (Forbes & Van Der Hyde, 1988; Hlady & Middaugh, 1988; Kost-Grant, 1983). Hanging was the second most common cause of suicidal death among American Indians and Native Alaskans in most studies (Kraus, 1974; Wallace et al. 1996; Wissow, 2000). However, the range can be great with hanging accounting for 7% of deaths in one study to the more unusual 26-40% in others (Butler, 1965; Garro, 1988; Spaulding, 1985-1986; Van Winkle & May, 1986).

Social, familial disruption, and cultural conflict (Kahn, 1986; Kettl & Bixler, 1991; Opler, 1969) and social disorganisation (Echohawk, 1997; Expert Working Group, 1994; Joe, 2001; Resnik & Dizmang, 1971) are often cited as major influences on American Indian suicide rates. Variations are attributed to the degree of social and cultural change and acculturation pressure faced by American Indians (Garro, 1988; Levy, 1965; VanWinkle & May, 1986, 1993). American Indian and Native Alaskan adolescents face the same turmoil as mainstream youth, but they face challenges of self-identity and actualisation in a minority status and

complex choices relating to adopting mainstream or traditional cultural beliefs and values (Bechtold, 1994; Howard-Pitney et al. 1992; Sack et al. 1994; US Congress, 1990).

Culture serves as the web that structures human thought, emotion and interaction, and provides resources for dealing with major life changes and challenges, including illness (Canino & Guamaccia, 1997). Culture is continuously being shaped by social processes such as migration and acculturation and is a product of group values, norms and experiences and individual innovations and life histories. Psychological and behavioural disorders are the result of lifelong interactions among psychological, sociological and biological factors (Cooper & Morgan, 1973; Regier & Allen, 1981). Culture influences emotion, behaviour and cognitive expectations (Campos et al. 1994). Given these premises, it should follow that culture and ethnicity constitute a pre-eminent construct for organising research on the causes and consequences of psychological dysfunction and suicide behaviour (Canino & Guamaccia, 1997). For several decades, cross-cultural research has demonstrated specific symptom presentation with patterns of onset, duration, risk and outcome of mental illness varying across cultures. Symptoms may reflect a pathological as well as a cultural process and an understanding of these processes is essential for the diagnosis and treatment of culturally diverse populations (Guamaccia et al. 1992).

In 1988, a suicide prevention programme was initiated in a Western Athabaskan American Indian tribe of New Mexico. By 1997 it had substantially lowered suicide rates among people aged 15-19. The programme consisted of multiple prevention and intervention strategies. The study had reviewed youth suicide among the indigenous peoples of North America. Interestingly, suicide rates were relatively higher among western American Indian populations in the USA, Canadian aboriginals in north-western Ontario, and the Inuit of the East Coast Hudson Bay area. On a personal level alcohol, depression, hopelessness, stress, family instability, and poverty were risk factors. At a community level group instability and communities undergoing rapid social change put individuals at particular risk (Centers for Disease Control and Prevention, 1998).

Many causes have been proposed for the high suicide rates among Native Americans including the deterioration of the traditional tribal structure and the negative effect of historical events on tribal culture. Particular events include Western education, religions and legislation (Echohawk, 1997). Among Native Americans in the north risk factors for suicide were frequent interpersonal conflict, prolonged or unresolved grief, chronic family instability,

depression, alcohol abuse or dependence, unemployment and a family history of psychiatric disorder (Kirmayer, 1994).

#### *First Nations, Inuit & Métis of Canada*

First Nations, Inuit and Métis people are found across Canada. North America is referred to by many indigenous cultures as Turtle Island. People who have treaty rights or status are permitted to move freely between Canada and the US. First Nations people are legally defined as individuals who have treaty status or who possess an Inuit or Métis card. This group is not necessarily defined by culture or race and does not fit a stereotypical image.

Due to the gaps in Canadian aboriginal literature and the sharply increasing rates of suicide among all indigenous Canadian peoples during the early 1990s, reviews tend to combine research on Native Alaskans and American Indians (Kirmayer, 1994). Some of the gaps identified have been the need for research on the impact of cultural change, positive methods of coping with change, and the spiritual meanings of suffering and healing. Suicide rates in the First Nations population are more than twice the sex-specific rates (per 100,000), and three times the age-specific rates of non-First Nations (56.3 for First Nations males and 11.8 for First Nations females). Among First Nations males, the rate for the 15-24 year age group was more than double that for all First Nations males (90:39) (Grant, 1991). Suicide among northern First Nations youth has reached epidemic proportions (McNamee & Offord, 1994). An extremely high overall rate (180.2 per 100,000) has been found for First Nations males aged 10-19 living on the northern coast of Labrador (Alderidge & St John, 1991). The 1991 Aboriginal Peoples Survey indicated that 41% of Inuit and 34.5% of Native Indians on reserves report that suicide is a problem in their community (Statistics Canada, 1993).

A few First Nations (Cree, Chipewyan, Northern Ojibwa, Salteaux and Sioux) suicide rate over 1973–1982 was 40.15 per 100,000 compared with 14 for Canada as a whole. The male to female ratio was 5.5:1 (84% of suicides were male). The majority (84%) of people who committed suicide were aged 10 to 39. The dominant method of suicide was shooting (55%), followed by hanging (26%) and overdose (11%). Traditional tribal culture was not linked with suicide rates, but the level of acculturation appears to be a major influence (Garro, 1988). Other authors have reached similar conclusions (Van Winkle & May, 1986). Therefore, the dominant culture in which First Nations function appears to have a greater effect on their suicide risk than their own culture.



The Nishnawbe-Aski Nation (an affiliation of 49 First Nations communities in Northern Ontario) responded to the problem of youth suicide by conducting 13 community hearings to identify reasons and seek solutions. After the meetings adult and youth commissioners met with elders to make recommendations. Recurring themes were the psychological pain experienced by adolescents, the pain arising from intergenerational abuse in families where parents attended residential schools, the erosion of traditional practices, contradictory religious teachings, and oppressive government programmes and policies (Nishnawbe-Aski Nation Youth Forum, 1996).

Following intensive investigation of 96 First Nations, Métis and Inuit communities across Canada, the Royal Commission on Aboriginal Peoples concluded that the high rates of suicide and self-injury were the result of a complex mix of social, cultural, economic and psychological dislocations that flowed from the past into the present. A theme heard repeatedly at the hearings was the pervasive effect of colonisation as a cause of suicide. Suicide is not only a matter of personal pain but also of collective despair. Prevention efforts must be community-based and include the following key elements: cultural and spiritual revitalisation; strengthening families and communities; a child and youth focus, a holistic approach; community involvement; partnership; and community control (Royal Commission on Aboriginal Peoples, 1995).

### *Pacific Peoples*

The Pacific focus includes Northern Mariana Islands, Marshall Islands, Federated States of Micronesia, Nauru, Kiribati, Western and American Samoa, Fiji, Tonga, Vanuatu, Solomon Islands, New Caledonia, Tuvalu, Tokelau, and Papua New Guinea. While there are significant variations in suicide causes and methods, it is clear many Pacific suicides have little to do with the 'pulse' of Western, industrialised societies. For example, among the Truk and Samoans, young male suicide is closely associated with parent-child relationships and specific cultural routines for communicating about conflict (MacPherson & MacPherson, 1987). In other words, 'suicide is a social action involving not just a single individual, but an entire family or community' (Tatz, 1999, p112). Samoan culture stresses the subservience of the individual to the collective which is embedded in scripture and tradition and is connected to high levels of altruistic suicide (MacPherson & MacPherson, 1987).

In each of the Pacific regions, there are 'reasonably coherent explanations' of suicide based in traditional patterns of culture. People understand the manner of dealing with emotion, and



conflict and its resolution. 'Cultural concepts shape suicide as a meaningful social action.' One conclusion is that 'a concern with cultural meaning is not separate from medical or public health concerns with suicide prevention'. No one who is ignorant of cultural interpretations of suicide can deal effectively with the 'complexities of either suicide counselling or prevention' (Tatz, 1999, p112).

Suicide is not a new phenomenon in Samoan society and has been termed as *toa' i* (Pratt, 1862). Western Samoa is of particular interest because many Samoans have migrated to New Zealand, where suicide by a similar method to the homeland, remains evident. It takes the form of young males and females swallowing 'paraquat', a weed-killer that causes a painful, lingering, untreatable death. In the 1980s, the Western Samoan male suicide rate for those aged 25–34 reached 167 per 100,000, and for those aged 20–24 was 75.7 (Hezel et al. 1985; Tatz, 1999, p112).

One study has examined the statistics for violence performed by oneself or others in Fiji during 1969-1989. Fijian violence by self is particularly low, but consistent with the low suicide rate of the indigenous populations in surrounding geographical regions. The findings suggest that racial differences in violence are likely to be due to cultural factors (Pridmore, Ryan & Blizzard, 1995).

Suicide rates vary from 34 to 72 per 100,000 for both sexes in Papua New Guinea's Highlands. Ten 'ranked' causes of suicide include: 'bereavement, no reason, witches, having quarrelled, having been scolded, adultery, being accused of being witch, frustration, misfortune, and fright' (Tatz, 1999, p113). Of note was the consistency of scolding, as in a parent admonishing a child, as a major factor in many Pacific suicides (Hezel, Rubenstein & White, 1985; Tatz, 1999).

Rubenstein (1987, 1992, 1995), in three articles on youth suicide in Micronesian and Samoa, examined the effects of rapid social change (MacPherson & MacPherson, 1987) and profound disruption on cultural integration, psychological adaptation and mental health. Suicide rates among people aged 15-24, especially males, began to rise rapidly in the 1960s and continued to rise through the next three decades. Suicide rates among young Micronesian men are about eight times higher than among the same age and gender group in the USA. Micronesia had an 'epidemic' of youth suicide from 1960. The rate for those aged 20–24 was 8 per 100,000 in 1960–1963, increasing to 48 in 1980–1983, and reaching 110.6 in 1987. The suicides were 'patterned culturally, in terms of the characteristics of the actors, the method,

and situations'. The predominant relationship involved in suicide was one of tension between an adolescent and a parent (Tatz, 1999, p113). It was the youth's conflict about parental authority, support and recognition that leads to self-harm. MacPherson & MacPherson (1987) proposed that youth suicide in Western Samoa comes from the increased education and visions of alternative lifestyles that have lead to higher expectations which in turn alienates them from central values but forced to live by them. Thus sensing their powerlessness to produce change, they become dissatisfied and frustrated with society and seek opportunities to leave. The method most commonly used was hanging, accounting for 85% of cases (Chen et al. 1994; Rubinstein, 1995; Tatz, 1999).

#### *Australian Aborigines & Torres Strait Islanders*

Only within the last two decades has suicide within the Australian Aboriginal and Torres Strait Islander populations emerged as a public health concern. While willed or self-willed death associated with sorcery or physical debility in traditional indigenous societies might be considered a 'suicide equivalent' phenomena, it was a sharp contrast to the deaths by hanging of young men, which have now captured national attention (Hunter, 2001). Both, however, are meaningful; the former as a socially understood and affirmed consequence of behaviour (transgression) or circumstance (debility); the latter as a statement and communication that was meaningful in the particular intercultural political context of Australian society in the 1990s. Understanding changing indigenous suicide necessarily demands exploring the historical context in which this change is located (Hunter, 2001).

The National Youth Suicide Prevention Strategy – Setting the evidence-based research agenda for Australia states that epidemiological data on suicide in Aborigine and Torres Strait Islander populations was extremely limited before 1987 for several reasons. First, race had not been routinely or reliably recorded at post-mortems and was not included in statistical mortality reports (Biles & McDonald, 1992; Reser, 1989; Thomson & McDonald, 1993). Secondly, cultural, social and political constraints had served to minimise the attribution of Aboriginal deaths to suicide, especially of deaths in custody (Reser, 1989). Through the efforts of researchers, and in conjunction with relatively recent directives from the Australian Royal Commission into Aboriginal Deaths in Custody, a clearer view is emerging of Aboriginal and Torres Strait Islander suicide. However, enumerating indigenous population of Australia and collecting reliable suicide statistics remain problematic (Department of Health and Aged Care, 1999).

The Department of Health and Aged Care (1999) cites a number of studies of traditional Australian Aboriginal culture where suicide was uncommon (Eastwell, 1988; Jones, 1971, 1972; Jones & Home, 1973). It was suggested that mystical and magical explanations were often reasons for suicide in traditional communities (Eastwell, 1988). Accounts of traditional Aboriginal life and psychiatric illness do not preclude the possibility of suicide, but rather suggest it would have been rare (Eastwell, 1988; Hunter, 1991a, 1991b, 1993; Jones, 1971, 1972; Jones & Home, 1973).

Hunter (2001) describes indigenous lives and communities being controlled through draconian measures and racist legislation, which began to ease with little planning or preparation in the late 1960s. The next decade, a period of 'deregulation' (Hunter, 1999), was characterised by political and social instability, the lifting of restricted access to alcohol, rapidly increasing rates of violence and accidents, high rates of incarceration, and many other manifestations of continuing disadvantage and underlying turmoil, all with very serious consequences for the stability of communities and family life.

Some of the early studies on suicide in Aboriginal populations are summarised in Table 2-8. This table highlights the gaps and inconsistencies in reporting Aboriginal suicides. Collecting accurate information on Aboriginal suicide was difficult due to the remoteness of some Aboriginal communities, and a lack of systematic recording procedures. Under-reporting of Aboriginal and Torres Strait Islander suicide remains a problem, especially in remote areas (Commonwealth Department of Health & Family Services, 1997).

Studies of remote communities before the Royal Commission tended to report little or no suicide (Cawte, 1964; Kamien, 1978; Moodie, 1973), in contrast with the current high rates of Aboriginal suicide (Baume, Cantor & McTaggart, 1997; Cantor & Slater, 1997; Clayer & Czechowicz, 1991; Department of Health and Aged Care, 1999).

The Department of Health and Aged Care (1999) discuss the difficulties in describing the problem of Aboriginal suicide. Most Aboriginal suicides were recorded as numbers of cases rather than as rates per 100,000. Additionally, official records tended to under-report Aboriginal suicide, because many Aboriginal people had adopted English surnames, which were taken as an indicator of non-aboriginal ethnicity (Clayer & Czechowicz, 1991). It should also be borne in mind that the definition of aboriginality is a contentious issue. Many Aboriginal people prefer to define aboriginality by way of identification with aboriginal



culture, which makes it difficult to draw more than general comparisons over time (Department of Health and Aged Care, 1999).

Table 2-8: Historical perspective on Australian Aboriginal suicide.

Author	Time span	Location	Rate of suicide	Sex	Age
Cawte, 1964		Remote	Unheard of		
Moodie, 1973	1950–1964	New South Wales	3 per 100,000		
Kamien, 1978	5 years (1970s)	Bourke	Exceed norms		
Reser, 1989	25 years (1970s)	Remote Amhem Land	n=0		
Queensland Health and Medical Services, 1978	1972–1978	Queensland	n=8		
Devanesen et al. 1986	1979–1983	Northern Territory	17.5 per 100,000 (n=6)	♂ & ♀	All
Kahn, 1986	3 years	Aboriginal reserve	66.7 per 100,000 (n=3)		
Hunter, 1988	1957–1986	Kimberley region	14 cases	12 ♂ 2 ♀	♂=31; ♀=21
Eastwell, 1988	1957–1987	Yolngu clans Amhem Land	2.2 per 100,000 (n=2)		
Clayer & Czechowicz, 1991	1981–1988	South Australia	Increase from 10.1-105.3 per 100,000	♂ & ♀	All
Royal Commission into Aboriginal Deaths in Custody, 1991	1980–1989	Custody institutional settings	31 cases		
Hunter, 1993	1988–1989	Kimberley region	8 cases	♂	<20 years
Cantor & Slater, 1997	1990–1992	Queensland	70.1 per 100,000 (n=36); 9.4 per 100,000 (n=?)	♂ & ♀	15–29
Baume, Cantor & McTaggart, 1997	1990–1995	Queensland	23.6 per 100,000 (n=98); 112.5 per 100,000 (n=51) n=3; no rate	♂ & ♀	All & 15–24

Source: Department of Health and Aged Care, 1999.

Since the 1970s, an increasing trend of Aboriginal suicides has been the high number (31) of Aboriginal suicide deaths in custody. The Royal Commission into Aboriginal Deaths in Custody (1991) reviewed deaths in custody during 1980–1989. In a study of suicide in Queensland over six years from 1990–1995 (Baume, Cantor & McTaggart, 1997), Aboriginal and Torres Strait Islander males aged 15–24 had an extremely high suicide rate—112.5 per 100,000 compared with 30.9 per 100,000 for Queensland youth (Department of Health and Aged Care, 1999).

### *Summary*

The phenomenon of youth suicide among Australian Aborigines parallels the experience of other indigenous peoples. As was the case in Micronesia, increased rates of youth suicide followed a period of major social disruption. Hunter (1988, 1993) argues that in order to be effective prevention efforts must address both social and personal factors. Although epidemiological research on indigenous suicide has been seriously lacking in Australia, it seems probable that indigenous male youth have greatly elevated suicide rates compared with females and non-indigenous populations (Department of Health and Aged Care, 1999).

One Australian review has noted that epidemiological studies demonstrated suicide was greater in indigenous than non-indigenous populations and was particularly high among adolescent males. Indigenous environments were characterised by remoteness, poverty, cultural displacement and family disintegration. Although there was more literature from the USA than Canada, Australia or the Pacific the emerging model is consistent with issues identified across continents. In so far as they can be separated, the increased suicide rate among indigenous adolescents was not a product of their native origins but of the social milieu in which they found themselves (Clarke, Frankish & Green, 1997).

Society's perception of suicide and its cultural traditions can influence the suicide rate. Greater societal stigma against suicide has been thought to have a protective effect, while less stigma may increase suicide (Goldsmith et al. 2002).

## **MĀORI SUICIDE**

This section describes the epidemiology of Māori suicide from historical and contemporary perspectives, the literature on the risk of suicide and precipitating, cultural and protective factors.

Māori live in all parts of Aotearoa (New Zealand); there are no separate reservations. They retain a social and cultural life as a minority stream within a wider context, having a distinct language, traditional pattern of life and worldview though there is considerable variation in the levels of acculturation and deculturation. According to 2001 census data, there were 526,281 people of Māori ethnicity (14.7%) among the 3,586,734 people living in New Zealand.



## **Historical Suicide**

A manuscript written on 28 February 1852 by the partner of a woman who had completed suicide by hanging herself in a tree, identified factors thought to have contributed to her demise. She had died only a few days before the record was made and the manuscript describes the days leading up to her death. Precipitating factors included an argument with her partner over his leaving to find work in another part of the South Island and her suspicion that he was a 'Nihomaka' (shark's tooth) or cheating on her with another women. More distal factors described by the author point to psychological instability. (Appendix 2 reproduces the whole document in the Māori language).

Although in modern times at tangihanga (funerals) suicide is referred to as mate taurekareka (villainous death) or mate kino (bad death) there are at least two other words that are more frequently used: 'whakamomori' (Williams, 1971: 'whakamomori, l.v.i. Commit suicide or an other act of desperation', p.210) and 'tārona' (strangulation), the latter term used by northern tribes. However, despite old words suicide was not widely sanctioned except by some tribes during grief. Sometimes suicide would occur as a final act of defiance to overcome an intolerable sense of insult (Durie, 2001 p.98-99). Langford, Ritchie & Ritchie, (1998) give other reasons for culturally approved self-induced death; such as the sudden loss of some significant other; an intolerable loss of status; an overwhelming insult; a personal failure to perform in some major way; a serious infringement of some prohibition, committing a prime offence or crime; or the conviction that powerful magic had been performed against one. Like many other tribal cultures, Māori have a shame-based morality. For the purposes of this research shame based morality for Māori is based on the perception of the individual as a member of a collective and social dependency is vital. Thus, loss of community or family esteem as a result of one individual's behaviour could be devastating. Similarly, an offence against one's kin group (biological family and tribal affiliation) would require some restorative action, which, should an individual be unable to respond adequately, could lead to self-induced death (Langford, Ritchie & Ritchie, 1998).

Whakamomori has been described as a mental state whereby recourse to right a wrong is blocked. If, as evidence suggests, suicide was not widely practiced in pre-colonial Māori society there is a possibility that social structures and relationships acted to protect against suicide. Collective risk factors for Māori youth suicide are illustrated in Table 2-9 (Durie, 2001).

Table 2-9: Collective risk factors for Māori youth suicide.

<b>Factor</b>	<b>Risks</b>
Culture	Decolonisation with loss of language, custom and values Insecure cultural identity Whānau dysfunction
Spirituality	Loss of balance between self, environment and other human relationships
Colonisation	Oppression Loss of autonomy Alienation from land and resources Humiliation

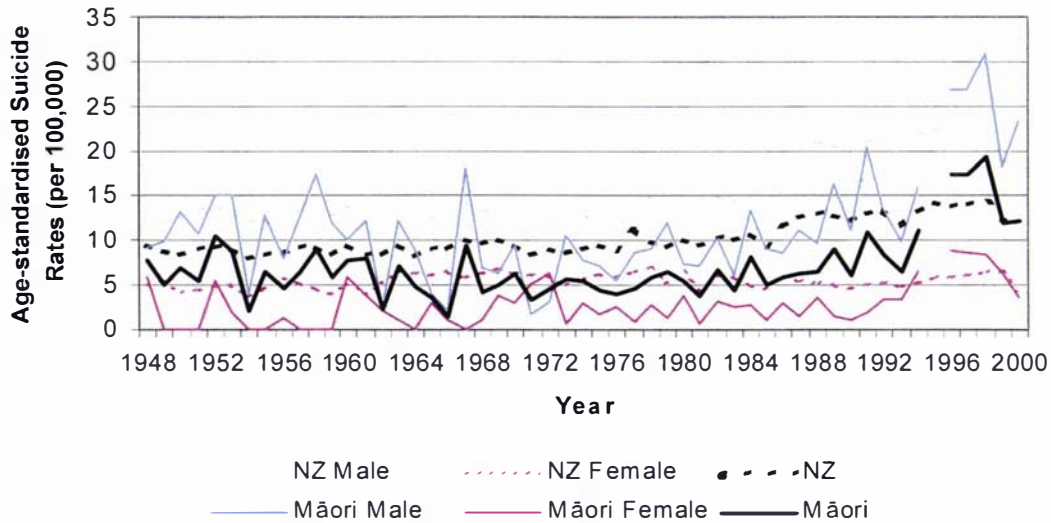
Source: Durie, 2001 p.104.

The Māori moral world was regulated by honour, respect, status (all implicit in the word mana), politically imposed restrictions (rāhui), and supernatural regulation. Death was believed to impress a troubled quality to a place, which became tapu. Failure to respect tapu (intentionally or unintentionally) resulted in trouble, sickness or even death, and the help of a tohunga, or ritual expert, was required. Any breach of tapu created a threat in both spiritual and physical terms. Many Māori still hold to these beliefs, but the extent of their application in modern times is unknown (Langford, Ritchie & Ritchie, 1998).

Māori who have lost contact with cultural roots, although retaining a nominal Māori identity, may have little knowledge of these concepts and may be culturally insecure. Joseph (1997) attributes Māori suicide to states of cultural alienation and the process of colonisation. The Māori cultural revival over the last three decades has affected Māori who were not reared in the traditional worldview but who are now consciously aware of it. Again, the degree to which Māori cultural beliefs and values control their behaviour will vary. It cannot be categorically assumed that because someone has a Māori name or Māori descent there will be an acceptance of traditional worldviews and perspectives (Langford, Ritchie & Ritchie, 1998). While there has been less emphasis on spiritual experience, cultural alienation as a risk factor has nonetheless received considerable attention (Ministry of Youth Affairs, 1998).

The age standardised rates of Māori suicide compared with the New Zealand rate were lower until the early 1990s, where both the male and female Māori rates were higher than the New Zealand rates (Figure 2-11).

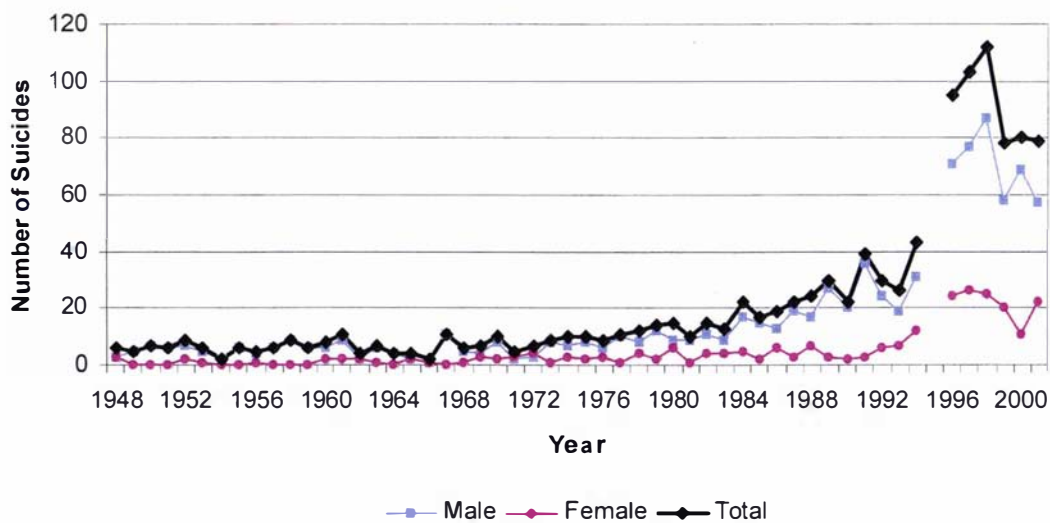
Figure 2-11: Age-standardised suicide rates in New Zealand for Māori by gender, 1948-2001.



Source: NZHIS. Note NZ = New Zealand.

Until the early 1980s Māori suicides numbered less than 20 per year. This had doubled by the early 1990s (Figure 2-12). The gap in Figure 2-12 is due in part to the change in the definition of ethnicity in 1995. Māori mortality data from 1996 cannot be accurately compared with mortality data before 1995. Changes in ethnicity classification from a biological quantification of 50% or more blood giving way to choice of ethnicity (Māori, Pacific Islander, New Zealand, European or Pākehā or Other) and to self-identification. This largely limits time series analysis.

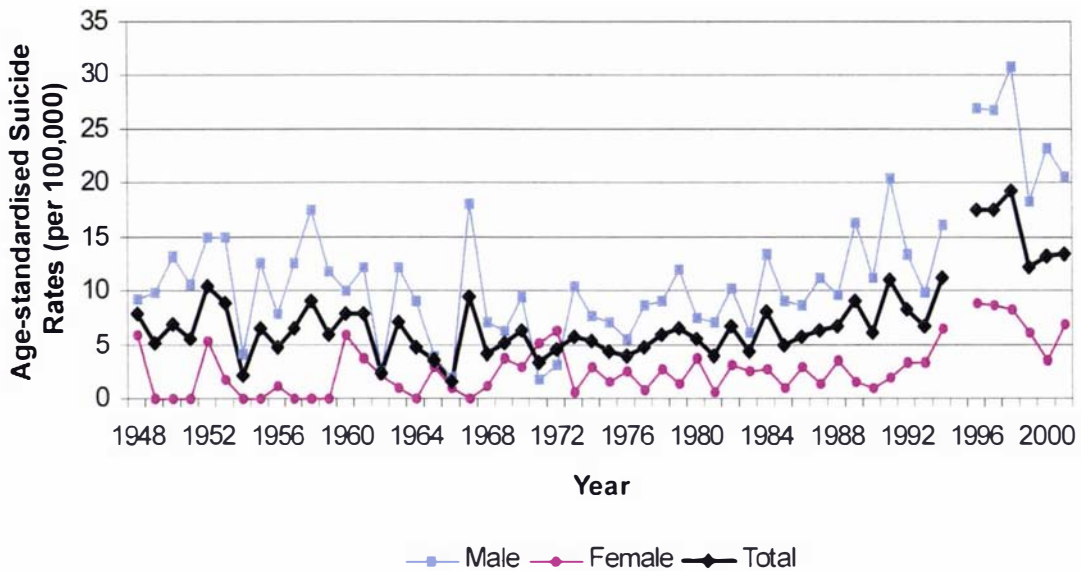
Figure 2-12: Number of Māori suicides by gender, 1948–2001.



Source: NZHIS

The age-standardised rate of Māori suicide fluctuated dramatically from 1948 until 2001, from as low as 2 per 100,000 (1955 and 1966) to as high as 19 per 100,000 (1998). After the definition change the rates significantly increased from 1996 to 1998. In 1999 the overall suicide rate dropped back to rates similar to those before the change in ethnicity classification (Figure 2-13).

Figure 2-13: Māori age standardised suicide rates by gender, 1948-2001.



Source: NZHIS

One of the major difficulties in understanding and analysing Māori suicide is a direct function of the available data.

### Contemporary Suicide

Coupe (2000c) explored potential factors that may have influenced the high Māori suicide rates from existing literature and epidemiological data. The first part of this paper discusses the sources of mortality data, how suicide is defined, and Māori suicide data between 1980 and 1997. All E-codes from E950-E959 with Māori ethnicity, both biological and self-identified, were extracted. The number of Māori suicides increased from 1980. Māori males are three times more likely than Māori females to complete suicide, especially when within the 15-44 years age group. Age-standardised rates are higher in Māori than non-Māori in all age groups, other than those aged over 65. Sixty-four percent of all Māori suicides occurred outside the 15-24 year age group. Hanging dominated the methods of completed suicide for Māori (67%). Poisoning by solids, liquids, gases or vapours accounted for the majority of the remaining Māori suicides (18%). Other methods included firearms (8%), cutting or piercing



(1%), and jumping from a high place (1%). One explanation for this choice in method is the ease of access to the necessary apparatus (Coupe, 2000c).

Suicide at any age has huge implications for the whānau structure and organisation. Each person plays a significant role in that organisation and the bigger organisations each whānau belongs to, whether hapū, iwi, urban authority or community. The loss of any individual within the whānau organisation is a problem. The gap must be filled and the burden of existence is then transferred to others, even if they are not ready for that responsibility (Coupe, 2000c).

The Skegg, Cox, and Broughton (1995) study reviewed national statistics on Māori suicide from 1957–1991. A disturbing feature of the study was the doubling of the Māori female rate and the trebling of the Māori male rate over the 35 year period. Between 1987 and 1991, Māori and Pākehā suicide rates were the same. There were two contrasting perspectives that explained the increasing Māori rates. First, according to John Broughton, high levels of culturisation contributed to suicide. Others contended it was only, or mostly, those alienated from Māori culture who took their lives. There are relatively few Māori suicides and attempted suicides by those aged 45 years and over, but the overall rates are consistently high, due largely to the youthful population of Māori.

Although Māori have had overall suicide rates one-third to one-half those of other New Zealanders, in 1987-1991 there was a sharp increase in suicide rates among Māori aged 15-24. The change probably reflects the fact that Māori youth live under adverse social conditions. They are educationally disadvantaged, have high rates of unemployment, and experience high rates of substance abuse (Ajwani, 2003).

Māori dominate the incarcerated population and this in the past has been linked to Māori suicide although there are low absolute numbers (10-20 per year). The high rate of Māori completed suicides among the incarcerated was of particular concern. A working group was established to consider the issue from a Māori perspective. The report of the Māori Suicide Review Group (1996) noted the rate of suicide among Māori was much greater than expected, 47 Māori inmates dying by suicide between 1971 and 1995. The group made 39 recommendations to reduce the frequency of suicide by Māori. The two key themes were an acknowledgement of cultural factors in assessing and managing Māori inmates, and involvement of whānau in managing Māori inmates at risk of suicide or self-harm. The review recommendations were implemented and the number of Māori who completed



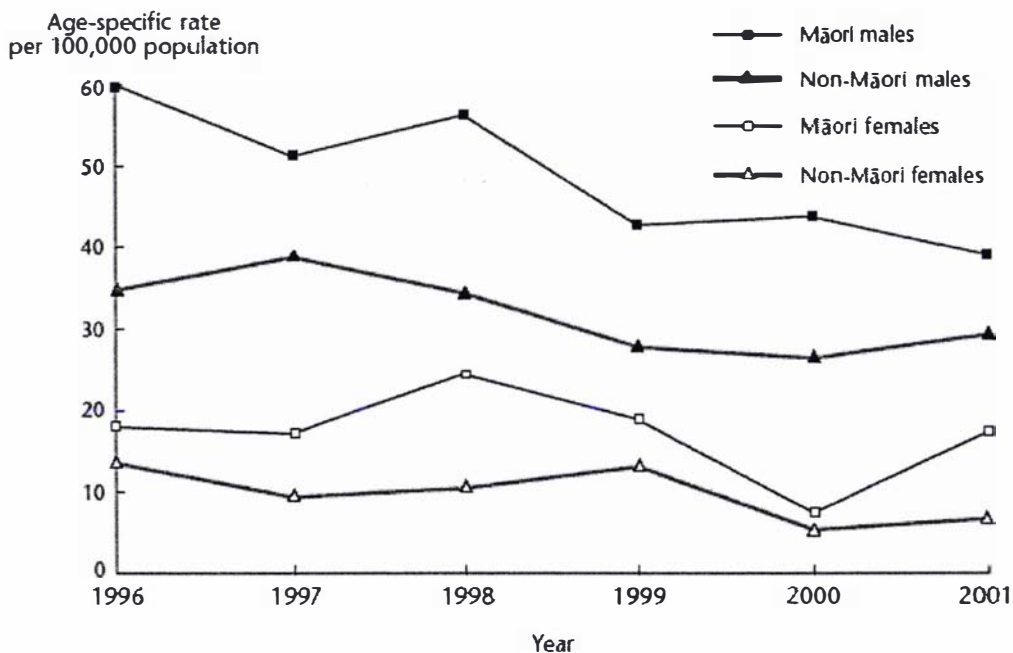
suicide in prison appears to have decreased (Department of Corrections, 1996). An analysis of coronial files found the number of suicides among incarcerated Māori have dropped (Coupe, 1999). The Māori Suicide Review Group report and work of the ‘non-Māori’ researchers present two different worlds with only an occasional ‘cross-over’ in the area ‘psychiatric disorder’ (Tatz, 1999, p118).

### **Māori Youth Suicide**

In 2001, 29 Māori young people (15–24 years) died by suicide (20 males, nine females), compared with 28 in 2000, 33 in 1999 and 43 in 1998. The rate of suicide for Māori youth was 28.0 per 100,000, compared with the non-Māori rate of 18.1 per 100,000.

The rate of suicide for young Māori males has decreased from 60 per 100,000 in 1996 to 38.9 per 100,000 (2001) compared with the non-Māori rate which peaked in 1997 close to 40 per 100,000 to 29.2 per 100,000 in 2001. The rate of suicide for young Māori females has hovered around 20 per 100,000 from the last 5 years and was 17.2 per 100,000 in 2001 compared with the non-Māori rate of 6.6 per 100,000 (Figure 2-14; Ministry of Health, 2004).

Figure 2-14: Māori and non-Māori youth (aged 15–24) suicide rates by ethnicity in New Zealand, 1996–2001.



Source: Ministry of Health, 2004.

The age-standardised rates were notably high across all age groups with a rate of 52 per 100,000 for those aged 25-29, just over 42-43 per 100,000 for those aged 15-19 and 30-34. The next highest rate is 37 per 100,000 for those aged 75-79. These peaks may occur because

of Māori population structure. Māori are a youthful population with very few Māori in the older age groups (Ministry of Health, 2003).

The number of taitamariki (youth) that complete suicide may reflect developmental and psychological growth. Māori are more likely to become parents at a younger age, so may be maturing earlier than non-Māori and adding to the burden of living in a Western world (Coupe, 2000c).

Te Puni Kōkiri commissioned a draft strategy for Māori youth suicide prevention in consultation with Māori (Lawson-Te Aho, 1998). The process incorporated community forums (hui in Whangarei, Auckland, Whakatāne, Whanganui and Christchurch) and members of the public were invited to make submissions. Over 250 Māori participated in the 'focus group' hui including service providers, community members and Māori youth.

One study into the phenomenon of Māori youth suicide incorporated the philosophies and theory of kaupapa Māori research (Joseph, 1997). The researcher for that study interviewed six kaumātua from the tribes Ati Haunui-a-paparangi, Ngāti Whatua, Ngā Puhi and Te Ao Pouri. Interviews were face to face, by telephone or through written correspondence. They were analysed by categorising the information into themes of European contact, colonisation and prevention in modern society.

Increasing numbers of Māori youth suicides could be attributed to westernisation and colonisation and the breakdown of traditional structures, values and attitudes present in pre-European Māori society (Joseph, 1997). It is, therefore, vital that cultural identity be further explored in relation to Māori attempted suicide.

Both Lawson Te Aho (1998) and Joseph (1997) provided evidence that cultural alienation plays a part in the number of youth or taitamariki attempting and completing suicide. However, the studies had serious limitations. Both adopted a non-Māori youth framework when there is clear evidence Māori suicide is not solely a youth issue (Coupe, 2000b).

The dearth of information about Māori suicide is a major barrier to understanding the reasons behind the high suicide rate in this population (Te Puni Kōkiri, 1998). New Zealand research has found links between suicidal behaviours and a person's mental health, socio-economic status, familial factors, life events and cultural indices. No evidence-based studies have focused and/or centred on Māori to determine the value of each of these factors. Many factors may contribute to the death of a person by their own hands (Lawson-Te Aho, 1998).

## **Risk Factors for Māori Suicide**

Possible risk factors for the elevated levels of Māori suicides are discussed extensively in Coupe (2000a). Mental health research has not investigated culture as a variable to any great extent and there are insufficient Māori participants in most studies. Without this information, assumptions are based on demographic characteristics, descriptive risk variables, and extrapolation from other indigenous populations (Romans, Walsh & Baxter, 1997). Māori have the highest rates of admission to psychiatric care, access mental health services at a later stage of an illness, and are more likely to be referred to psychiatric hospitals via law enforcement and welfare services. Identified factors discussed are low self-esteem, depression, stress and substance abuse (Fergusson & Lynskey, 1995a, 1995b, 1995c).

Given the variations in depression symptomology due to culture, a diagnosis of depression based solely on emotional symptoms and observable changes in mood will not always be reliable for Māori. Durie (2001 p.115) discusses clinical experience that Māori patients who have depressive disorder are not necessarily overwhelmed by symptoms of sadness, hopelessness or unhappiness. What becomes different is the presence of physical symptoms including complaints about diminished appetite, inability to eat, loss of weight, musculo-skeletal pains, reduced libido, lack of energy and vitality and feeling of coldness. Often the frustration of the lack of energy leads to impatience and irritability.

Physical, sexual, verbal and emotional abuses (Glover, 1993) are all potential risk factors that may contribute to a person exhibiting suicidal behaviours, particularly for Māori (Fergusson & Lynskey, 1995a, 1995b, 1995c). It has been widely believed by community groups that the gay and lesbian community are at an increased risk of suicide (Fergusson & Lynskey, 1995a, 1995b, 1995c). Moscicki (1995) has challenged this perception and emphasised that careful objective investigation is required. However it is clear that the gay and lesbian populations face societal stigma, discrimination, violence and victimisation, (Faulkner & Cranston, 1998; Herek, 1996; Hershberger & D'Augelli, 1995). A birth cohort in New Zealand found that gay, lesbian and bisexual youth had a higher risk not only of suicidal behaviour but also of depression, anxiety or substance abuse (Fergusson et al. 1999). The strong association could not be explained by alcohol and substance abuse, depressive symptoms or unmeasured genetic and familial factors. The contribution of disclosure of sexual orientation to friends and family (McDaniel et al. 2001) is yet to be fully assessed (Goldsmith et al. 2002).

Studies have also found an association between socio-economic factors and suicide (Morrell, et al. 1993). Māori continue to be over-represented among New Zealand unemployed. Rates of suicidal behaviour tend to be elevated among young people from socially disadvantaged backgrounds characterised by low socio-economic status, limited educational achievement and low income (Fergusson & Lynskey, 1995a, 1995b, 1995c). While there is some evidence from time series studies linking suicide rates in young people to unemployment rates (Crombie, 1990; Pritchard, 1992; Te Puni Kōkiri, 1996), these associations have not been confirmed by individual level studies (Beautrais, Joyce & Mulder, 1996; Goldney, et al. 1995; Pōmare, Keefe-Ormsby & Ormsby, 1995).

There is some international evidence from twin, adoption (Roy, Segall & Canterwall, 1991) and family studies (Brent, Bridge & Johnson, 1996) that suicidal behaviour runs in families, suggesting a possible role of genetic factors in risk of suicidal behaviour (Disley, 1997). Mechanisms by which genetics influence suicidal behaviour and risk are not yet clear. A tendency for suicide to run in families may reflect a propensity for the familial transmission of aggressive, impulsive and violent behaviours, rather than the transmission of suicidal behaviour per se. The relevance of family disadvantage and/or abuse during childhood to Māori suicide is yet to be explored in a culturally appropriate way among whānau.

### **Precipitating Risk Factors for Māori Suicide**

There is considerable evidence to suggest that suicidal behaviour in people is often preceded by exposure to stress and personal adversity, notably interpersonal loss, conflict, disciplinary, or a legal crisis. Generally, there is clear recognition that such events may occur with relative frequency and may act as precipitating factors for suicidal behaviour only when they occur in those individuals who are vulnerable to suicidal behaviour (Brent et al. 1993).

### **Cultural Indicators for Māori Suicide**

Findings from individual discussions with six kaumātua in one study found that increasing Māori youth suicides could be attributed to the processes of colonisation, and westernisation and the breakdown of traditional structures, values and attitudes present in pre-European Māori society (Joseph, 1997). If that is so, it is therefore vital that cultural identity be further explored in relation to Māori suicide. In a longitudinal study, a survey of 700 Māori households considered levels of cultural identity. Four profiles were developed, each reflecting levels of self-identification (as Māori), knowledge of whakapapa, whānau participation, access to Māori land, marae participation, association with other Māori and te



reo Māori language ability. Criteria for inclusion in a profile were based on responses to questions relating to those characteristics (Durie et al. 1995)

Cultural indicators included 27 items covering aspects of cultural experience designed to inform te ao Māori. Of the four profiles the concept of a *secure* identity rested on positive self-identification as Māori and high levels of involvement and/or knowledge in at least four of the six other characteristics. Respondents who identified as Māori and who had some involvement with marae, land, other Māori, knowledge of whakapapa and language were considered to have a *positive* cultural identity even though their involvement was less extensive than those with a secure identity. A positive self-identification and medium response to three of the six characteristics was assigned to a positive identity category. Respondents indicating a positive self-identity, but giving little indication of involvement and/or knowledge of Māori cultural processes were categorised as having a *notional* identity. Based on a concept of being Māori with few cultural markers, inclusion in the notional category was justified if respondents characteristics showed low levels of involvement and knowledge. Where respondents failed to identify as Māori their identity was considered to be *compromised* even when there was evidence of their participation in cultural institutions and knowledge of whakapapa and te reo Māori.

Thirty-five percent of respondents fitted the criteria for a secure identity, 53% for a positive identity, 6% for a notional and 6% for a compromised identity. This reflected the levels of Māori cultural identity in the Manawatū-Wanganui (where the study originated in the lower North Island), which may be indicative at a national level (Durie et al. 1996).

Some factors that influence suicidal behaviour are macro-environmental and can be manipulated by government policy (socio-economic issues, poverty, racism, housing, employment, income and education); some factors are micro-environmental and influenced by the individual, whānau/family, hapū and iwi/community (mental health, self-esteem, depression, substance abuse, physical, emotional, verbal and sexual abuse, familial factors, life events and negative authoritative involvement). Culture moves between both of these arenas (Coupe, 2000c).

### **Protective Factors for Māori Suicide**

A range of factors appear to have the capacity to protect people who might otherwise be at risk of suicide. Potentially these could include: coping skills; raised self-esteem; a sense of belonging; connections to family or school; a secure cultural identity; a supportive family or

whānau, hapū and iwi; responsibility for children; and social support. There is limited information on these factors other than in high-risk populations and for Māori, none are definitive (Coupe, 2000c).

Potential protective factors for Māori could be viewed as the opposite to the risk factors. The richer the macro- and micro- environments for Māori the fewer suicides would be expected to occur. However, there are some individual factors that have been postulated for other ethnicities including social support, coping skills and raised self-esteem. These all need to be explored further to determine the nature of each with respect to Māori suicide.

‘Five generations of grieving’ is the judgement of Dr Erihana Ryan. She believes Māori youth absorb feelings of racial alienation, emptiness, loss of culture, loss of self and the loss of esteem. ‘Stress of loss of who they are’ is the key to her therapeutic approach (Tatz, 1999, p119-120).

Keri Lawson-Te Aho, talks about the legacies of racism and alienation, adding there is ‘a secondary victimisation of Māori youth’ in institutions, especially in the mental health system, consistent with the views of the Māori Suicide Review Group, who inferred that Māori prison inmates were in a ‘special’ category in the eyes of corrective service personnel, long-term, violent, prone to suicide, and so on (Tatz, 1999, p120).

In the international literature on indigenous youth suicide there is increasing support for the existence of a form of cultural depression (Ministry of Youth Affairs, 1998), variously called sub-clinical depression, accumulative stress, cultural grief and collective post-traumatic stress disorder. Indigenous mental illness is thought to be related to the outcomes of trying to live in two worlds and fitting neither, coupled with histories of cultural genocide over which indigenous peoples have been unable to exercise sufficient control. This reflects the notion of intergenerational, collective cultural suffering (Ministry of Youth Affairs, 1998).

Two documents were developed by Keri Lawson-Te Aho to inform the New Zealand youth suicide prevention strategy. The first reviews evidence and provides the background to *Kia Piki Te Ora O Te Taitamariki* (Ministry of Youth Affairs, 1998). It discusses statistics, policy, cultural considerations, colonisation effects, risk factors for youth nationally and internationally, intervention among indigenous youth, consultation processes with key stakeholders and Māori youth, and the initial components of a Māori youth suicide prevention strategy. The second document is *Kia Piki Te Ora O Te Taitamariki: Strengthening Youth Wellbeing* (Ministry of Youth Affairs, 1998) and backs on to *In Our*

*Hands* (Ministry of Youth Affairs, 1998a). *Kia Piki Te Ora O Te Taitamariki: Strengthening Youth Wellbeing* is a comprehensive publication released after consultation with Māori and has five goals:

- To strengthen whānau, hapū, iwi and Māori so that they can contribute towards fulfilling the potential of taitamariki.
- To strengthen the role of taitamariki Māori by enabling them to provide a valued contribution to Māori development.
- To increase the role of cultural development as a protective factor for taitamariki Māori.
- To encourage and assist mainstream services to respond appropriately and effectively to the needs of taitamariki Māori through the establishment of partnerships with Māori.
- To improve our understanding of the causes and true level of suicide amongst taitamariki Māori.

### **Suicidal Behaviour as a Continuum, Issue of Intent**

Suicidal behaviour has been conceptualised as falling into a continuum ranging from thoughts of suicide to suicidal behaviours (plans to attempts) and completed suicide (Coggan, Fanslow & Norton, 1995). There has been no research concentrating on Māori suicidal behaviours and whether this continuum holds true for Māori. Research has concentrated on cases resulting in death (Shaffi, Carrigan & Whittinghill, 1985) or attempts resulting in hospitalisation (De Wilde, Kienhorst & Diekstra, 1992; Morano, Cisler & Lererond, 1992). Even less is known about medically less serious attempts (Coggan et al. 1997). There is evidence that suicidal behaviours are frequently precursors to completing suicide. A contemporary theory of factors that contribute to this range of thoughts and behaviours is important for developing effective prevention efforts. Using suicidal ideation and behaviours as measures of suicide and attempts is highly problematic; a high prevalence of suicidal ideation may be normal but a prolonged preoccupation with death is abnormal and may not be a useful indicator of outcome. Unless a strict definition of the lethality of a suicide attempt is adopted in relation to suicidal behaviour prevalence of attempt would be overestimated. By definition, suicide occurs when people have intended to kill themselves. However, ascribing intention to the actions of a deceased person is notoriously difficult and often a matter for

considerable judgement (Durkheim, 1897; New Zealand Health Technology Assessment, 1998).

## LIMITATIONS

Official suicide statistics are fraught with inaccuracies. Undetermined cases, open verdicts and under-reporting limit their strength. There are four primary sources of variability in suicide statistics (Jobes et al. 1987; O'Carroll, 1989). First, there are regional differences in the definition of suicide and classification of ambiguous cases. Second, there are regional differences in the training and experience of coroners and medical examiners. Third, there are differences in the extent to which cases are investigated. Fourth, there is variability in the quality of data used in preparing official statistics. Many developing countries impute suicide statistics rather than basing them on actual death registries (Kleinman, 2001).

Interpretation of cross-national suicide rates is subject to several limitations. Countries may assign different meanings and classifications to acts. Countries with religious sanctions against suicide are less likely to report suicide rates to the World Health Organization and, on average, their reported rates are lower than for countries without sanctions (Kellerher et al. 1998). Differences between countries may reflect the capacity of emergency health care systems to respond rather than differences in the intent of individuals (Goldsmith et al. 2002). Differences among countries in demographic groups of suicide attempts and completions may reflect different infrastructures, rather than psychological or biological differences (Ji et al. 2001). The organisation and functioning of medico-legal officials across countries has been thought to produce artificial differences, even between similar countries such as Britain and Scotland (Barraclough, 1972). Most developing societies lack registers and trained officials to record suicides. Finally, there are cross-national differences in the underlying logic of classification systems.

New Zealand has, in effect, two streams of youth suicide research: one looks through universal (or Western) lenses; the other embraces Māori perspectives. The former is a distinctly medical/psychological model, the latter, a cultural/spiritual one. Neither appears to incorporate earlier or contemporary history, politics, or the consequences of racism (other than to talk about 'social disadvantage'). The Māori perspective seeks liberation from conventional suicidology. However, a joining of forces seems a sensible path to follow.



Cultural 'orthodoxy' and a steeping of youth in Māoritanga does not appear to be strongly preventative. Acculturation, re-acculturation or revivalism has many positive consequences, and may well lower the level of suicidal behaviour.

This thesis provides more detailed statistical information on the relationships between risk factors and suicidal behaviour for Māori.

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## CHAPTER 3

# KAINAMU WHAKAMOMORI Ā TAI AO: INTERNATIONAL TRENDS IN ATTEMPTED SUICIDE

<b>Ngā Peke Kainamu Whakamomori – Attempted Suicide Strands</b>	<b>Ngā Rau Kainamu Whakamomori – Attempted Suicide Threads</b>
Broad Approach	Introduction Nomenclature Suicidal behaviour continuum
Why focus on attempted suicide?	Youth Risk factors
Non-Māori	Non-Indigenous United States of America Canada Europe United Kingdom Asia Australia New Zealand Indigenous Native Hawaiian American Indians and Native Alaskan First Nations of Canada Pacific peoples Australian Aborigines
Māori	History Contemporary Youth Risk factors (precipitating) Cultural indicators Protective factors
Limitations	

## **INTRODUCTION**

The chapter is divided into four main sections. The first section discusses nomenclature and definitions. It examines the definitions used within this thesis generally and this chapter specifically. The second part of the section examines the suicidal behaviour continuum.

The second section justifies studying attempted suicide, and is also divided into two. It examines attempted suicide research and then explores the extensive research on youth attempted suicide. The risk factors for youth suicide are outlined in five main categories: social and family factors; individual and personality factors; sexual orientation; mental health; and stressful life events and adverse life circumstances.

The third section considers at non-Māori attempted suicide and, as in Chapter 2, incorporates the epidemiology of attempted suicide in non-Māori. It is in turn, divided into non-indigenous and indigenous attempted suicide. Seven nations or global regions are discussed: United States of America; Canada; Europe; Asia; United Kingdom; Australia; and New Zealand. The indigenous attempted suicide section looks only at the American Indian, First Nations of Canada, Australian Aborigines and indigenous Pacific peoples.

The final section focuses on Māori attempted suicide. The section's introduction reviews Māori suicide historical and contemporary epidemiology and relevant publications. The chapter concludes by noting the limitations of researching attempted suicide.

## **NOMENCLATURE**

In New Zealand, injuries requiring hospitalisations as a result of people deliberately hurting themselves have been referred to as attempted suicide. The problem with this definition is the assumption of motive and intent, which are inconsistently and variably present. Other words have been used, for example 'parasuicide', which was introduced by Kreitman and his colleagues (1969). However, this word contained the word suicide, so implied an underlying motive. To avoid these difficulties authors have used the term 'deliberate self-harm' without implying intent and to simply describe behaviour. For the purposes of this chapter these terms are used interchangeably; many official statistics use 'attempted suicide'.



The definition used in Europe, originated in the World Health Organization (1994) in its studies of parasuicide/attempted suicide, is:

*an act with a non-fatal outcome, in which an individual deliberately initiates a non-habitual behaviour that, without intervention from others, will cause self-harm, or deliberately ingests a substance in excess of the prescribed or generally recognised therapeutic dosage, and which is aimed at realising changes which the subject desired via the actual or expected physical consequences (Bille-Brahe, 1984.)*

and

*A potentially self-injurious behaviour with a non-fatal outcome, for which there is evidence (either explicit or implicit) that the person intended at some (nonzero) level to kill him/her-self. A suicide attempt may or may not result in injuries (O'Carroll et al. 1996, p. 239)*

and

*a non fatal, self inflicted destructive act with explicit or inferred intent to die (Goldsmith et al. 2002, p27)*

These definitions do not differentiate between attempted suicide and parasuicide. In several countries, for example North America, the term 'attempted suicide' is used only for cases in which the intention to die from suicide is very strong, while 'parasuicide' is the umbrella term for all cases of non-fatal suicidal behaviour, irrespective of medical seriousness or the strength of psychological intent.

Suicidal thoughts or ideation are defined as wishes or behaviours that indicate a desire to take one's own life. Suicidal thoughts can be expressed verbally in the form of direct statements of intent or written comments, or non-verbally in the form of artistic creations or behaviours.

Hospitalisation rates refer to the number of discharges per 100,000 population and can be calculated in two ways:

- age-specific hospitalisation rates, calculate the number of discharges in relation to the population size of a particular age group.
- age-standardised rates, account for differences in the population's age structure, and can be used to compare data over time or between different populations.

In New Zealand hospitalisation for suicide and self-inflicted injury includes hospitalisations involving self-inflicted injury where there was no suicidal intent, as well as deaths from self-inflicted injury that occurred in hospital.

Public hospitals recorded up to three ethnic groups per patient in 1998–1999. This required individuals to self-prioritise the most important ethnic groups if they identified with more than three ethnicities. In a major departure from practice, Statistics New Zealand now produces the national population estimates on the basis of resident population. Previously, both the national and subnational estimates related to a de facto population concept, which included all people in New Zealand at a given time (including overseas visitors) and excluded New Zealanders temporarily overseas on census night. Statistics New Zealand has adopted the resident population concept to ensure that estimates reflect more accurately the population that resides in New Zealand.

Using the resident population concept means population estimates are slightly higher than the traditional de facto estimates. The number of births, deaths and marriages registered to overseas visitors while in New Zealand are excluded so these figures are slightly smaller. As a consequence, demographic indices calculated with the usually resident population will be slightly lower because, compared with the de facto population measures, the denominator (population) is higher and the numerator (births, deaths and marriages) is lower.

In July 1995 the New Zealand Health Information Service adopted the Australian Version of the International Classification of Diseases (Clinical Modification) (ICD-9-CM-A) and also the Australian National Coding Standards (National Coding Centre, 1998). This has resulted in a change to the classification of procedures and discharges. Because there have been delays in interpreting the standards uniformly across all reporting hospitals, some figures from 1995 to 1998 public hospital publications may not be comparable with each other or with earlier years.

### **Suicidal Behaviour as a Continuum: Issue of Intent**

Suicidality represents a continuum of risk or likelihood, with an implicit progression in the seriousness of risk from thoughts to specific plans, gestures or minor self-injurious acts, to attempts with a range of potential lethality and completed suicide (O'Carroll et al. 1996). Epidemiological data concerning suicide are notoriously suspect and usually underestimate the true rates. Some deaths are not labelled as suicide due to shame, to limit the psychological burden on survivors, or to avoid losing life-insurance payments. Sometimes deaths occurring

well after a suicide attempt are attributed to the final cause of death rather than considered a delayed outcome of a suicidal act. It is particularly difficult to evaluate suicidal intent (the level of expectation of death) and lethality (the nature of the method) for attempted suicide (Beck, Beck & Kovacs, 1975; Moscicki, 1998; Pierce, 1977, 1981; Shneidman, 1969).

High in the hierarchy of lethal methods are violent acts involving a firearm, hanging, carbon monoxide poisoning, drowning, suffocation or jumping from a great height (Stone, 1999). Drug overdoses and poison ingestions may be less violent, but vary in toxicity and lethality. The risk of a fatal outcome from a suicidal act is lowest with a weak intent and low lethality of method. The risk is highest with a firm intention of dying and a highly lethal method. Other acts of intermediate likelihood of fatality vary in both seriousness of intent and lethality of means (Tondo et al. 1999).

Suicidal ideation in most cases is not accompanied with a suicide attempt, but almost all people who complete suicide have thought of suicide previously and have usually communicated their intentions directly or indirectly. However, previous communication of suicidal ideation does not guarantee future safety.

The notion of chronic suicidal behaviour refers to individuals who repeatedly self harm either by impulsive risk taking behaviour or self injury (Menninger, 1938). This is often associated with disorders of personality and is usually both theoretically and clinically managed differently from other suicidal phenomena. Hypothetically, such partial or chronic suicidal acts may substitute for actual suicide, but this concept is unreliable, particularly when self-injurious behaviours arise with substance abuse or psychiatric illness (Clark & Goebel-Fabbri, 1998; Tondo et al. 1999).

## **WHY FOCUS ON ATTEMPTED SUICIDE?**

Data about parasuicides are even less reliable than those for suicides, due to the lack of reliable national records and heterogeneity of classifications based on varying intent and lethality. International studies have reported the prevalence of suicide attempts in the general population ranging from 0.04% to 4.6% for lifetime risk and about 0.8% per year overall, or 0.2% to 0.6% per year for life-threatening acts (American Association of Suicidology, 1998; Kessler, Borges & Walters, 1999; Moscicki, 1998; Schmidtke et al. 1996) The ratios of attempted suicides to completed suicide in the general population has varied from 6:1 to 25:1, and averages about 18:1 worldwide, with a much lower ratio (possibly only 2:1 to 5:1) in

persons with major affective disorders (Bostwick & Pankratz, 2000; Conwell & Henderson, 1996; Tondo & Baldessarini, 2000). Inskip, Harris and Barraclough (1999) suggest these lifetime suicide risk figures are too high and that estimated lifetime risk was 6% for effective disorder, 7% for alcohol dependence and 4% for schizophrenia.

Parasuicide is important since 30% to 60% of suicides are preceded by an attempt, and 1% to 14% of people who attempt suicide eventually kill themselves, at rates about 100 times higher than the general population (Diekstra, 1993; Hawton & Flagg, 1988; Schmidtke et al. 1996; Stengel, 1964; Tejedor, et al. 1999).

Importantly people who self harm have a much higher overall mortality compared to people who do not self harm. The strongest predictor of suicide is previous self harm (Sakinofsky, 2000) which is found in 40-60% of suicides (Hawton & Fagg, 1988; Rygnestad, 1988; Suokas & Lönnqvist, 1991; Nordentoft et al. 1993; Foster et al. 1997; Hawton & Zahl, 2003)

The annual international rate of suicidal ideation is much higher, but estimates are even more unreliable, ranging from 6% to 14% in the general population, and presumably even higher among individuals with psychiatric and substance use disorders (Crosby, Cheltenham & Sacks, 1999; Kessler, Borges & Walters, 1999).

One method of studying suicides has been the psychological autopsy approach, in which detailed information on individuals who have died by suicide is collected through official records and from informants who knew the individual well (Clark & Horton-Deutsch, 1992; Hawton & Flagg, 1988; Shneidman, 1981). Such studies can be relatively informative about suicide characteristics, but, limitations include informants' distorted and biased recall and lack of information about certain problems, especially those of a personal nature (Hawton & Flagg, 1988).

On the other hand studying survivors of suicide attempts greatly expands areas of research including a broader range of risk factors, details of suicidal process and psychological and biological characteristics (Hawton, 2001). The type of control group chosen for suicide attempt research is an important consideration. The major determinant is the nature of the risk factors investigated. The Centre for Disease Control and Prevention study (Kresnow et al. 2001) aimed to identify non-defined risk factors, so general population controls were incorporated. The focus on younger individuals (under 35 years) due to their rising suicide rates and paucity of information, was considered reasonable. The study went beyond mental illness related to suicidal behaviour to consider factors of suicidal lethality, alcohol



consumption, geographical mobility, impulsivity, medical conditions and help-seeking behaviours (Hawton, 2001).

Evidence from other countries suggests that attempted suicide is also likely to result in considerable use of emergency services (Robicsek, Ribbeck & Walker, 1993). In New Zealand routinely collected data on suicide attempts underestimates the true number of attempters because records are kept only on those who are admitted to hospital as in-patients or day-patients. Data are not collected in some countries on people treated in hospital emergency departments as out-patients, people treated by general practitioners, and people who do not seek medical treatment. Also, improved treatments for overdose have meant more people are treated without being admitted to hospital, so are not included in attempted suicide hospital data. Attempted suicide data include cases of deliberate self-harm where the person's intent was not death. In New Zealand regional studies of emergency departments have been undertaken, but these have been restricted to Christchurch and poisoning (Buchanan, 1991; Hall & Curry, 1994). This lack of data on emergency department presentations is a major barrier to planning prevention strategies, which are instead based on an incomplete picture of suicidal behaviours.

There has been only one New Zealand study that has considered the life time prevalence of suicidal behaviour. It concluded that 3% (95% CI 2.84-3.16) of the 954 members of the group studied had attempted suicide by the age of 16 (Fergusson & Lynskey, 1995a). Similar findings (0.2% to 7.5%) have been reported in international data from the USA and Australia (Patton et al. 1997; Garrison et al. 1993).

Māori have proportionately more hospitalisations for intentional injuries than all other population groups. For the June 1998 – July 1999 year there were 513 (14.1% of all discharges) hospital discharges involving suicide and self-inflicted injury by Māori; of those 294 were female. For both Māori males and females self-inflicted injury was less common than injuries inflicted by others (219 compared with 626 and 294 compared with 345, respectively). Māori youth (15-25 years) accounted for 193 of the 513 (37.6%).

### **Youth Risk Factors**

In recent years, there have been growing concern about the increasing rates of youth (15-24 years) suicidal behaviour, particularly among males, in developed countries (Pritchard, 1996). Beautrais (2000) gathered evidence about risk factors for suicide and attempted suicide in young people from many published studies. The studies included, were psychological

autopsies and case control studies from the mid-1980s to early 1998, with a dominant focus on youth (15-24 years), a sample size greater than 20, and a response rate of at least 50%.

*Social and family factors*

The evidence found by Beautrais (2000) suggested there is a wide array of adverse social and family factors linked to attempted suicide and suicide (Table 3-1).

Table 3-1: Publications discussing social and family factors associated with suicidal behaviour.

Social and family factors	Publications
Social disadvantage	Andres & Lewinsohn, 1992; Beautrais, Joyce & Mulder, 1998d; Bucca, et al. 1994; Dubow et al. 1989; Fergusson & Lynskey, 1995a, 1995b, 1995c; Gould et al. 1996; Gunnell et al. 1995; Lesage et al. 1994; Petronis et al. 1990; Slap et al; 1989
Parental separation or divorce	Adams, Overholser & Lehnert, 1994; Andres & Lewinsohn, 1992; Beautrais Joyce & Mulder, 1996; de Wilde et al. 1992; de Wilde et al. 1993; Fergusson & Lynskey, 1995a, 1995b, 1995c; Garfinkel Froese & Hood, 1982; Goldney, 1981; Grossman, Milligan & Deyo, 1991; Kienhorst et al. 1990; Kosky, 1983; Martin et al. 1995; Paluszny, Davenport & Kim 1991; Slap et al; 1989; Tulloch et al. 1994; Velez & Cohen, 1988
Parental discord	Beautrais, Joyce & Mulder, 1996; Fergusson & Lynskey, 1995b; Kienhorst et al. 1992; Kosky, 1983; Smith & Crawford, 1986; Taylor & Stansfeld, 1984
Impaired parent-child relationships, parental psycho-pathology, and childhood physical abuse	Beautrais, Joyce & Mulder, 1996; de Wilde et al. 1992; Deykin & Buka, 1994; Gamefski, Diekstra & de Heus, 1992; Grossman, Milligan & Deyo, 1991; Hernandez, Lodico & DiClemente, 1993; Riggs, Alario & McHomey, 1990; Shaunesey et al. 1993; Silverman, Reinherz & Gianconia, 1996; Smith & Crawford, 1986; Tulloch et al. 1994; Wagner, Cole & Schwartzman, 1995
Sexual abuse	Beautrais, Joyce & Mulder, 1996a; Bagley et al. 1995; de Wilde et al. 1992; Deykin & Buka, 1994; Edwall, Hoffman, & Harrison, 1989; Fergusson, Horwood & Lynskey, 1996; Gamefski & Diekstra, 1997; Gamefski, Diekstra & de Heus, 1992; Grossman et al. 1991; Hernandez Lodico & DiClemente, 1993; Martin, 1996; Remafedi et al. 1996; Riggs, Alario & McHomey, 1990; Shaunesey et al. 1993; Silverman, Reinherz & Gianconia, 1996

Source: Beautrais, 2000.

Social disadvantage, parental separation or divorce, parental discord, impaired parent-child relationships, parental psychopathology and exposure to childhood physical and/or sexual abuse all appear to be associated with an increased risk of suicidal behaviour. Beautrais (2000) interpretation of the evidence suggests causal process in which exposure to childhood and family adversity increases an individual's vulnerability to later psychopathology and adjustment difficulties, this increase being reflected in increased rates of suicidal behaviour.

*Individual and personality factors*

Further risk factors for youthful suicidal behaviour encompass individual and personal factors including genetic, neuroendocrine and biologic factors, and personality and temperamental factors (Beautrais, 2000; Table 3-2).

Table 3-2: Publications about individual and personality factors associated with suicidal behaviour.

Individual and personality factors	Publications
Genetic factors	Brent et al. 1994, 1996, 1998; Garfinkel, Froese & Hood, 1982; Gould et al. 1996, 1998; Grossman, Milligan & Deyo, 1991; Harkavy-Friedman et al. 1987; Pfeffer, Normandin & Kakuma, 1994; Rubenstein et al. 1989;
Neuroendocrine and biologic factors	Arango et al. 1995; Asberg, Nordstom & Treskman-Bendz, 1986; Brown & Goodwin, 1986; Cocarro, et al. 1989; Malone et al. 1996; Mann et al. 1986; Stanley & Stanley, 1989
Personality and temperamental factors	Asamow & Guthrie, 1989; Beautrais, Joyce & Mulder, 1998b; Benjaminsen, Kranup & Layritsen, 1990; Brent et al. 1994; Carlson & Cantwell, 1982; Colson, 1972; de Wilde et al. 1993; Diekstra, Kienhorst & de Wilde, 1995; Goldney, 1982; Goldston et al. 1996; Jenkins, 1977; Kashani, Goddard & Reid, 1989; Kashden et al. 1993; Kazdin, Rodgas & Colbus, 1983; Kienhorst et al. 1992; Khan, 1987; Koller & Castanos, 1968; Kreitman, 1997; Lester, 1972; Pallis & Jenkins, 1977; Pearce & Marin, 1993; Pfeffer et al. 1988; Shaffer et al. 1996; Smith & Crawford, 1986; Spirito, Overholser & Hort, 1991; Strickland, 1978

Source: Beautrais, 2000.

### *Sexual orientation*

There have been repeated claims that rates of suicidal behaviour are elevated among gay, lesbian and bisexual young people (Bagley & Tremblay, 1997; Beautrais 2000; Gibson, 1989; Kroll & Warneke, 1995; Martin & Hetrick, 1988; Ramafedi, Farrow & Deisher, 1991; Schneider, Faberow & Kruks, 1989). Specifically, it has been argued that, a series of social processes centring around homophobic attitudes exposes gay, lesbian and bisexual youth to serious social and personal stresses that increase their likelihood of suicidal behaviour. Several studies have emerged comparing rates of suicidal behaviour in samples of gay, lesbian and bisexual youth with heterosexual control groups. In general, these studies have found an increased risk of attempted suicide among gay, lesbian and bisexual individuals (Bagley & Tremblay, 1997; Beautrais, 2000).

### *Mental health*

Beautrais (2000) suggests there is overwhelming evidence mental disorders, in particular, affective, substance use disorders and antisocial behaviours play a role in the aetiology of youthful suicidal behaviour. Evidence to support this conclusion has come from psychological autopsy studies (Marttunen et al. 1993) which have examined the prevalence of mental disorders among those who have died by suicide, and case control (Beautrais et al. 1998, 1998a, 1998b, 1998c, 1998d) or longitudinal investigations (Fergusson & Lynskey, 1995a) which have contrasted rates of disorders between individuals with suicidal behaviours and non-suicidal subjects.



Table 3-3: Publications of mental health factors associated with suicidal behaviour.

Mental health factors	Publications
Affective disorders	Andrews & Lewinsohn, 1992; Beautrais, Joyce & Mulder, 1998b; Brent et al. 1993; Fergusson & Lynskey, 1995b; Pelkonen et al. 1997; Reinherz, et al. 1995
Substance use disorders	Andrews & Lewinsohn, 1992; Beautrais, Joyce & Mulder, 1998a; Fergusson & Lynskey, 1995b; Patton et al. 1997; Reinherz, et al. 1995
Antisocial behaviours	Andrews & Lewinsohn, 1992; Beautrais, Joyce & Mulder, 1998b; Fergusson & Lynskey, 1995b; Patton et al. 1997; Trautman et al. 1991

Source: Beautrais, 2000.

### *Stressful life events and adverse life circumstances*

Beautrais (2000) also suggested that among those making suicide attempts there is a high rate of exposure to recent stressful life events and adverse circumstances. Exposure to such events is then associated with significant increases in rates of suicidal behaviour. Studies have reported elevated rates of a range of life stressors, most commonly interpersonal losses or conflicts, and disciplinary or legal crises (Adams, Overholser & Lehnert 1994; Beautrais, Joyce & Mulder, 1997; de Wilde et al. 1992; Dubow et al. 1989; Kienhorst et al. 1992; Morano, Cisler & Lemerond 1993; Rubenstein et al. 1989; Pfeffer et al. 1991, 1993; Wetzler et al. 1996). Considerable attention has been given to the role of unemployment as a life event that provokes suicidal behaviour. The results of time series analyses have been ambiguous, with some studies suggesting a link between changing rates of unemployment and others failing to find this association (Beautrais, 2000; Crombie, 1990; Diekstra, 1989; Krupinski et al. 1994; Morrell et al. 1998; Morrell, Taylor & Kerr 1993; Platt & Kreitman, 1985; Platt, Micciolo & Tansella 1992; Pritchard, 1992).

While the above studies provide evidence of the common risk factors and life processes that encourage suicidal behaviour among youth, many gaps in knowledge about this complex human problem remain (Beautrais, 2000). Some of these difficulties could be addressed by developing larger and more systematic studies of suicidal behaviour in all age groups.

## **NON-MĀORI ATTEMPTED SUICIDE**

As mentioned in the previous chapter non-Māori refers to all populations who do not have Māori ancestry, both internationally and nationally within New Zealand.



## **Non-Indigenous Attempted Suicide**

Seven non-indigenous populations are described with respect to attempted suicide, in the following sections.

### *United States of America*

The USA has no nationally comprehensive system for classifying and collecting data on suicide morbidity. The lack of a consistent definition has resulted in great variability in estimates of various suicidal behaviours. The most reliable data come from surveys of psychiatric morbidity in community samples that contain questions about operationally defined suicidal behaviours, although even these need to be interpreted with caution (Andrews & Lewinsohn, 1992; Garrison, et al. 1993; Meehan, et al. 1992; Moscicki, et al. 1988; Paykel, et al. 1974). One major difficulty with collecting standardised data on suicide morbidity is the measurement of suicidal intent (Garrison 1989; Garrison, et al. 1991; Meehan et al. 1992; Moscicki et al 1988).

During 2000 in the USA, more than 264,000 persons were treated for non-fatal self-inflicted injuries in hospital emergency departments according to the Center for Disease Control and Prevention (2001). Most of the injuries were poisonings or lacerations and 60% (about 15,840) were probable suicide attempts. The CDC provides national estimates and the characteristics of self-inflicted injuries to help monitor trends. Overall, self-inflicted injury rates were highest among adolescents and young adults, particularly females. Most of the injuries resulted from poisoning (65%) or cutting or piercing with a sharp instrument (25%). Far fewer involved a firearm (1%). Approximately half (49%) the persons seen for self-inflicted injuries were treated and released from the emergency departments, while 32% required hospitalisation.

Overdosing with over-the-counter medicines is a very common way of attempting suicide (American Association of Suicidology, 1998). In self-injurious acts with varying levels of suicidal intent, women generally prefer drug overdoses and wrist cutting. However, recent data show an increasing use of firearms and a decreasing incidence of self-poisoning among American women (American Association of Suicidology, 1998). Men tend to choose violent, more lethal means including gunshot, hanging, and jumping (American Association of Suicidology, 1998).

#### Texas

The Houston Center for Disease Control and Prevention case control study (Kresnow and colleagues, 2001) detailed the research methods and measurements involved in conducting a population-based, case control study of nearly lethal suicide attempts among persons aged 13-34 residing in Houston, Texas. From November 1992 to July 1995, 153 case subjects were recruited from patients presenting at one of three participating hospital emergency departments, while random telephone number dialling was used to identify 513 control subjects residing in the same catchment area from which cases were enlisted. The study was designed to extend understanding of suicidal behaviour and prevention activities beyond the identification and treatment of depression and other mental illnesses. Of the 1,648 suicide attempters meeting the requirements for time period, age and residency 244 (15%) met the criteria for a nearly lethal suicide attempt. Of the 244 eligible attempters, 153 (63%) completed an interview, 54 (22%) refused to be interviewed, 22 (9%) denied attempting suicide, 4 (2%) were too ill to be interviewed, and 11 (5%) were lost to follow-up.

Information about impulsive suicide attempts (that is, when the respondent reported spending less than 5 minutes between deciding to attempt suicide and the actual attempt) found that among the 153 case subjects, 24% attempted impulsively. Impulsive attempts were more likely among those who had been in a physical fight and less likely among those who were depressed. Relative to control subjects, being male, fighting and hopelessness distinguished impulsive cases but depression did not. Findings suggested inadequate control of aggressive impulses might be a greater indicator of risk for impulsive suicide attempts than depression (Simon et al. 2001).

#### Massachusetts

Data on hospitalisations in Massachusetts for self-inflicted injuries were obtained from the Massachusetts Hospital Discharge Database. Acute care hospitals must submit demographic and diagnostic data on all discharges to the Massachusetts Division of Health Care Finance and Policy. Since this database does not include suicidal injuries treated in emergency departments, psychiatric or Veterans' Administration hospitals and corrections facilities, or by health professionals outside a hospital setting, the number of cases was not complete.<sup>2</sup> No data system exists for capturing the full scope of suicide attempts in Massachusetts (Bureau of Health Statistics, 2001).

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<sup>2</sup> Data are also limited by the less than 100% rate among Massachusetts hospitals.

Overall, the average annual number of hospitalisations for self-inflicted injuries between 1996-1998 was 3,466. With regard to age, self-inflicted injury hospitalisations show a different pattern from completed suicides. Hospitalisation rates dramatically increase after age 14, and then decrease in age groups over 50. In contrast, death rates are lower in younger age groups and increase throughout the lifespan. Females are hospitalised for self-inflicted injury at a higher rate than males, a fact that may be related to the method used (Bureau of Health Statistics, 2001). Young women aged 15-24 are at highest risk for self-inflicted injury. When examined by race or ethnicity, hospitalisation rates for self-inflicted injury differ from death rates. While white non-Hispanics have the highest suicide rates, black non-Hispanics and Hispanics have the highest rates of hospitalisation for self-inflicted injuries. Most (83%) hospitalisations for self-inflicted injuries result from poisoning. Stabbing and cutting account for 11% of these hospitalisations, while the most lethal methods, firearms and suffocation, account for less than 2% combined. Females have a slightly higher percentage of poisonings (86.5% compared with 78% for males), and males have slightly higher percentages of stabbings and cuttings (13.6% compared with 9.6% for females) (Bureau of Health Statistics, 2001).

#### Immigrant Mexican-American

There is little research exploring suicidality within the Mexican-American population. Most of these few studies concentrate on adults. As examples, Sorenson and Golding (1988a, b) examined lifetime rates of suicidal ideation and suicide attempts among Latinos and non-Latino whites. In the first study (Sorenson & Golding, 1988a), Mexican Americans born in Mexico revealed significantly lower age- and gender-adjusted lifetime rates of suicidal ideation (4.5%) than Mexican Americans born in the USA (13%), who in turn revealed significantly lower rates than non-Latino whites born in the USA (19.2%). Adjusted rates of attempted suicide attempt were lowest among Mexican Americans born in Mexico (1.6%) and higher among both Mexican Americans (4.8%) and non-Latino whites (4.4%) born in the USA. In the second study (Sorenson & Golding, 1988b), fewer Latinos (of whom 87% were Mexican American) reported suicidal ideation (8.8% compared with 18.9%) and suicide attempts (3.2% compared with 5.1%) than non-Latino whites.

Community-based studies explored suicidal behaviour and acculturation among immigrant and Mexican-American groups. Berry and Kim (1988) and Williams and Berry (1991) presented a conceptual framework for studying the acculturative process and its relationship to mental health. Their model identified cultural and psychological variables facilitating the

relationship between acculturation and mental health. These included social support found within the new community; immediate and extended family support networks; socio-economic status (SES), including work-status changes and specific characteristics of SES such as education and employment; pre-migration variables such as adaptive functioning (self-esteem, coping ability, and psychiatric status), knowledge of the new language and culture, and motives for the move (voluntary versus involuntary); cognitive attributes such as attitudes toward acculturation (positive or negative) and expectations of the future; and the nature of the larger society – that is, the degree of tolerance for, and acceptance of, cultural diversity within the mainstream society (multicultural versus assimilationist).

The possibility that suicide may stem from the lack of meaningful social interactions and close relationships within the community dates back to Durkheim (1897/1951). According to Durkheim, ‘anomie’ develops and individuals are at a higher risk of suicide when the accustomed relationship between the individual and his or her society is ‘shattered’. This may occur when an individual migrates to a new country. In the new country an individual may feel pulled between the values of his or her ethnic group and those of the mainstream society. Caught in this state, certain individuals may experience heightened levels of psychological distress. This suggests that during the acculturative process immigrants may be at an increased risk for suicidal ideation and behaviour.

One survey (Olvera, 2001) examined differences in suicidal ideation, depressive symptomology, acculturation and coping strategies based on ethnicity. Olvera gathered data from a self-report questionnaire administered to 158 students in an ethnically diverse middle school (grades 6-8, aged 12-14). Hispanic (predominantly Mexican-American) and mixed-ancestry adolescents displayed significantly higher risk of suicidal ideation compared to their Anglo peers, even when socio-economic status, age and gender were controlled for. Suicidal ideation was associated with depressive symptoms, family problems, lower levels of acculturation and various coping strategies. Using multivariate analysis, Hispanic ancestry, depressive symptoms, family problems and the use of social coping all remained in the model.

#### African Americans

Research examining black/white comparisons of suicidal behaviour has consistently reported that African Americans have lower suicide rates than white Americans (Ellis & Range, 1989; SuDak, Ford & Rushforth, 1984) and other racial or ethnic groups (Bush, 1976; Gibbs, 1988). Intra-racial (for example, northern versus southern African Americans) comparisons



of suicide ideation have been rare. Few researchers have tried to explain the lower rates of suicide ideation in African Americans in a culturally relevant context. Assessing suicidal behaviour among African Americans should not only involve determining risk factors, but exploring those cultural and familial factors that empower them to be resilient (Harris & Molock, 2000). Cultural and familial factors unique to African Americans may account for black or white differences in suicidal behaviour. Determining those factors that account for the rate of suicide among African Americans is important not only for prevention purposes but also for a better understanding of the intrapersonal and interpersonal dynamics relevant to suicidal behaviour within this ethnic or racial group. One factor that merits consideration is cultural orientation. Many scholars have suggested that researchers cannot accurately assess a given population without an understanding of their worldview, values, and characteristic behavioural expressions (Boykin, 1986; Nobles, 1991). One of the cultural values most salient for African Americans is communalism (Boykin, 1983; Jones, 1991; Nobles, 1991). The concept of communalism emphasises the notion of the extended self, the fundamental interdependence of people and the importance of social bonds (Boykin & Ellison, 2001).

Family cohesion may be defined operationally as the emotional connectedness and degree of commitment, help and support family members provide for one another. Adherence to a communal ethos has a direct impact on the degree of cohesion in a family. The values most salient in a communal way of life, belief in tribal survival and a strong sense of unity are strong cohesive devices (Nobles, 1991). In addition to communalism and family cohesion, social support is also an important factor to consider as a buffer against suicidal behaviours in African American youth. Social support is defined operationally as the perceived availability of support, the perceived emotional support, or having at least one person in whom to confide (Jackson, 1992). The literature suggests that increased social support is associated with better physical and mental health outcomes (Brown & Gary, 1987). Perceived social support appears to buffer the individual from the negative effect of stressful life events (Harris & Molock, 2000).

Researchers also contend that African American women are faced with several mental health issues as a result of their historical, cultural and structural position within American society. These issues are reflected in higher rates of ill health and substance abuse. However, Black American deliberate self-injury rates are lower than White American rates (Neeleman et al. 1996).

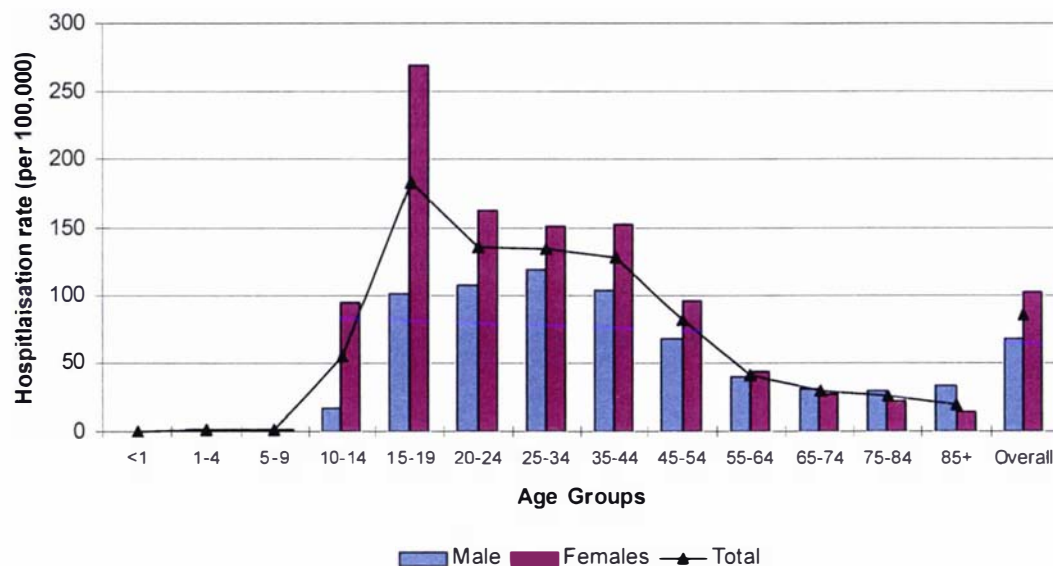
*Canada*

Studies consistently show that suicide attempts were much more common than completed suicides and the estimated ratio of attempted suicides to completed suicides might be 50:1 in Canada (Moscicki, 1994). In 1999, Canadian women were 1.5 times more likely than Canadian men to be hospitalised because of attempted suicide. The exception were those aged 70 or older, where men were hospitalised at higher rates than women. Young women aged 15–19 had much higher hospitalisation rates than any other age group of either sex. After the age of 50, hospitalisation rates decreased markedly among both men and women.

Between 1987 and 1999, rates of hospitalisation for attempted suicide peaked in 1995. Rates declined in the later 1990s among both men and women. In the two youngest age groups of women (those aged under 15 years and 15-24) hospitalisation rates for attempted suicide increased between 1987 and 1995, then decreased. Although rates in the middle age groups (25-44 and 45-64) showed a similar increase up to 1995, they did not decrease in the same way in the later part of the decade.

Figure 3-1 demonstrates the Canadian self-inflicted injury rates, 1996-1997. Female rates of injury were higher than the males rates between all age groups, 10-64 years. The greatest rates of injury for both males and females occurred at 15-44 years.

Figure 3-1: Hospitalisations by age group for self-inflicted injury in Canada, 1996–1997.



Source: Health Canada (1999)

Enns and colleagues (1997) explored the relationship among depressive symptoms, anxiety, hopelessness and suicidal intent in a group of 77 adolescents who had been hospitalised after attempting suicide. Results indicated that hopelessness was the only significant predictor of

suicide intent in Caucasian patients, and depressed mood was the only significant predictor in the Aboriginal group.

#### Edmonton

The most systematic study of attempted suicide in Canada ascertained rates in Edmonton for the year 1993–1994 (Bland et al. 1998). These researchers defined suicide attempts using a wider definition. However, their study did not include cases of habitual repetitive self-mutilators. All persons attending an emergency room in all Edmonton hospitals following a suicide attempt were included. The study was able to calculate age- and sex-specific attempt rates based on the 1993 Edmonton population. The results indicated that women accounted for 60.7% of the persons attempting suicide, giving a female-to-male ratio of 54:1. The rate varied considerably by age. Under the age of 15, the rate was almost 3.5 times higher in girls than in boys. It was almost equal for women and men aged 30–34, increased to a rate of 2.1 for women and men aged 45–49, and fell to below 1 for those aged 55 or over. The overall incidence rate for the Edmonton population 15 years or over was 376 per 100,000 per year; the rate for women was 440 and for men 309. Suicide attempt rates varied by marital status: rates in single compared to married women were 4.3 times greater, and rates in men compared to women were 4.9 times greater. In Edmonton the most commonly employed method was medication overdose; women were significantly more likely than men to overdose (80.3% compared with 65.6%). Pain medications, such as acetaminophen, were most commonly used for overdoses, followed by minor tranquillisers. This attempt rate is obviously an underestimate of the total suicide attempt rate, as the study included only persons who went to an emergency room.

#### Europe

The largest study of attempted suicide is the WHO/EURO multicentre study on parasuicide, in which many centres in Europe collaborated (Kerkhof et al. 1994). The first part of the study monitored hospital and clinical presentations due to deliberate self-poisoning or self-injury. The second part was an in-depth investigation of patients with a one-year follow up using the European Parasuicide Interview Schedules (Kerkhof et al. 1989). Individuals who had made highly dangerous and physically life-threatening suicide attempts were included with individuals who had engaged in acts with less severe suicidal intent.

Information obtained from interviews of 1,646 parasuicide patients in 14 regions in the 13 European countries participating in the suicidal behaviour study was used to study self-reported intentions involved in parasuicide. Although some statistically significant

differences were found, the effect sizes were very small. The main findings from the study were that parasuicide patients in different countries tend to indicate that similar types of intentions were involved in their acts of parasuicide and the intentions do not vary greatly with gender or age (Hjelmeland et al. 2002).

A European study of attempted suicides established 15 catchment areas across 13 countries (Schmidtke et al. 1994). During 1989-1992, the average female to male attempted youth suicide ratio for all the centres was 1.7:1, with a range from 0.9:1 in Helsinki (Finland) to 2.8:1 in Emilia-Romagna (Italy). The lowest suicide attempt rates were found in centres in Spain and Italy (which also had the lowest suicide rates), while the highest attempted suicide rates were found in France and England. Finland also had high male attempted suicide rates and was the only country to record higher male attempted suicide rates than female.

The Psychiatrische Krankenhaus Hall in Tyrol, Austria, is one of the centres in the WHO/EURO Multicentre Study on Parasuicide. Data was available for the period 1989-1993 using this the average annual medically treated parasuicide rate was approximately 104 per 100,000. The average male/female ratio of all attempted suicides recorded between 1989 and 1993 was 0.83 (the annual male/female ratio varied between 0.67 to 1.02) (Brennan, 2001b; WHO/EURO Multicentre Study, 1999).

Data from sentinel GP surveillance (1990-1991), estimated that the average incidence of parasuicide was 130 per 100,000 (Van Casteren et al. 1993). Research showed a significant decrease occurred in the number of females under the age of 35, and in males under the age of 25 treated in hospital for parasuicide between 1986 and 1990. A decrease in the incidence of suicide attempts seen by general practitioners was also reported (van Heeringen & Jannes, 1993). This research joined the WHO/EURO Multicentre Study on Parasuicide in 1996 and found the average annual incidence for medically treated parasuicide, during 1996 and 1997 was 336 per 100,000. The male/female ratio was found to be 1.0 in 1996 and 1.03 in 1997 (Brennan, 2001b; Van Heeringen & Meerschaert, 1998).

A survey of a sample of adult Danes (over 16 years of age), who were asked if they had ever made an attempt to take their own life, found a lifetime prevalence of 3.4% and a 12 month prevalence of 0.5% (Kjoller & Helweg-Larsen, 2000). The lifetime prevalence in females (4%) was much higher than in males (2.8%). Prevalence was highest in the 16-24 year old age group in both sexes. Odense has participated continuously in the WHO/EURO study since it started in 1989 and collects data on all medically treated parasuicides in the county of



Funen. The average annual parasuicide rate was found to be 176 per 100,000 between 1989 and 1995. The parasuicide rates have been decreasing fairly consistently since the start of the project from an average 211 per 100,000 in 1989 to 151 per 100,000 in 1995. This decrease has occurred in both sexes and all age groups apart from young girls (15-19 years old) whose rates have tripled during the 1990s. The average male/female ratio was 0.82 (the yearly ratio varied between 0.70 and 0.91) (Brennan, 2001b; WHO/EURO Multicentre Study, 1999).

A survey of Finnish adults (15-74 years of age) reported an average 12 month prevalence of 1% (0.9 % of females and 1.1% of males) (Hintikka et al. 1998). There was no significant difference in the prevalence of parasuicide between different age groups, but they found the highest reported prevalence in the 45-64 age group in both sexes. The data gathered in the WHO/EURO parasuicide study covered all attempted suicides referred to health care in 1989 and 1997 in Helsinki, Finland. The average annual parasuicide rate in this centre (from 1989 to 1995) was 277 per 100,000, the rate in males was 312 per 100,000 and 243 per 100,000 in females. The sex ratio is unusually high in, with men having consistently higher rates than women. Between 1989 and 1995 the average male/female ratio was 1.3 (Brennan, 2001b; WHO/EURO Multicentre Study, 1999). Socio-economic disadvantage within the districts was associated with higher attempted suicide rates. Ostamo, Lahelma and Lönnqvist (2002) conclude that socio-economic characteristics and their changes over time in the districts were likely to affect the suicidal behaviour of men more than women. Improving the employment status and structural position, especially of men, may prove to be important for preventing attempted suicide in Helsinki.

Diekstra (1982) estimated that the incidence rate of parasuicides referred for hospital treatment in France in 1976 was 247 per 100,000 for females and 133 per 100,000 for males. This estimation was based on the results of a study of all public and private in-patient services in Strasbourg, Lyon and Toulouse by Davidson in 1977. Sentinel GP surveillance in the Aquitaine region of France included parasuicide as one of the items recorded from October 1986 and May 1988. Due to the limitations of this type of surveillance (the lack of denominator data) no incidence or prevalence estimates were available. Two-thirds of cases were women, and the mean age was 41 years with no significant difference between the sexes (Maurice et al. 1989).

Research into the numbers of parasuicides attending accident and emergency wards in Brittany (France) in 1990 found the crude incidence rates were 200 per 100,000 for men and 330 per 100,000 for women, with the highest rates occurring in 25-34 year old men and 15-

34 year old women (Batt et al. 1994). Several centres have taken part in the WHO/EURO Multicentre study, the annual average for Bordeaux and Cergy-Pointoise combined was 293 per 100,000. Bordeaux took part for the first year only (1989) and reported a incidence rate of 129 per 100,000 for males and 248 per 100,000 for females (male/female ratio 0.52). Cergy-Pointoise participated from 1989 to 1991, reporting an average person based incidence rate of 252 per 100,000 for males and 542 per 100,000 for females (male/female ratio 0.46). A centre in Rennes took part in 1995 and 1996, the incidence rates reported for 1995 were 390 per 100,000 for males and 544 per 100,000 for females (male/female ratio 0.72). As can be seen from these figures, the rates and sex ratios varies considerably between centres (Brennan, 2001b; Schmidtke et al. 1994).

The rate of attempted suicide increased sharply in Germany during the 1970s (Schmidtke, Fricke & Weinacker, 1994). The prevalence of parasuicide in the general population was estimated to be 4.1% in 1981, with the prevalence in females being nearly twice that in males (Bronisch & Wittchen, 1994). In young people the prevalence is thought to be between 15-20% (Schmidtke, Fricke & Weinacker, 1994). The incidence of attempted suicides referred for hospital treatment in the former West Germany was estimated to be 191 per 100,000 in 1976 (151 and 231 per 100,000 for males and females respectively) (Diekstra, 1982). Würzburg has consistently participated in the WHO/EURO Multicentre study since 1989 collecting data on medically treated suicide attempts. The average annual parasuicide rate between 1989 and 1995 was 98 per 100,000, 76 per 100,000 for male and 120 per 100,000 for females. The average male/female was 0.63, this ratio ranged from a minimum of 0.51 in 1992 to a maximum of 0.79 in 1990 (Brennan, 2001b; WHO/EURO Multicentre Study, 1999).

Greece is one of the few countries which has carried out national surveys on suicidal behaviour in the general population, two surveys of adults aged 19 to 64 were carried out 6 years apart. They found there had been an increase in the prevalence of attempted suicides from 0.27% of males and 1.10% of females in the first study to nearly double that in the second (Madianos, Madianou-Gefou & Stefanis, 1993). Another survey of 8,300 Greek student aged 14 to 18 years, found a lifetime prevalence of 7% (Brennan, 2001b). Greece has not participated in the WHO/EURO Multicentre study. However Greece does have an injury surveillance system (EDISS) that records data (ICD codes) on all injuries (intentional and unintentional) that attend the accident and emergency departments of four hospitals (Brennan, 2001b).

One study in Istanbul investigated the psycho-socio-cultural factors that contribute to known cases of attempted suicide. The study included 116 cases admitted to the Emergency Internal Medicine and Surgery Units of the University of Istanbul, Faculty of Medicine Hospital between 1 December 1998 and 31 May 1999. In 47 cases, a 30-point questionnaire was used in several face-to-face interviews with the patients, following the preparation of a clinical case study. In establishing the socio-demographic, socio-cultural and socio-economic attributes of each individual case, a range of contributing effective factors was assessed including: the specific reasons for each attempted suicide; the individual's emotional state before the attempted suicide; the type of suicide action chosen and reasons for this selection; the immediate family structure; the personal psychiatric antecedent; and substance abuse.

The prevalence of suicide attempts in the general population of Ireland is unknown (Brennan, 2001b), however prevalence rates of 2% in university students (McAuliffe, 1998) and 8% in school children (O'Sullivan & Fitzgerald, 1998) have been found. A survey of GPs in Cork city found that on average a GP would see 1.6 cases of parasuicide a year, 14% were dealt with in the general practice without being referred on to a hospital (Fitzsimons et al. 1997). The WHO/EURO centres in Ireland comprise of two Irish Health Board areas participating since 1995, between them 24% of the Irish population is monitored for hospital treated parasuicide. The average annual attempted suicide rate for this population over the years 1995-1997 was 166 and 190 per 100,000 for males and females respectively, giving an average male/female ratio of 0.87. The rates are highest in both genders in the 15-24 year old age group (Brennan, 2001b).

Most of the epidemiological information available on parasuicides in Italy comes from two centres which have participated in the WHO/EURO Multicentre study (Brennan, 2001b). The parasuicide rates in Italy are among the lowest reported by any centre participating in the study. The combined average annual parasuicide rate from Emilia-Romagna (between 1989 and 1992) and from Padua (between 1989 and 1995) was 75 per 100,000. In Padua the average annual male and female medically treated parasuicide rates were estimated to be 60 per 100,000 and 100 per 100,000 respectively. Females had higher rates in males in all age-groups except the over 70's. In females the highest rates were found to be in 30-34 year olds, followed by 15-19 year olds, 25-29 year olds and 20-24 year olds. In males the highest rate was found to occur in the 70-74 year old age-group, followed by 25-29 year olds and 20-24 year olds (De Leo & Fantinato, 1994). In Emilia-Romagna the rates of hospital treated parasuicide were found to be slightly lower at 35 per 100,000 for men and 69 per 100,000 for

women. Females had higher rates in all age-groups shown, with the highest rates occurring in the 15-24 year age-group, followed by the 25-34 year olds. In males the highest rates occurred in 25-34 year olds, and then 15-24 year olds (Caracciolo et al. 1994). The rates reported by ISTAT for the entire of Italy in 1995 was 5.8 per 100,000, which is less than their rate of suicide (6.8 per 100,000), the rate reported for Veneto region was 5.4 per 100,000 as compared to 69 per 100,000 reported by the WHO/EURO centre of Padua which is only covers one of the health districts in the Veneto region (Brennan, 2001b).

No information on attempted suicides is available for Luxembourg, although it is likely that it would be difficult to interpret any data that was available as numbers are likely to be very small (Brennan, 2001b).

The prevalence of suicide attempts in the general population is unknown in the Netherlands (Brennan, 2001b). However surveys of students have been carried out by Kienhorst et al. (1990). They reported that 2.2% of 14-20 year olds surveyed reported attempting suicide (3.3% of girls and 1.3% of boys). Gamefski et al. (1992) found 5% of 15-16 year olds reported having made a serious attempt to end their own lives (6% of girls and 4% of boys). Diekstra (1982) estimated that in 1976 the rate of parasuicides referred for hospital treatment was 121 per 100,000 (94 per 100,000 for males and 147 per 100,000 for females). Surveillance of parasuicide by a sentinel GP network between 1979 and 1980 showed that on average a GP would see 1.5 cases of parasuicide a year (1979-1980), around 25% of which were not referred to a hospital (Diekstra & van Egmond, 1989), due to limitations of GP surveillance no estimates of the incidence rate or prevalence of GP treated parasuicide were available. Leiden University participated as a centre in the WHO/EURO Multicentre Study on Parasuicide from 1989 to 1992. The average medically treated parasuicide rates ranged from a minimum of 105 per 100,000 in 1991 to a maximum of 120 per 100,000 in 1990 (mean 112/100,000) (Arensman, 1995). The average male/female ratio was 0.62 (Brennan, 2001b; WHO/EURO Multicentre Study, 1999). The mean annual number of attempts reported by each GP was found to be 2.3, and 27.6% of cases were reported by the GPs alone (Arensman, 1995; Brennan, 2001b). In females the highest rates of parasuicide were found to occur in 35-39 year olds, while in males the highest rate occurred in 20-24 year olds (Arensman, 1995; Brennan, 2001b).

Again the prevalence of parasuicide in Norway was not established, however the prevalence of attempted suicide in several sub-groups of the Norwegian population has been examined (Brennan, 2001b). Rossow and Wichstrom (1994) surveyed over 10,000 young people and



found that 8.3% (10.5% of girls and 6.1% of boys) had made an attempt to take their own life. Norwegian physicians were found to have a prevalence of 1.6% (Hem, et al. 2000). Monitoring of medically treated parasuicide carried out in Bærum (1984-1995) found an average of 121 per 100,000 (149 per 100,000 for female, 90 per 100,000 for males), the average parasuicide rate decreased from 170 per 100,000 in 1984 to 79 per 100,000 in 1995, and this decrease was evident in both the male and female rates. The highest rates in males occurred in the 15-24 year olds and 25-34 year olds, in females the 15-24 year old age group had the highest rate. The male female ratio was approximately 0.56 (Dieserud, Loeb & Ekeberg, 2000). Norway is taking part in the WHO/EURO study (Brennan, 2001b), collecting data on medically treated parasuicides since 1989. The rates are slightly higher than those reported in Bærum, with an average of 148 per 100,000. The rates have decreased steadily from 179 per 100,000 in 1989 to 105 per 100,000 in 1995, this decrease occurred in both males and females, although it was slightly more pronounced in females (a decrease of around 44% in women compared to 37% in men). The average male/female ratio between 1989 and 1995 was 0.78 (Brennan, 2001b).

The prevalence of parasuicide in the general population is unknown (Brennan, 2001b). The incidence is also difficult to estimate as Portugal has not taken part in the WHO/EURO multicentre study (Brennan, 2001b).

No prevalence or incidence estimates for the general population of Spain are available (Brennan, 2001b). Guipúzcoa took part in the WHO/EURO study from 1989-1990, however this centre is located in the Basque region of Spain and is unlikely to be representative (Brennan, 2001b). Between 1989 and 1991 the mean incidence rates in Guipúzcoa were 46 per 100,000 for males and 72 per 100,000 for females which is one of the lowest rates reported by the WHO/EURO Multicentre Study on Parasuicide (Brennan, 2001b; Schmidtke et al. 1994).

Hallstrom (1977) surveyed women (38-54 years of age) in Gothenburg, Sweden found 4.5% reported a suicide attempt. Samuelsson et al. (1997) surveyed psychiatric nurses and found a lifetime prevalence of 13%. Wasserman & Spellerberg (1990) examined hospital admission data for Stockholm County from 1975 to 1985 and found significant increases in attempted-suicide trends for men over 35 years and women over 45 years as well as for all ages pooled for both men and women. Two centres in Sweden participate in the WHO/EURO Multicentre Study on Parasuicide (Brennan, 2001b). The average annual parasuicide rate, using data from both Stockholm and Umeå, between 1989 and 1995 was 141 per 100,000.

Data from Stockholm have shown that, despite some fluctuations, there has been an overall decrease in the rates of parasuicide from 247 per 100,000 in 1989 to 134 per 100,000 in 1995. The rates in the second Swedish centre participating in the WHO/EURO Multicentre study, Umeå, have shown a fairly steady decrease in the parasuicide rates from an average of 121 per 100,000 in 1989 to 79 per 100,000 in 1995. The male/female ratio in both centres is around ranged from a minimum of 0.51 in Umeå in 1993 to a maximum of 0.78 in Stockholm in 1990 (Brennan, 2001b; WHO/EURO Multicentre Study, 1999).

### *United Kingdom*

Brennan (2001b) details the lack of clarity for parasuicide prevalence in the general population even though a large amount of work has been performed in the UK. Several studies examining the rates of hospital-treated parasuicide were carried in the 1970s, they showed that the rates were increased dramatically. Smith (1972) first reported an alarming increase (100%) in self-poisonings admitted to hospitals in Sheffield from 1966-1970. Alderson (1974), using data from the hospital in-patient inquiry between 1953 and 1972, concluded that there had been a dramatic increase in admissions due to self-poisonings in England and Wales. Kreitman (1977) found that the number of parasuicides in Edinburgh increased 250% between 1962 and 1974. Diekstra (1982) estimated that in 1976, 353 per 100,000 males and 527 per 100,000 females were referred for medical treatment as a result of parasuicide in the UK. The rates of parasuicide appeared to level off in the 1980s (Hawton et al. 1999; Fuller et al. 1989) however they increased again during the 1990's (Hawton et al. 1999; Fuller et al. 1989; McEvedy, 1997). A monitoring centre for attempted self-harm was set up in Oxford in 1976 to collect information on patients presenting to the general hospital following deliberate self-harm, including non-admitted as well as admitted patients. This recording system is unique in the UK in terms of the completeness of data obtained and its duration. Information is collected on a range of sociodemographic and clinical variables, most of which are relevant to suicide risk and repetition of deliberate self-harm (DSH). Comparison with data collected elsewhere has shown that the patterns and trends of DSH in Oxford are representative of those in other centres (Platt et al. 1988). There has been a parasuicide monitoring centre in Oxford since 1976. This centre has represented England in the WHO/EURO Multicentre Study on Parasuicide since its beginning in 1989. Over the six year period 1989-1994, the average annual rate of parasuicide was 316 per 100,000. The male/female ratio is fairly typical from 1989 to 1994 it ranged from a minimum of 0.66 in 1992 to a maximum of 0.84 in 1993 (Brennan, 2001b).

The incidence of deliberate self-harm (DSH) in Britain has increased markedly over the last 30 years. Reasons for this rise are not clear.

#### Bristol

Gunnell, Shepherd and Evans (2000) investigated whether changes in the social and economic environment underlie any of the recent increase in DSH incidence. An ecological analysis was used to assess associations between changes in census-based measures of the social and economic environment (the Townsend Deprivation Index and a three-factor social fragmentation index) and changes in age- and sex-specific hospital attendance rates for DSH for the 28 Bristol city wards between 1972–1973 and 1995–1996. There were significant cross-sectional associations between the Townsend Deprivation Index and rates of DSH in both males and females in both periods. Increases in the index were also associated with increases in DSH. This association was statistically significant at the 5% level in females aged 25-34. Associations with the social fragmentation index were weak, although the index was based on rather limited data. The analysis suggested changes in levels of socio-economic deprivation may influence area-specific patterns of DSH and such changes may have contributed to rises in DSH.

Hawton (2001) studied DSH patients presenting to a general hospital between 1985 and 1995, and suicides (including open verdicts) in the UK. Mean annual rates of DSH and suicide by gender were calculated for electoral wards. The wards were amalgamated into 20 groups according to their ranking for socio-economic deprivation and social fragmentation. Characteristics of DSH patients living in ward groups with the highest and lowest socio-economic deprivation and social fragmentation scores were compared. Socio-economic deprivation was associated with DSH rates among males (logistic regression=0.89) and females (logistic regression=0.87). After controlling for social fragmentation the associations **remained** relatively strong, particularly in young males. Associations with social fragmentation in both genders (males, logistic regression=0.83; females, logistic regression=0.86) were attenuated after controlling for socio-economic deprivation. For suicide, the only significant association was with socio-economic deprivation in males (logistic regression=0.79), but this was attenuated after controlling for social fragmentation. The characteristics of individual DSH patients reflected those of the areas where they lived. Hawton concluded that reducing socio-economic deprivation and its associated problems may be an important strategy in preventing suicidal behaviour, especially in young men.

### Asian immigrants

Epidemiological studies have suggested the incidence of self-harm is increasing in the UK especially among Asian young women. Explanations of 'culture clash' and Asian culture as pathogenic are prevalent in clinical psychological research. Findings from interviews with seven Asian young women with histories of self-harm, using a discursive analysis of the accounts, indicates diverse constructs of self-harm. Self-harm included 'release from distress', 'ending it all', 'effecting change' and 'taking control', which are located within narratives of distressful circumstances. The accounts implicate 'Asian' culture in diverse ways including in relation to creating and maintaining distress and assessing support and care.

The importance of risk factors seems to vary markedly between dominant and non-dominant groups (Wilson, 1999). Neeleman and colleagues (1996) study of British-born Indian women provides a good example of this. The rates of deliberate self-injury were 7.8 times higher than for British-born white females. The researchers contended that unemployment was a much weaker risk factor among ethnic minorities in the UK. They suggested that because members of ethnic minorities tended to be employed in less rewarding jobs, unemployment might be less stressful than being in those jobs.

### *Asia*

#### Sri Lanka

The European colonisation of Sri Lanka began with the Portuguese in 1505, followed by the Dutch (1640-1796) and the British (1796-1948) in unbroken succession. It was the British who first unified the island under a single government and granted it sovereignty in 1948. Sri Lanka's high suicide rate is regarded locally as a major social problem. Research has focused on documenting the incidence of suicidal behaviour, but the results are fragmented, chaotic, contradictory and riddled with faulty inferences. Precise information compiled in an interpretable form is not readily available, even from official reports. There are no national statistics on the incidence of suicidal behaviour that does not end in death.

One study, based on records from a single hospital, suggested that there might be as many as 14 non-fatal incidents of suicide for every fatal one (Ganeshvaran & Rajarajaswaran, 1988). A larger study, completed in 1996, tabulated patient admissions involving suicidal behaviour from the medical records of four large hospitals over a five-year period (Kasturiaratchi, de Silva, & Ellawala, 1996). A total of 6,086 cases were recorded; about 80% of the patients



survived. Of the total, 66% were male, giving a male to female ratio of 2:1. The ethnic distribution of this sample closely reflected the ethnic composition of the population in the hospital catchment area. About 60% of the suicide-related admissions involved young people aged 16–25; another 4% were children aged 11–15 (Marecek, 1998).

#### Pakistan

Suicidal behaviour is an under-studied subject in Pakistan. Reporting and data collection on suicide and non-fatal suicidal behaviour is difficult because of social, legal and religious factors. A retrospective case-note study investigated socio-demographic and clinical characteristics of 262 female and 185 male suicidal individuals admitted to a university hospital in Karachi, Pakistan. Three-quarters of the suicidal persons were aged under 30. Women were younger and more often married compared with men. Both women and men tended to use self-poisoning with benzodiazepines, but more women used organophosphate insecticides. In Pakistani society, legal, social and economic discrimination predisposes women to psychological distress and subsequent suicidal behaviour. The study highlighted the need for culture-specific research on suicidal behaviour in Pakistan (Khan & Reza, 1998).

#### India

One study (Narang, Mishra & Mohan, 2000) assessed the various socio-demographic correlates of the method adopted by, and the psychiatric disorders in patients who had attempted suicide. Out of 208 cases presented to the Ludhiana hospital, 100 individuals were included in the study. They were evaluated for their socio-demographic profile and psychiatric illness. Marital status and psychiatric illnesses played an important role in attempted suicide. The results showed that single males outnumbered single females, whereas married females outnumbered married males in attempted suicide. The prevalence of attempted suicide was high among males with psychiatric illnesses, whereas more female attempters did not have psychiatric illnesses. The most common psychiatric illnesses were mood (35%) and adjustment disorders (13%). Family type, economic status and education levels appeared not to play significant roles in attempted suicide. Other demographic variables were statistically non-significant, but for under 30-year-olds, low socio-economic status, low education and being in a nuclear families were found to be more vulnerable factors for suicide.

#### Australia

The official collection of attempted suicide data was formerly collated by the Australian Bureau of Statistics but is now the responsibility of each state and territory. Data collection

procedures and reliability vary across states and territories. One practice would not record suicide attempts presenting to accident and emergency departments unless they were admitted to a mental health facility. Even where a state or territory operates a relatively reliable system these figures are attempted suicides admitted to hospitals (Canto & Neulinger, 2000). Studies have tried to overcome the bias in hospital samples by using community samples. However, these are also problematic as they rely on self-report questionnaires, which are unreliable due to subjectivity. One Australian study found that of 40 people who initially reported having suicidal ideation in 1984, 16 denied ever having had suicidal ideation four years later (Goldney et al. 1991). While community self-report studies have low reliability they do offset the biases of hospital samples.

Several youth studies throughout Australia have identified hospital data variations in gender age and region (Burvill, 1975; Davis & Kosky, 1991; Kosky, 1982; Silburn, et al. 1991; Tiller, et al. 1997). Community samples have also focused on Queensland students measuring suicidal ideation; 61% reported ideation and 11% self-destructive acts in the previous 12 months. A study of 1,699 students from 44 Victorian schools examined suicidal behaviour in 15 and 16-year-olds in 1993. Only 0.2% (n = 5) of the sample were classified as 'true suicide attempts', all of them were female and 4% of males and 6.4% females reported deliberate self-harm. Both sexes showed a significant association between self-harming behaviour and psychiatric morbidity and sexual activity (Patton et al. 1997).

A South Australian study investigated the four behavioural antecedents of suicide attempts; suicidal ideation, plans, threats, and deliberate self-harm. A total of 156 male and 151 female students aged 14-17, attending a randomly chosen metropolitan high school, completed a questionnaire concerning aspects of suicidal behaviour. The findings indicated suicide ideation, plans, threats and deliberate self-harm were associated with suicide attempts. The authors suggested that adolescents entering the spectrum of suicide behaviours are at high risk of making a suicide attempt (Pearce & Martin, 1994).

Questionnaire design and the wording of responses may have contributed to the high positive responses. University students may not be representative of the general population, generally experiencing better mental health than other populations of similar ages. This sample also had a disproportionate number of females.

#### Western Australia

During 1981 to 1998, the western Australian age-standardised admission rate for deliberate self-harm was 117.2 and 175.0 per 100,000 among males and females respectively. The

hospitalisation rate for persons committing deliberate self-harm was 98.3 per 100,000 among males and 146.2 per 100,000 among females, with some people having multiple admissions for deliberate self-harm. Male admission rates increased significantly (0.8% per year) over this period but no significant change occurred in female rates until between 1991 and 1998, when female admission rates showed a significant increase (3.7% per year). The age groups and gender with the highest admission rates were males aged 20-24 (278 per 100,000) and females aged 15-19 (442.6 per 100,000). For the group aged 15-19, admission rates significantly decreased for males and females. However, the admission rate among females aged 20-24 increased from 1990 to 1998.

Drug use was the most common method of attempted self-harm, accounting for 74% and 89% of all deliberate self-harm admissions among males and females respectively. Although, the rates of admission involving drug use decreased, the rates of admission involving the use of tranquillisers and other psychotropic agents (the most common drug used), analgesics, antipyretics, antirheumatics and antidepressants increased. The rates of admission involving cutting or piercing also increased over the period. Over the five years from 1994–1998, the rates of admission for deliberate self-harm were highest in the most socio-economically disadvantaged groups.

Zubrick and colleagues (1997) surveyed students in western Australia high schools and found that of adolescents' aged 12-16, 15% (15,500) reported suicidal ideation within 6 months of the survey. Eight percent (8,300) of the adolescents reported having attempted suicide within 6 months of the survey, with no significant differences between younger and older adolescents.

### *New Zealand*

Langford, Ritchie and Ritchie (1998) described New Zealand culture as having arisen over 200 years from the blending of the indigenous population (Māori) and successive immigrants, predominantly from the UK. Langford described the Māori historical experience as one of colonial oppression, land loss, low socio-economic status and poor health. Although recent affirmations of indigenous rights have emphasised cultural differences, the dominant social context is the one colonists brought to New Zealand and imposed on Māori. The characteristic settler impacts of Western colonisation remained entrenched in tribal hinterlands until vast social changes initiated by World War II produced a rural to urban migration among Māori of dramatic speed and scope (Schwimmer & Forster, 1968). The

missionaries and pioneer settlers laid the Western cultural foundations over Māori and suppressed pre-existing Māori culture. The decades from 1880 to the mid-1930s were wracked with repeated economic depressions that perpetuated a sense of 'hard lives lived in a hard land'. Māori were no longer fully members of their old society nor of the European one by 1840 they inhabited a disordered world (Sinclair, 1991).

During the 19th century, Māori suffered progressive loss of land by warfare, legislative theft and deception. In the 20th century, Māori in their migration to the cities, began to exhibit all the attributes of urban alienation, rising crime rates, family stress and alcohol abuse but also a growing sense of disquiet, cultural insecurity and cultural loss (Walker, 1990).

The demand for New Zealand's primary produce during and after World War II produced a new prosperity. New Zealand could afford economic support against hardship, a free medical service, free education, full employment and low-cost housing (Ritchie & Ritchie, 1978). Compared with other countries race relations were relatively good, but complacency concealed an unacceptable persistence of many social ills. By the mid 1980s, however, the comfortable security of the welfare state was apparently not sustainable. The Government began to operate on monetarist principles, cut employment in the public sector, privatised public services, sold state assets and removed trade and economic protections and controls. Sudden high levels of unemployment and poverty resulted.

The above historical account sets the socio-cultural context for considering the increase in suicidal behaviour. There appear to be multiple risk factors that are associated with suicidal behaviour: depression, substance abuse, family violence, physical and sexual abuse, antisocial behaviour, dropping out of school, economic recession and unemployment. However its unclear how these factors interact for each individual, and the role socio-cultural context plays in the developing and maintaining of these risk factors (Coggan, 1997; Fergusson & Lynskey, 1995a, 1995b, 1995c; Horwood & Fergusson, 1998; Lewinsohn et al. 1995).

As Figure 3-2 indicates the number of discharges for suicide and self-inflicted injury between 1955 and the mid-1970s increased dramatically for both males and females. The greatest increase occurred between the early 1960s and mid-1970s for New Zealand females, when the number of discharges increased from less than 500 per year to approximately 2,000. Data were not available for some of the 1970s, hence the gap in the Figure 3-2. The number of



hospitalisations for males and females remained relatively stable from the 1980s to the early 1990s.

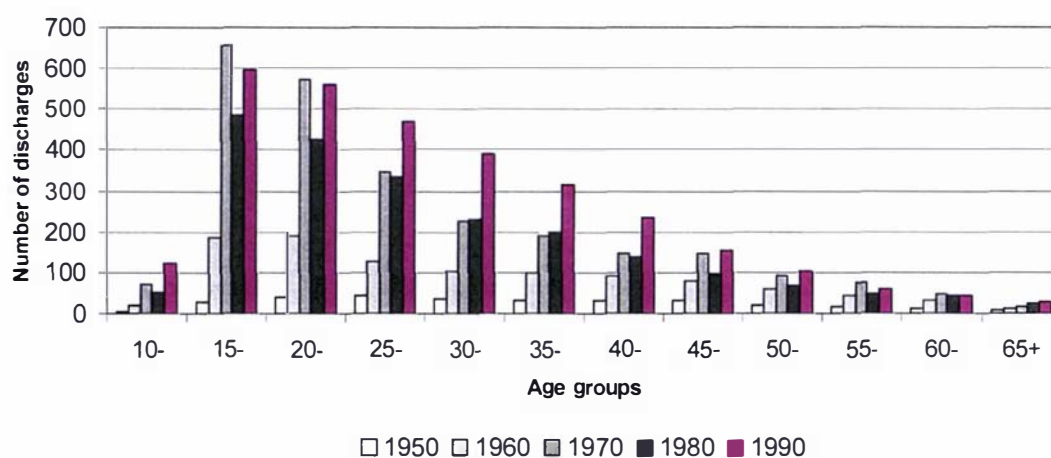
Figure 3-2: Historical gender distribution of New Zealand public hospital discharges for E950-959 suicide and self-inflicted injury.



Source: NZHIS

Figure 3-3 represents average hospitalisations for suicide and self-inflicted injury across the decades, 1950-1990. In the 1950s there were less than fifty discharges per year on average across all five year age groups.

Figure 3-3: Age distribution of New Zealand public hospital discharges for E950-959 suicide and self-inflicted injury.



Source: NZHIS

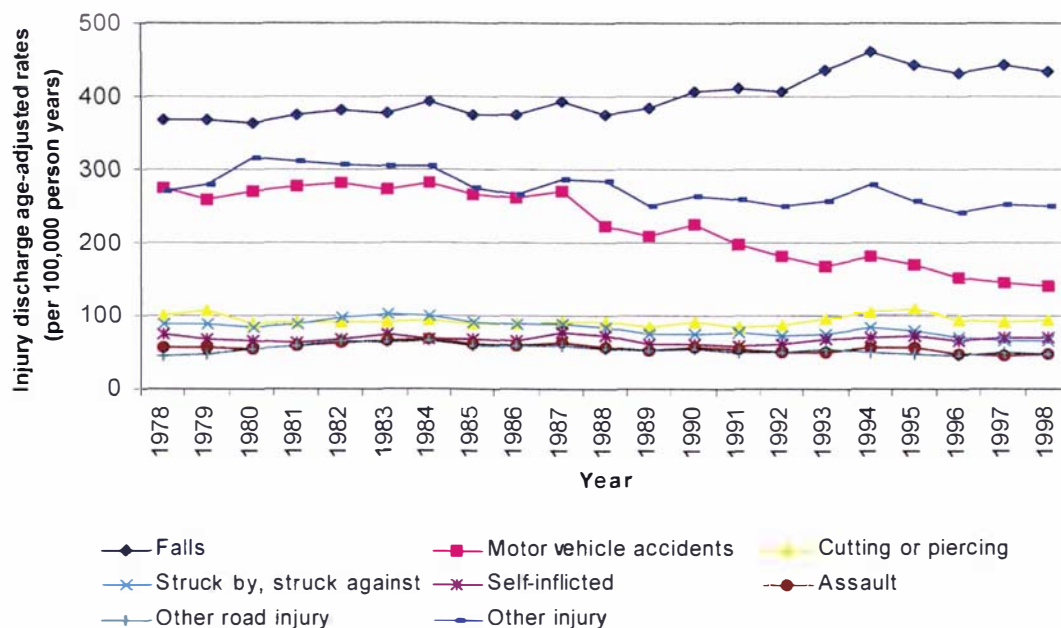
Discharges increased in the 1960s to over 100 for New Zealanders aged 15-40 at discharge. The 1970s saw the greatest increase in discharges, from less than 200 (1960s) to over 600 in the age group 15-19. There were just under 600 discharges in the group aged 20-24 and over

300 in the group aged 25-29. The 1970s saw vast increases in all age groups although increases were less pronounced in the older age groups.

The 1980s demonstrated the same trend for discharges of increases in the younger age groups, which decreased with age. The number of discharges in each age group, however, was less than in the previous decades. The 1990s again illustrated similar numbers of discharges as in the 1970s for the two younger age groups (15-24 years). However, for those aged 25-50 there was a marked increase in suicide and self-inflicted injury.

Hospitalisation data were obtained from the National Minimum Dataset maintained by the New Zealand Health Information Service (NZHIS). This database includes discharges from public hospitals with a primary diagnosis of injury. The rates reported exclude readmissions for prior injury, day stays of less than 1 day, those discharged dead and adverse effects due to drugs and medical complications. So people seen and treated in the Emergency Department and discharged within 24 hours will not be included. As Figure 3-4 illustrates, in New Zealand self-inflicted injury has remained relatively stable from 1978–1998.

Figure 3-4: Age-adjusted rates\* of injury discharge by type from New Zealand public hospitals, 1978–1998.

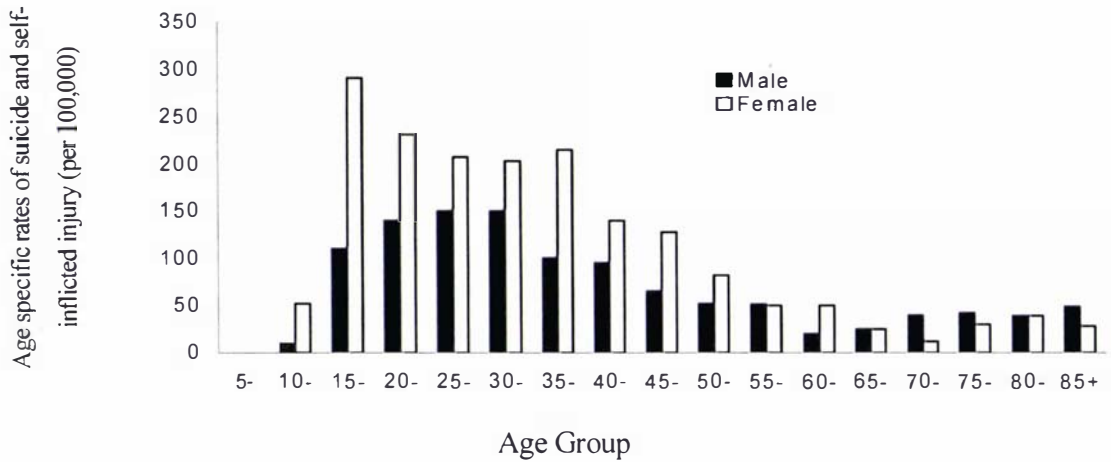


Source: NZHIS \*Age adjustment compensates for any rate changes due to changes in the population's age distribution.

The highest recorded rate was in 1987 (77 per 100,000). While falls increased and motor vehicle accidents decreased, all other injuries remained relatively constant (Figure 3-4). Self-

inflicted injury is New Zealand’s fourth leading cause of injury behind falls, motor vehicle accidents and struck by or against.

Figure 3-5: Age specific rates of suicide and self-inflicted injury by age, 1999-2000.



Source: NZHIS

The rate of hospitalisation for intentional self-harm in 2000–2001 was 129.2 per 100,000. It is not possible to compare this rate with previous years as the definition of intentional self-harm has been extended to include cases not previously included. In 2000–2001, there were 1,800 male hospitalisations (91.7 per 100,000) and 3,260 female hospitalisations (167.4 per 100,000).

Table 3-4: Suicide and self-inflicted injury hospitalisations by patient type, gender and ethnicity in New Zealand, 1997–2000.

	1997–1998		1998–1999		1999–2000	
	Total	Māori	Total	Māori	Total	Māori
<b>Day patients</b>						
Total	514	58	631	101		
Male	180	25	241	45		
Female	334	33	390	56		
<b>Inpatients</b>						
Total	3,053	446	3,000	412		
Male	1,163	178	1,186	174		
Female	1,890	268	1,814	238		
<b>Total inpatients and day patients</b>						
Total	3,567	504	3,631	513	3,767	556
Male	1,343	203	1,427	219	1,389	213
Female	2,224	301	2,204	294	2,378	343

Source: NZHIS

The rate of hospitalisation for suicide and self-inflicted injury was 95.7 per 100,000 in 1999–2000; 92.9 per 100,000 in 1998–1999; and 94.8 per 100,000 in 1997. In 1999–2000, there were 3,767 hospitalisations for suicide and self-inflicted injury compared with 3,631 in

1998–1999 (Table 3-4). The rate of hospitalisation in 1999–2000 was the same as in 1995–1996.

In 1999–2000 there were 1,389 male hospitalisations for attempted suicide (70.4 per 100,000) a decrease from the previous year (although the rate increased to 73.1 per 100,000), and 2,378 female hospitalisations (121.2 per 100,000) up from 2,204 in 1998–1999 (112.9 per 100,000). More females were hospitalised for attempting suicide due to their choice of method, such as self-poisoning, which is generally not fatal but still serious enough to require hospitalisation.

Over 1997–1998 and 1999–2000, the majority (65%) of hospitalisations for suicide and self-inflicted injury were New Zealand Europeans. Over the same period Māori made up 14%–15% of hospitalisations (n=504); Pacific peoples accounted for 3% (90 hospitalisations) and Asian people 2% (67 hospitalisations).

Fourteen percent of hospitalisations were day-patient while 86% were in-patients in 1997–1998. In 1998–1999 the proportions were 17% and 83% respectively. No figures were available for 1999–2000.

The highest age-specific rates for suicide and self-inflicted injury hospitalisations in 1998–1999 occurred in the group aged 15–24, followed by those aged 25–44. In all age groups other than the 65 years and older group, females had higher age-specific rates.

The average length of stay for suicide and self-inflicted injury hospitalisations in 1998–99 was 3.9 days. The average stay for males (4.5 days) was longer than that for females (3.4 days). Māori had a slightly longer average stay of 4.5 days (6.1 days for males; 3.3 days for females).

#### Canterbury

The Canterbury suicide project examined the extent to which suicides and attempted suicides were similar, with respect to known risk factors for suicidal behaviour (Beautrais, 2001). A case control study was used to examine 202 suicides, 275 medically serious suicide attempts and 984 randomly selected controls. Measures included socio-demographic factors, childhood experiences, psychiatric morbidity and history, recent stressful life events and social interaction. The following risk factors were common to suicide and serious suicide attempts: a current mood disorder; previous suicide attempts; prior out-patient psychiatric treatment; admission to a psychiatric hospital within the previous year; low income; a lack of



formal educational qualifications; exposure to recent stressful interpersonal, legal and work-related life events (Beautrais, 2001).

Suicides and suicide attempts were distinct in that: suicides were more likely to be male (OR=1.9, 95% CI 1.1–3.2) older (OR=1.03, 95% CI 1.02–1.04); and to have a current diagnosis of non-affective psychosis (OR=8.5, 95% CI 2–35.9) and suicide attempts were more likely than suicides to have a current diagnosis of anxiety disorder (OR=3.5, 95% CI 1.6–7.8) and to be socially isolated (OR=2, 95% CI 1.2–3.5) (Beautrais, 2001).

Beautrais (2001) concludes that suicides and medically serious suicide attempts include two overlapping populations that share common features of psychiatric diagnosis and history, but are distinguished by gender and patterns of psychiatric disorder.

Beautrais and colleagues (1996) examine the association between psychiatric disorder and the risk of a suicide attempt. Of those who had attempted suicide, 90.1% also had a mental disorder at the time of the attempt. Higher rates of mood disorders (OR=33.4, CI 21.9–51.2), substance abuse (OR=2.6, CI 1.6–4.3), conduct disorders or antisocial personality disorders (OR=3.7, CI 2.1–6.5) and non affective psychoses (OR=16.8, CI 2.7–105.8). However the relationship between psychiatric morbidity and suicide risk varied with age and gender. The incidence of comorbidity was also high where 56.6% of those who attempted suicide had two or more disorders (OR=89.7). The risk of suicide attempt increased with increasing psychiatric morbidity (Beautrais et al. 1996).

Beautrais et al (1998) also investigated the association between unemployment and the risk of medically serious suicide attempt. A sample of 302 serious suicide attempts were compared to 1028 randomly selected community controls. The study found that people who had seriously attempted suicide were more likely to be unemployed at the time of their suicide attempt independent of gender. Unemployment could only be attributed to a small number of the suicide attempts (7.3%) when childhood, family and educational factors were adjusted for the association was reduced but still significant. When family and childhood factors, and psychiatric morbidity were also controlled for, unemployment was no longer related to the risk of serious suicide attempt. Beautrais (1998e) then implies that there is no causal relationship between unemployment and suicide attempt due to the correlation between unemployment and psychiatric morbidity.

## Youth

New Zealand youth have the highest hospitalisation rates for intentional self-harm. The hospitalisation rate for young people (15–24 years) in 2000–2001 was 282.4 per 100,000 (1,496 hospitalisations). In 2000–2001, there were 478 male hospitalisations (176.3 per 100,000) and 1,018 female hospitalisations (393.5 per 100,000).

The Christchurch Health and Development Study examined non-fatal suicidal behaviour involving young people. Fergusson and Lynskey (1995c) found those who had attempted suicide could be distinguished from those reporting suicidal ideation. The sample consisted of 954 16-year-olds. By the age of 16, 15% of the sample reported having either made a suicide attempt or experienced suicidal ideation. All those who reported making an attempt also reported suicidal ideation. Of the attempts, approximately 20% required hospitalisation. The study found that 3% had made an attempt by 16 years; 5.4% reported having made an attempt by 18 years and 7.8% by 21 years (Horwood & Fergusson, 1997; Royal New Zealand College of General Practitioners, 1999).

The study also demonstrated consistent and pervasive associations between measures of antisocial behaviour and both attempted suicide and suicide ideation. Young people who had demonstrated antisocial behaviours had odds of suicidal behaviours or ideation between 3.0 and 13.2 times those of young people without suicidal tendencies. The authors explained the co-morbidity between antisocial behaviour and suicidal tendencies by the fact the risk factors for the two generally overlapped and antisocial behaviours were co-morbid with other disorders (depression), also associated with suicidal tendencies. When common risk and comorbid disorders were taken into account the association was substantially reduced (Fergusson & Lynskey, 1995a).

Beautrais and colleagues (1997) investigated precipitating factors and life events associated with serious suicide attempt were examined in 129 adolescents and 153 randomly selected community controls. The most common precipitants of attempted suicide were relationship breakdowns, other interpersonal problems and financial difficulties. One-third of those attempting suicide were unable to describe precipitating factors. When allowance was made for interconnections between life events and antecedent social, family and personality factors, interpersonal losses, conflicts and legal problems remained significant risk factors for suicide attempt (Beautrais, Joyce & Mulder, 1997).

Socio-demographic factors, childhood experiences and mental disorders were examined in relation to serious suicide attempt in young people aged 13–24 (Beautrais et al. 1996). Those

who made suicide attempts reported elevated rates of socio-demographic disadvantage, higher rates of disadvantageous childhood experiences and elevated rates of psychiatric morbidity. Risk of suicide increased with the extent of exposure to childhood adversity, social disadvantage and psychiatric morbidity, with each independent to risk of suicide attempt (Beautrais, et al. 1996).

Lower educational achievement and socio-economic disadvantage were found to be more significant risk factors for parasuicide in a study of 129 adolescents (aged 15-25) who made serious suicide attempts (Beautrais, Joyce & Mulder, 1998). While there was a slightly higher rate among Māori in the sample, neither ethnicity nor cultural identity was considered to be a reliable indicator of risk, at least not in comparison with a lack of formal educational qualifications (Beautrais, Joyce & Mulder, 1998).

Tiatia & Coggan (2001) described the population of Pacific young people in the Auckland region who were treated at emergency departments as a result of a suicide attempt. They reviewed Auckland regional public hospital emergency department medical records of Pacific young people (16-25 years), who made suicide attempts from 1 January 1999 to 31 December 1999. A total of 56 records were reviewed. Results indicated that: 71% were female and 29% were male; just over half identified as Samoan; 19-year-olds presented more than any other age group between 16-25 years; 43% were employed; the highest month recorded for presentations was June; there was a low incidence of attempts between midnight and 6 am; the most common method used was poisoning; the majority of attempts were at home; 62% were not under the influence of alcohol or illegal drugs; and 85% were given a post-discharge treatment plan.

Gould and colleagues (1994) examined the extent and nature of suicide attempt clustering. They pointed out that New Zealand is one of the few areas with an established parasuicide database. Temporal patterns were examined in terms of monthly and seasonal variation. The data for attempted suicide admission were obtained from the NZHIS for the years 1988 to 1990. The findings indicated that significant clustering occurred in younger age groups, specifically 15-19 and 20-24. The results could not be accounted for within the seasonal variation in admissions. The study was performed to assist in the identification of time – space variation in relation to suicide in the USA. Due to the lack of registries in the USA the authors used New Zealand statistics to determine contagion affects of attempted suicide. The conclusion is that time and space clustering occur in attempted suicide; the effect is strongest in teenagers and young adults, and is consistent with the mechanisms of contagion.

## **Indigenous Attempted Suicide**

International studies suggest colonised indigenous populations are at higher risk of self-injurious behaviour than the colonisers (Wilson, 1999). McGrath et al. (1990) noted that suicide is twice as high among Native Americans than among the general American population, and the deliberate self-injury rate is probably similarly disproportionate. They suggested poverty and lack of education are among the contributing factors (Neeleman et al. 1996).

### *Native Hawaiian*

In a Hawaiian study, 1,779 Native Hawaiian high school students were surveyed for symptoms of psychopathology and suicide attempts in the previous six months. Seventy-seven (4.3%) students reported making a suicide attempt. There were no significant differences in prevalence rates for males and females. Depression, anxiety, aggression, substance abuse symptoms and low family support, but not peer support, were significantly correlated with suicide attempts. On logistic regression, depression, substance abuse and family support independently predicted attempts. The lack of gender difference may indicate a cultural characteristic of the Hawaiian population that differentiates it from mainstream American populations but likens it to the Native American population (Yuen et al. 1996).

### *Native American*

A high rate of adolescent suicide prompted Zuni Pueblo leaders to initiate a suicide prevention curriculum programme for high school students. Students were surveyed on depression, hopelessness, drug use, school alienation, parental drug use, social support, interpersonal relationship problems, communication ability and traditionality. Eighty-three freshman (75%) students from Zuni Pueblo High School completed the study. Thirty percent of the students had tried to kill themselves. Of these 70% had tried two or more times and 30% had tried within the last six months. Thirty-five percent had not told anyone about their attempt. Significant risk factors for suicide ideation were drug use, depression, hopelessness, stressful life events and psychological distress. Contrary to expectations no relationship, either positive or negative, was found between traditionality and suicide ideation (Howard-Pitney et al. 1992). Measure of traditionality in youth culture are even more diverse than in indigenous people as a whole. To ensure good culturally sensitive measures are employed these must be tested in the different age groups before studies are started.



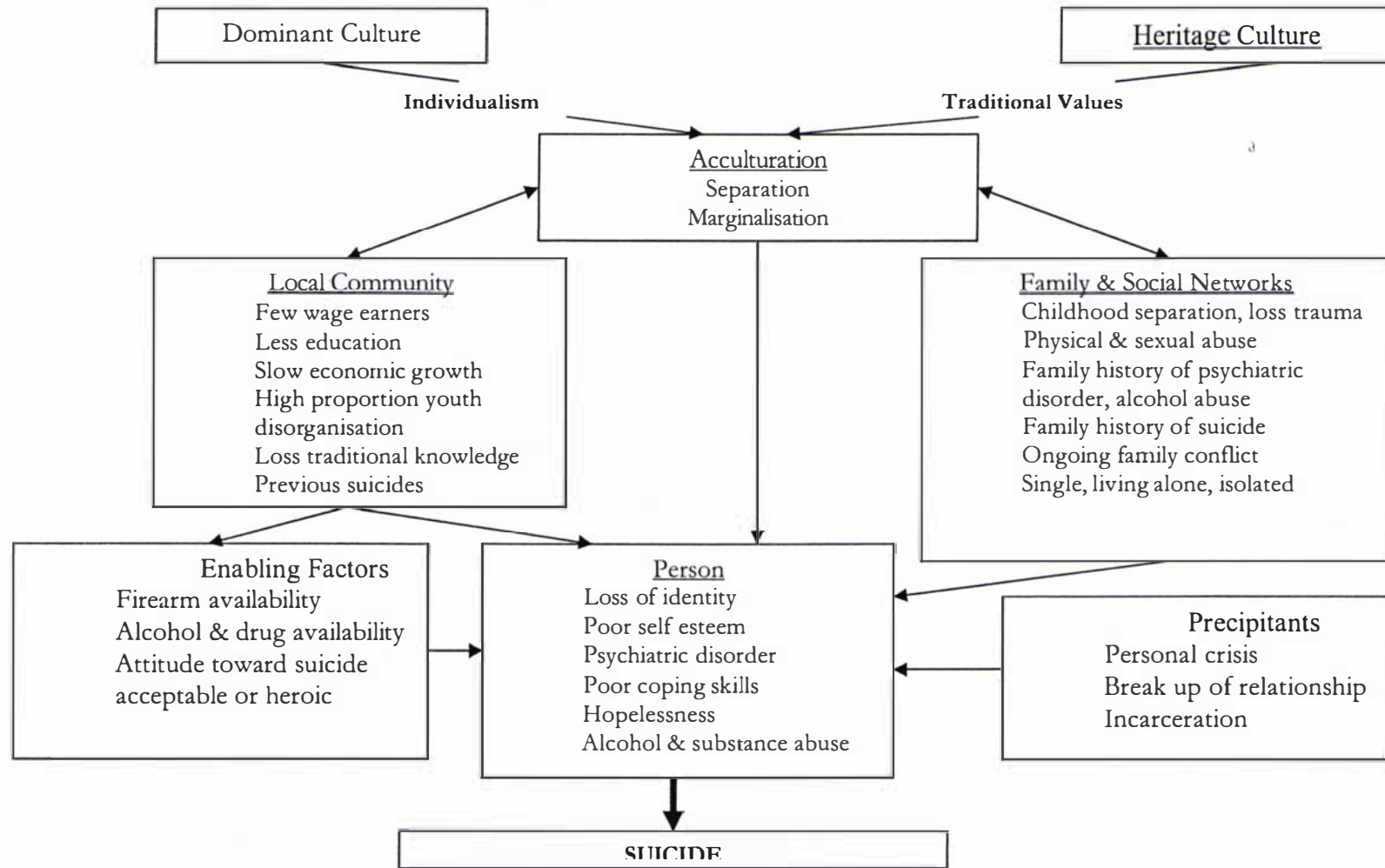
Risk factors for suicide in American Indian adolescent females are depression, hopelessness, alcohol, drug use and family dysfunction. Protective factors against suicide for American Indian adolescent females are social support, self-efficacy and liking school. Eight-four Zuni female adolescents (aged 14-20) attending Zuni Pueblo High School and 92 American Indian female adolescents (predominantly Cherokee) attending a boarding school participated in a study of predictors of suicidal behaviour. Twenty-two percent of Zuni students and 31% of Cherokee students reported non-fatal suicidal behaviour compare with 4%-13% reported for female students in the general population. Alcohol was a strong predictor across both samples along with hopelessness, depression, lack of perceived social support and family dysfunction. Differences between Zuni and Cherokee were that Zuni lacked perceived social support but that did not apply to Cherokee for whom family dysfunction was a predictor (LaFromboise & Howard-Pitney, 1995).

#### *First Nations, Inuit & Métis of Canada*

Canada's First Nations have some of the poorest health status records in the North America (Assembly of First Nations, 1996). Many of their traditional holistic views on medicine were forcibly forfeited to Western views of health. Although there has been a recent move to return to the natural healing used for thousands of years, the effects of 'Western living' on the First Nations have been tragic.

This situation may contribute to the suicide problem in several ways. First, a lack of adequate medical facilities in native communities often force individuals to leave their communities while they seek medical care (Kirmayer, 1994). Separation from friends and families during this time exacerbates the already present feelings of alienation in the native communities. Furthermore, dependence on a 'white health care system' may promote feelings of helplessness among a people whose traditions lie in self-sufficiency. These are particularly serious issues, especially considering the unrepresentative proportion of aboriginal health care workers. Finally, the higher rates of illness, disability and accidents aggravate the already low feelings of morale found on many native reserves (Quantz, 1997). The health of the aboriginal community has been most compromised on the social level. Although conditions vary from reserve to reserve, collectively, the native population experiences many social problems. The economic conditions on most reserves are often identified as the worst contributor to these social problems. Poverty and economic hardship are the norm on most reserves, with almost half of the native population receiving state welfare support

Figure 3-6: A model of factors contributing to suicide among Canadian aboriginal peoples.



Source: Kirmayer et al. 1994 p. 9, Thorsland, 1991 p. 90.

(Quantz, 1997). These and the other demoralising effects of unemployment and poverty are known to be associated with suicide (Gotowiec & Beiser, 1994). Quantz believed for Indian people to survive:

*you need to be connected to something other than yourself; something which gives you a proud, strong, positive sense of self-meaning (p.5)*

Children must feel their specialness through a connection with a positive proud identity (Hammerschlag, 1982, p35). For the aboriginal community a rich cultural base, full of traditions and meaning once provided this connection, giving pride and purpose to everyone's life. Several institutions of the native community were responsible for providing the foundation for this cultural base and passing it on to future generations.

In Aboriginal society, the *family* has always been regarded as the community's central institution and guardian of tradition (Royal Commission on Aboriginal Peoples, 1996). At one time extended kin networks of parents, grandparents and clan members provided a social web in which a child could find safety and identity (Royal Commission on Aboriginal Peoples, 1996). In some tribes the grandparents participated in every aspect of child rearing (Berlin, 1987).

*Spiritual* life was once the basis of every aspect of life in the Native community (Tradition, Change and Survival, 1987). Although, spirituality is part of almost all cultural groups, it played a special role in guiding Aboriginal life. Traditions and rituals all contributed to giving the native individual a sense of purpose in life and a sense of place in the community. Spiritual rituals also provided a platform on which to understand life changes and the inner self.

In many areas native individuals used fasting and sweat-lodge ceremonies to purify themselves physically and spiritually, as well as to seek direction in their lives (Quantz, 1997). Along with colonisation, there was an effort to convert the native people to Christianity. Residential schools played a large part in colonisation by denying native children the right to learn their spiritual roots or practice their spirituality (Hodson, 1986). In addition, many native spiritual practices were suppressed by legal sanctions, and government forces seized many native artefacts of spiritual significance (Hochkirchen & Jilek, 1985).

Another mechanism by which native peoples found their spirituality, culture and way of life was through the *land*. Unfortunately, as reserves were established and the First Nations

peoples were forced into controlled settlements, this cultural foundation was lost, along with many sacred sites (Royal Commission on Aboriginal Peoples, 1996). The land was also an integral part of the traditional roles and way of life of the native people.

*Language* is another vital mechanism for transmitting culture from one generation to the next. It allows a cultural group to communicate meaning and understand their collective experience (Royal Commission on Aboriginal Peoples, 1996). This cultural institution of the aboriginal community has also been eroded since colonisation began. In Canada, there are over 50 different aboriginal languages, yet only a fraction of the current native population speaks their native language (Royal Commission on Aboriginal Peoples, 1996). Furthermore, the majority of these speakers are middle-aged or older. As for the cause of this situation, once again government efforts to assimilate native people into the majority culture are again the root of the problem.

The transmission and place of traditional culture has been severely disrupted in the native community. This cultural disruption has created an environment with numerous risk factors for suicide behaviour (Quantz, 1997).

Suicide rates among the aboriginal population are three to six times national average, depending on the community (Sinclair, 1998). Rates are particularly high among teenagers and young adults. A royal commission stated that, historical, government and institutional policies toward aboriginal peoples had created a social environment that directly contributed to a higher incidence of suicidal behaviours (Royal Commission on Aboriginal Peoples, 1996). Because of conflicting messages about the value of their own culture, many aboriginal people do not have a strong sense of self. In addition, cultural instability has led to sexual abuse, family violence and substance abuse, which are associated with a high risk of suicide. Childhood separation, poverty and access to firearms are also contributing factors.

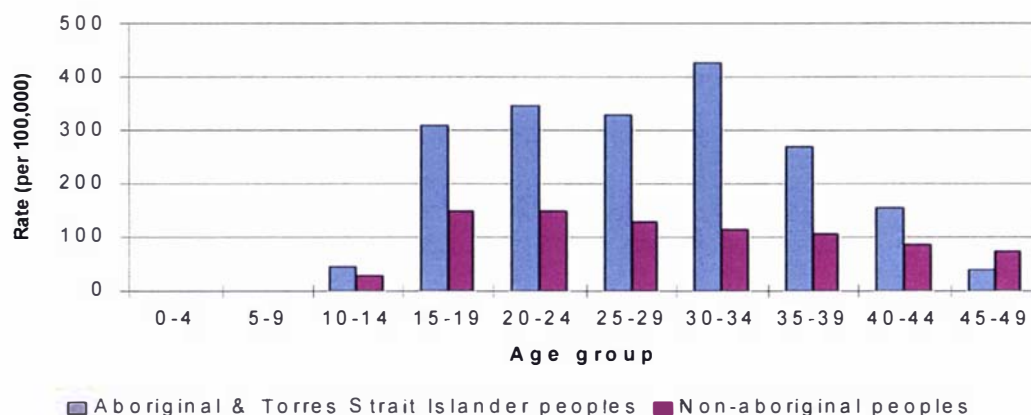
One study explored how five British Columbia First Nations women moved through suicidal ideation and intention in their youth (Paproski, 1997). Much of their healing process was facilitated by a reconnection to their cultural identity and traditional native spirituality. Phenomenological research methods were used to guide the interview process, analysis and interpretation of unstructured interviews. Each transcribed interview was analysed for themes and developed into a narrative. Several procedures were used to examine the validity of the analysis and interpretation, including participant review of the



incapacitation. Particularly during the last few decades, new forms of self-injury and self-destructive behaviour have developed among Australian Aboriginals, which bear some resemblance to traditional forms of body scarification, decoration and mutilation for various ritual and social purposes. The lack of abhorrence among many Australian Aboriginals for such body decoration is part of the reason for new forms of self-injury. These new forms are also the result of the Aboriginal cultural stance in relation to demonstrations of emotion, anger or rage in the context of alcohol misuse, mental ill health, lack of self-esteem, and personal and social disruption.

Among Aboriginal and Torres Strait Islander peoples, those aged 15-39 have the highest rates of hospitalisation from self-inflicted injuries (Figure 3-7). The majority of cases of self-inflicted injury hospitalisation are female, accounting for 57 percent of cases. Aboriginal and Torres Strait Islander adults aged 15-44 have relatively high rates of self-inflicted injury hospitalisation from poison ingestion (191 per 100,000) and from cutting or piercing injuries (95 per 100,000).

Figure 3-7: Rate of self-harm injury hospitalisation separations in Aboriginal and Torres Strait Islander peoples and non-aboriginal population, by age in Australia (except Northern Territory), 1991–1992.



Source: Australian Bureau of Statistics (2001)

Aboriginal and Torres Strait Islander males are twice as likely to be hospitalised as a result of self-inflicted cutting or piercing injuries (60 per 100,000) than females (33 per 100,000). Aboriginal and Torres Strait Islander females aged 15-44 are 2.5 times more likely to harm themselves by ingesting poison (271 per 100,000) than are Aboriginal and Torres Strait Islander males of the same age (106 per 100,000).

Table 3-5 summarises the hospitalisations for self-harm injuries inflicted by cutting or piercing. In Aboriginal and Torres Strait Islander peoples the rate of (29%) self-harm injury

was about three times that in non-Aboriginals (10%). The overall age-adjusted rate of hospitalisation as a result of self-inflicted cutting or piercing in Aboriginal and Torres Strait Islander peoples (46 per 100,000) was about six times the rate of the non-Aboriginal population (7 per 100,000). Over the age group from 15 to 44, the hospitalisation rate for cutting or piercing self-inflicted injuries in Aboriginal and Torres Strait Islander peoples was about seven to eight times that of non-Aboriginals.

Table 3-5: Summary of self-harm hospitalisations in Aboriginal and Torres Strait Islander peoples in Australia (except Northern Territory), 1991–1992.

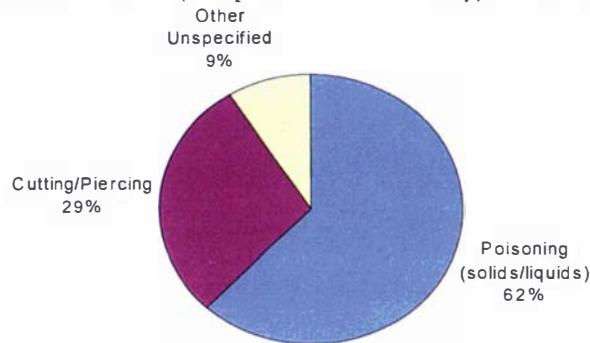
Summary indicator	Males	Females	Persons
<b>Poisoning injuries (solids or liquids)</b>			
Number of cases	62	166	228
Crude rate (per 100,000)	55	146	101
Age-adjusted rate (per 100,000)	61	147	105
<b>Cutting or piercing injuries</b>			
Number of cases	68	39	107
Crude rate (per 100,000)	61	34	47
Age-adjusted rate (per 100,000)	60	33	46
<b>Total self-harm injuries</b>			
Number of cases	159	213	372
Crude rate (per 100,000)	142	187	165
Age-adjusted rate (per 100,000)	146	186	166

Source: Australian Bureau of Statistics (2001)

In Aboriginal and Torres Strait Islander peoples, ingestion of poison as a means of causing self-harm is less common (62%) than in the non-Aboriginal population (81%, Figure 3-8). The age-adjusted rate of hospitalisation as a result of self-inflicted poison ingestion in Aboriginal and Torres Strait Islander peoples (105 per 100,000) was almost twice the rate in the non-Aboriginal population (60 per 100,000). Other methods of self-harm resulting in hospitalisation (such as by firearms or hanging) were uncommon in both populations. This is because suicide attempts using these methods are more likely to lead to death rather than hospitalisation.

Over 1990-92, suicide by hanging or firearm accounted for 93% of all suicide deaths in Aboriginal and Torres Strait Islander peoples, more than double the corresponding percentage in non-Aboriginal suicide deaths (Harrison and Moller, 1994).

Figure 3-8: Principal methods of self-harm leading to hospitalisation in Aboriginal and Torres Strait Islander peoples in Australia (except Northern Territory) 1991-1992.



Source: Australian Bureau of Statistics (2001)

Table 3-6: Indigenous Australian age standardised rates hospital separations for financial year 1999-2000.

Intentional self-harm	Indigenous male				Indigenous female			
	Number	%	Rate*	Ratio♦	Number	%	Rate*	Ratio♦
	394	0.5	0.021	2.3	466	0.5	0.023	1.8

\*Per 100,000 population. Directly age-standardised using the total Australian population as at 30 June 1991. ♦Rate ratio is equal to the rate of separations identified as Indigenous divided by the rate of non-Indigenous separations.

One study compared self-harm behaviour between Aboriginal and non-Aboriginal female sole parents (controlling for socio-demographic factors) in urban Adelaide, South Australia (Radford et al. 1999). Two non-random samples were made up of 52 Aboriginal and 45 non-Aboriginal mothers from similar postcodes. Thirty three percent of the whole sample, 40% of the non-Aboriginal sample and 25% of the Aboriginal sample had attempted suicide at least once. Statistical differences among attempters compared with non-attempters, irrespective of ethnicity, included increased familial alcohol abuse, physical and sexual abuse, economic difficulty, poor self-esteem, and perceived discriminatory treatment by welfare agencies and, in the case of Aboriginals, by police. Social environment is critical to understanding self-harm, regardless of culture or ethnicity. The data showed suicide attempts among female sole parents in state-housing was one of the few health indices for which Aboriginal statistics were better than for non-Aboriginals. The authors concluded that class rather than ethnicity better explained self-harm in the urban population.

One focus of research explored connections between parasuicide and reported health problems in Pormpuraaw and Yarrabah, two isolated Aboriginal communities in North Queensland. Cases of self-injury and suicidal behaviour over a five year period in the mid 1980s were identified through self-report and compared to a random sample community

control group. Though the total number of visits varied significantly among cases and controls, there was little difference for most ICD-9 categories. Female case and control groups did report a higher level of violent trauma than control males, although at a lower rate than male parasuicides. Male parasuicides were involved in more incidents of interpersonal violence, resulting in a clinic visit, than females. In conjunction with other risk factors, the consistency of this pattern across communities may aid in the recognition of risk factors for parasuicidal behaviour (Reser, 1995).

In a study of Aboriginals in South Australia, Clayer and Czechowicz (1991) found a disproportionately high rate of suicidal behaviour among that population, a situation they considered similar to that of Native Americans; both had experienced extensive social disintegration as a result of colonisation.

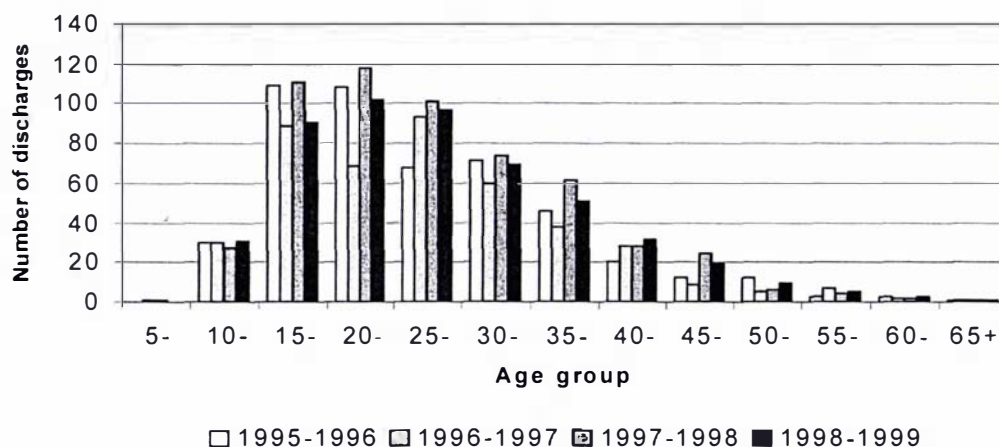
From 1981 to 1998, 7.5% of admissions due to deliberate self-harm were among Aboriginal people. Rates for deliberate self-harm increased significantly, remaining three times higher than the overall South Australian males and females rates. Drugs were the most common method of deliberate self-harm by Aboriginal males and females. However, since 1993, cutting or piercing has been as common as the use of drugs by Aboriginal males. Age patterns for deliberate self-harm among Aboriginals differed compared with the Australian population with admission rates peaking at a later age (30-34 years) and remaining high over a wider age range (around 15-39 years). Between 1981 and 1998, the rate of deliberate self-harm admissions for Aboriginal people was generally highest in metropolitan areas and lowest in the remote parts of the state. The admission rate peaked at an earlier age for Aboriginal people living in the metropolitan area (25-29 years) compared to Aboriginals living in rural and remote areas (30-34 years).

## **MĀORI ATTEMPTED SUICIDE**

There were 743 Māori hospitalisations in 2000–2001, at a rate of 119 per 100,000 (284 male hospitalisations at a rate of 93.5 per 100,000 and 459 female hospitalisations at a rate of 144 per 100,000). It is not possible to compare this rate with previous years' rates, as the definition of intentional self-harm has been extended to include cases not previously included.



Figure 3-9: Māori public hospital discharges for E950-959 suicide and self-inflicted injury 1995–1999.



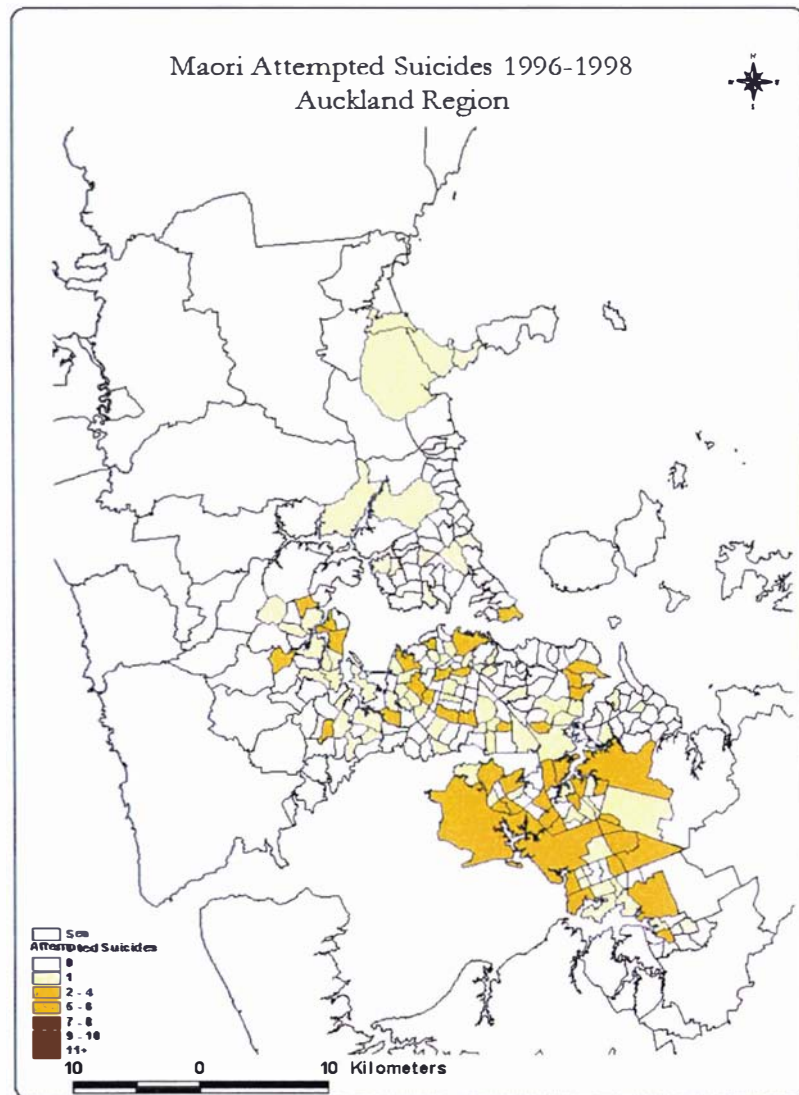
Source: NZHIS

In 1999–2000 there were 556 Māori hospitalisations for suicide and self-inflicted injury, at a rate of 89.5 per 100,000 (213 male hospitalisations at a rate of 70.4 per 100,000, and 343 female hospitalisations at a rate of 108 per 100,000). In 1998–1999; 14.1% of the hospitalisations for suicide and self-inflicted injuries were Māori (219 males and 294 females). For Māori and non-Māori hospitalisations, females made up 57.3% and 60.7 %, respectively, of total suicide and self-inflicted injury hospitalisations in 1998–1999.

Between 1981 and 1993, Māori female rates of hospitalisation for intentional self-injury were consistently higher than Pākehā (New Zealand European) male or female rates. In 1993, the Māori female rate for those aged 15-19 was 544.2 per 100,000 of population, an indication that young Māori women were in trouble. The Pākehā female rate for the same age group was 317 per 100,000. For males, the Māori rate was 287 and the Pākehā rate 139 per 100,000. In the group aged 20-24 Māori rates again exceeded Pākehā rates: the rate for Māori women was 243 per 100,000, for Pākehā women 230 per 100,000, for Māori males 356 per 100,000, and for Pākehā males 160 per 100,000. Higher rates in the older Māori population reflect the youthful yet aging Māori population structure.

The distribution of Māori attempted suicide in the Auckland region between 1996-1998 were concentrated in the South Auckland area. Each of the above boundaries represent a census area unit with equivalent number of households. South Auckland has the highest proportion of Māori resident to the Auckland region (Figure 3-10).

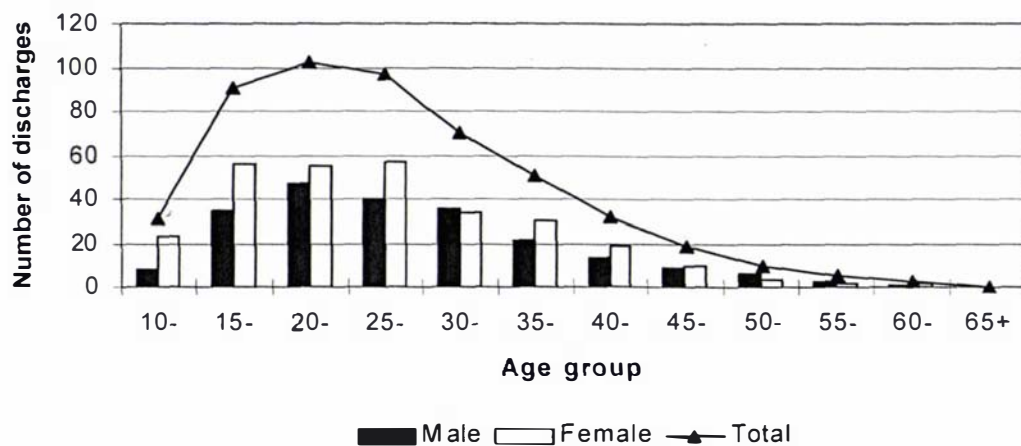
Figure 3-10 Map of Māori attempted suicide in Auckland region



The hospitalisation rate for Māori young people (15–24 years) in 2000–2001 was 244.8 per 100,000, which was lower than the non-Māori rate of 292.1 per 100,000. The hospitalisation rate for young Māori females was 307.7 per 100,000, lower than the young non-Māori female rate of 416 per 100,000. For young Māori males, the hospitalisation rate was 183.2 per 100,000, higher than the young non-Māori male rate of 174.6 per 100,000.

The gender ratio for suicide and self-inflicted injury is not as pronounced for completed suicide (Figure 3-11). Māori female hospitalisation rates are higher than male rates. Only Māori male aged 30-34 and 45-49 had slightly higher numbers of hospitalisations than females. The biggest female to male ratio was in the youngest age group 10-14 years at 2.8:1 the range of 1.1-1.6:1 across age groups was relatively small. In 1998-1999, 57% of hospitalisations for self-inflicted injury were Māori females.

Figure 3-11: Māori public hospital discharges by gender for E950-959 suicide and self-inflicted injury, 1998–1999.



Source: NZHIS

For both females and males, contemporary economic and social changes produced stress that was intolerable for some and proportionally worse for Māori than for Pākehā youth (Kelsey, 1995). The erosion of the welfare state progressively generated an underclass, a significant proportion of whom were Māori. The life prospects for many young Māori men and women have diminished. In the mid 1990s the unemployment figures for Māori were at least twice those of Pākehā individuals, and nearly half of Māori youth were without paid employment. Furthermore, the unemployed were not equally distributed throughout the country. Māori youth unemployment rates were reported to be as high as 80%, in some parts of the country (New Zealand Official Yearbook, 1996). At the same time cultural supports of identity collapsed, negotiating traditional cultural recognition in alienated urban settings became harder, and a perceived atmosphere of prejudice, fuelled by indigenous, nationalist, activist movements, developed.

Māori women earn less than Pākehā women and are less likely to achieve qualifications and opportunities (New Zealand Official Yearbook, 1996). Social services report increasing rates of referral for social disturbances, including domestic violence, child physical and sexual abuse, and mismatched foster placements.

Wilson (1999) used the term 'self-injury' instead of 'self-harm' because the latter may be taken to include relatively passive behaviours; the former is more frequently construed to describe active, deliberate or aggressive behaviour. Generally deliberate self-injury in this context includes behaviours such as cutting and overdosing when there is an obvious intent to do injury to oneself, but there may or may not be an intent to die. Wilson also stated

people who engage in non-fatal deliberate self-injury appeared to be linked to poverty, a lack of physical well being and depression. Young Māori were more likely than their Pākehā counterparts to live in circumstances generally associated with an increased risk to well being. In 1996, over a third of Māori left school with no formal educational qualifications. Just over one-third of Māori aged 15-19 who were available for work were unemployed. In 1995, Māori children were nearly four times more likely to be hospitalised for abuse than non-Māori (although some of this difference may relate to differential hospital recordings). In 1994, 51% of Women's Refuge clients were Māori, although Māori comprised only 14% of the total New Zealand population (Ministry of Health, 1998).

The Ministry of Youth Affairs (1998) in *Kia Piki Te Ora o te Taitamariki*, the New Zealand Youth Suicide Prevention Strategy, argues that there is a clear relationship between culture and behaviour.

Although it is clear that there is an ethnic disparity in the rates of deliberate self-injury, most New Zealand authors fail to address adequately the position of Māori. A report by Coggan, Fanslow and Norton (1995) drew largely on American material when discussing prevention and intervention strategies. They did not discuss the generalisability of American research to Aotearoa/New Zealand (other than when questioning the relevance of further restricting access to guns). There was little mention of the ethnic disparity in deliberate self-injury rates. The word Māori appears only once in the 10-page discussion of prevention and intervention; in an acknowledgement that suicide in custody makes a substantial contribution to the Māori suicide rate warranting investigation of culturally appropriate interventions.

Barwick (1992) did address the position of Māori, asserting it is feasible to generalise from international studies on acculturation through colonisation to the Māori situation. However, the hypothesis has not been tested (Wilson, 1999). Similarly, Langford, Ritchie and Ritchie (1998) argue that deculturation and colonisation have accentuated the risk for Māori. These factors, along with economic and social changes that have increased stress on families and youth and led to increased rates of depression, substance abuse, aggressive behaviour, family violence and schooling difficulties, were all considered to have contributed to an alarming increase in non-fatal suicidal behaviour in New Zealand.



Overall, the literature pays little attention to the possibility that long-term effects of colonisation are a factor in the disproportionately high Māori suicide rates and why the phenomenon did not show up until the 1990s. Assisting in the development of self-esteem, self-efficacy, support and collective responsibility among Māori are some of the avenues for reducing the Māori suicide rate. In order to do this wider socio-political issues may need to be addressed (Wilson, 1999).

The Christchurch Health and Development Study investigated youth suicide and suicidal behaviours in their study cohort at age 18 (Horwood & Fergusson, 1997) and found Māori rates (30.4%) of suicidal behaviour (thoughts and feelings) were higher than non-Māori (21.7%). However, there was no detectable difference in the rate of suicide attempts. 8.8% of Māori males and 3.5% of Māori females reported suicide attempts. The authors suggested that the observed variations in Māori male suicidal behaviours could be attributed to the patterns of risk for psychiatric disorder.

A further study of serious suicide attempts in youth (Beautrais, Joyce & Mulder, 1998) found that the population that made serious suicide attempts was twice as likely to be Māori than the controls, suggesting that being Māori is associated with serious suicide attempts. Given the paucity of information regarding Māori and suicide and the increasing rates of suicide in young Māori, the finding that Māori were twice as likely to be represented as serious suicide attempters compared with non-Māori, is significant (Māori Health Operating Group, 2000).

## **LIMITATIONS**

The quality of data on attempted suicide is even more variable than that on completed suicides. Concerns about nomenclature (Garrison et al. 1991; O'Carroll et al. 1996) and accurate reporting apply even more than with completed suicide. Within the broad category of attempted suicide there are many variations in characteristics such as lethality, motivation and circumstance. Within the population of suicide attempters there are many differences in demographic and psychosocial characteristics such as age, sex, treatment history, problem history, previous suicidal behaviour, and psychiatric disorders. Moreover, there is no simple relationship between type of suicidal behaviour and type of person, because one person can show differently motivated non-lethal suicidal behaviours on two or more occasions. In 1997 Kreitman stated that research into attempted suicide is deficient

because a great range of psychological syndromes and social reactions are included under a single term. Therefore, he emphasised the need to divide suicide attempts into more homogeneous subgroups.

Evidence suggested suicidal behaviours were frequent precursors to future completed suicide. Current thinking proposes that knowledge of factors contributing to this range of thoughts and behaviours is important for developing effective prevention efforts. However, using suicidal ideation and behaviours as measures of suicide and attempts is problematic. A high prevalence of suicidal ideation may be common but prolonged preoccupation with death is unusual so it may not be a useful indicator of suicide attempt. A strict definition of the lethality of suicide attempt is required otherwise the prevalence of attempts will be overestimated. By definition, suicide occurs when there has been an intention to self-kill. However, ascribing intention to the actions of a now deceased person is notoriously difficult and often a matter of subjective judgement (New Zealand Health Technology Assessment, 1998).

International studies of attempted suicide have more consistently found higher rates of attempted suicide associated with lower socio-economic status (Beautrais, Joyce & Mulder, 1996; Dubow et al. 1989; Gunnell et al. 1995; Hawton et al. 1994; Moscicki et al. 1988). International studies of attempted suicide have shown significant relationships, with attempted suicide ratios of up to 15:1 for unemployed to employed people (Platt, 1986; Platt & Kreitman, 1985, 1990; Hawton & Rose, 1986;).

One of the major challenges faced by cross-cultural researchers is finding ways to disentangle the effects of culture from those of important demographic factors such as socio-economic status, education, migration and acculturation. Culture and socio-economic status can interact in ways that exaggerate or mask group differences. As a result, many researchers have given cultural interpretations to phenomena that are largely the product of differences in social class, while in other instances true differences have been obscured (Canino & Roberts, 2001).

It is important to be cautious when interpreting suicide attempt data. New Zealand does not have accurate data on all suicide attempts because records are kept only on those who are admitted to hospital as in- or day-patients. Data is not collected nationally on people treated in as out-patients, people treated by general practitioners, and people who do not seek medical treatment. Also, changing treatment practices make comparisons across years

difficult. For example, improving treatment for overdose has meant more people can be treated on an out-patient basis, and will not appear in hospitalisation suicide attempt figures.

The suicide attempt figures used in this chapter are for self-inflicted injury and may include cases of deliberate self-harm where the intent was not death. Hospitalisation figures include people who are admitted more than once during that year, and also include those who died while in hospital. Although completed and attempted suicides have common characteristics, there are important differences that limit the generalisability of findings between populations of suicide completers and attempters.

Differences exist in the epidemiology of suicide and attempted suicide. For example more Māori males commit suicide and Māori females have higher attempt rates therefore these two groups need to be studied separately. Also the capacity to acquire more information directly from attempters rather than relying solely on reports obtained from significant others after death by suicide is likely to be of more use in developing prevention strategies.

## CHAPTER 4

# TE HUARAHI O TE WHAKAMOMORI RANGAHAU: METHODOLOGY FOR MĀORI ATTEMPTED SUICIDE STUDY

<b>Ngā Peke Huarahi o te Rangahau- Methodological Strands</b>	<b>Ngā Rau Huarahi o te Rangahau- Methodological Threads</b>
Broad Approach	Introduction Objectives Hypothesis
Methodological design	Descriptive Randomised control trial Cohort Case control (psychological autopsy) Kaupapa Māori
Justification for Approach	Validity and precision Confounding Multivariate analysis Effect modification Bias
Focus of Inquiry	Participants
Sampling	Case selection Control selection
Questionnaire Development and Administration	Questionnaire justification Data collection procedure Research protocol
Data management	Collation Analysis Storage
Analysis	Statistical issues Sample size Statistical analysis and power Statistical testing Ethical considerations



## **INTRODUCTION**

The previous chapter described the literature on attempted suicide from local, national and international contexts. This chapter has two main aims. First, to provide a context for the epidemiological case control design and kaupapa Māori approach, and secondly to describe the research methodology used for the study of Māori attempted suicide in the Auckland region.

The first part of this chapter details the conceptual framework from which the research has been developed. It includes, the overall objectives, the hypotheses, design justification, case control design and kaupapa Māori research, validity and precision, and participants.

The second part of the chapter examines the sampling methods including measurement, data collection procedures, research protocols, data management, statistical issues, and ethical considerations arising from the study.

### *Conceptual Framework*

## **OBJECTIVES**

The objectives of the study were to:

1. Describe the population of Māori attempted suicides who present to emergency departments in the Auckland region.
2. Determine risk factors for Māori who attempted suicide.
3. Identify potential protective factors for Māori who attempted suicide.
4. Test the hypothesis that Māori who are culturally alienated are more likely to attempt suicide.
5. Perform an epidemiological analytical study within the framework of kaupapa Māori research.

## **Hypotheses**

Ho: Māori who attempt suicide are different to other Māori.

Ho: There is no difference in the level of cultural alienation of Māori who attempt suicide compared to those who don't attempt suicide. (In other words Māori who attempt suicide have limited access to te reo Māori, whakapapa, whānau and whenua, and do not have a secure identity when compared to Māori who don't attempt suicide).

## DESIGN

Certain study designs are superior to others when answering particular questions. Many researchers consider randomised controlled trials (RCTs) as *sine qua non* (indispensable) when addressing questions of therapeutic efficacy, whereas others believe different study designs are appropriate for addressing other types of question. For example, questions relating to aetiology or harm may be addressed by case control and cohort studies. Suicide has been researched from several perspectives. The justification for the case control approach adopted in this thesis is discussed below.

### **Why Not Descriptive, Survey, or Qualitative Studies?**

Data from descriptive epidemiologic studies are useful to public health administrators planning for health care utilisation and resource allocation. They are valuable to epidemiologists in describing patterns of disease as well as contributing important information for formulating etiologic hypotheses. Many studies have used cross-sectional designs to study factors related to suicidal behaviour that are described at a single point in time (Dubow et al. 1989). This is useful for describing prevalence. There are, however, temporal limitations, so causality cannot be inferred. Each study type (case reports, series and cross-sectional surveys among individuals) provides valuable information on who is getting the 'disease' (person), where it is more and less common (place) and when it is occurring (time).

Descriptive studies offer data on populations rather than individuals (correlation studies), lack an adequate comparison group (case reports and series), or cannot discern the temporal relationship between an exposure and the 'disease' (cross-sectional surveys). They generally cannot test etiologic hypotheses (Hennekens & Buring, 1987).

Qualitative research, much like case reports and case series, can assist in hypothesis generation but does not use comparison groups.

### **Why Not a Randomised Control Trial or Intervention Studies?**

The ultimate goal of any intervention study is to provide a definitive, positive result on which public policy or treatment can be based, or a reliable and informative negative finding that can then safely permit the redistribution of resources to other important areas of research. Intervention studies can be more difficult to design and conduct than observational epidemiological studies, due to unique problems of ethics, feasibility and costs. Trials that are

sufficiently large, randomised and carefully designed, conducted and analysed can provide the strongest and most direct epidemiological evidence on which to make judgement about a cause-effect relationship.

A randomised control trial or experiment is the only comprehensive approach to control for variables that have the potential to cause confounding (Clayton & Hills, 1998). For an outcome of serious attempted suicide and the possibility of suicide, randomised control trials are not appropriate or ethical.

### **Why Not a Cohort Study?**

Cohort studies have the advantages of clearly assessing temporality between exposure and outcome, and minimising information bias, since participants are included in the trial before any suicidal behaviour has occurred. Cohorts are of particular value when the exposure is rare, when multiple effects of a single exposure need to be examined, and allow direct measurement of disease incidence in both the exposed and non-exposed groups. Cohort studies are inefficient for evaluating rare diseases or outcomes, unless the attributable risk percent is high, prospective cohort studies can be extremely expensive and time consuming, retrospective cohort studies require the availability of adequate records and result validity can be seriously affected by losses to follow up. Suicide is a negative result and following people in a cohort study would take time and money and require interventions before the outcome is reached.

### **Why a Case Control Study?**

A case control study is considered the most appropriate for this type of research as it enables a sufficiently large number of cases and controls to be identified over a relatively short time-frame. Case control studies are relatively quick and inexpensive to run compared with other analytical studies and are particularly well suited to evaluating diseases or outcomes with long latent periods. They can also examine multiple etiological factors for a single disease and are optimal for evaluating rare outcomes like attempted suicide. Some downfalls of this methodology are that it is inefficient for evaluating rare exposures, unless the attributable-risk percent is high, and it cannot compute directly incidence rates of outcome in exposed and non-exposed individuals, unless the study is population based. In some situations the temporal relationship between exposure and disease maybe difficult to establish and almost certainly prone to bias compared with other analytic designs, in particular selection and recall bias. In a case control study, a case group of individuals who have the disease of interest and

a comparison control group of individuals or comparison who do not have the disease are selected for investigation (Hennekens & Buring 1987). Part of this study is to determine odds and attributable risk associated with Māori attempted suicide. By using randomly selected community-based controls as the comparison group the results can be inferred in the general population.

### **Why a Kaupapa Māori Research Approach?**

Emerging from the work of Māori educationalists, kaupapa Māori research was developed in response to cultural preferences, practices and Māori aspirations (Cram, 1993; Te Awekotuku, 1991; Smith, 1992; Smith, 1990a, 1990b). It is a research paradigm based on Māori principles, philosophies and language, and is concerned with the struggle for autonomy over Māori health and cultural wellbeing (Smith, 1990a, 1990b). Kaupapa Māori research aims to provide information to empower Māori and enable and enhance Māori wellbeing. It is not enough to collect and analyse information, Māori researchers must have control over Māori research to ensure it is useful and Māori communities value the results (Durie, 1998).

Kaupapa Māori research allows for the involvement of non-Māori researchers, as long as Māori researchers lead the study. This ensures cultural relevance and safety, and analysis and interpretation that takes for granted the value and legitimacy of Māori philosophy and principles. The skills of non-Māori can be used to further Māori research.

Kaupapa Māori as a meaningful 'theory' of change has three significant components that can be understood within a critical theory framework: conscientisation, resistance and praxis (Smith, 1990a, 1990b). Conscientisation (revealing the reality) is to critically analyse and deconstruct existing hegemonies and practices that entrench Pākehā dominant social, economic, gender, cultural and political privilege. Kaupapa Māori critique and analysis correlates with established critical theory instruments and approaches that develop critical consciousness. Kaupapa Māori conscientising is alert to both culturalist and structuralist issues. This study has deconstructed Pākehā dominance through Māori leadership and participation at all levels (Smith, 1990a, 1990b).

Resistance (oppositional actions) is the forming of shared understandings and experiences to derive a sense of a collective politics that coalesce around two broad themes: reactive activities and proactive activities (Smith, 1990a, 1990b). This research incorporates resistance by marrying the two paradigms of epidemiology and kaupapa research.



Praxis (reflective change) is not merely about developing a critique of what has gone wrong, it is concerned with developing meaningful change by intervening and making a difference (Smith, 1990a, 1990b). With the completion of this research praxis will inform development and change for future symbiotic research relationships.

## **VALIDITY AND PRECISION OF A CASE CONTROL DESIGN**

The validity of a study is the extent to which its design and conduct are likely to prevent systematic errors or bias (Moher et al. 1995). An important issue not to be confused with validity is precision. Precision is a measure of the likelihood of chance effects leading to random errors. It is reflected in the confidence interval (CI) around the estimate of effect from each study and the weight given to the results of a study when an overall estimate of effect or weighted average is derived. More precise results are given more weight. Variation in validity can explain variation in a studies results. More rigorous studies may be more likely to yield results that are closer to the 'truth'. Quantitative analysis of results from studies of variable validity can result in 'false positive' conclusions (erroneously concluding an intervention as effective) if the less rigorous studies are biased toward overestimating an intervention's effectiveness. They might also make 'false negative' conclusions (erroneously concluding no effect) if the less rigorous studies are biased towards underestimating an intervention's effect (Detsky, 1992).

The validity of a statistical association in a study must be considered only when all alternative explanations have been explored. These alternative explanations include confounding, bias and chance (Hennekens & Buring, 1987).

### **Confounding**

The first explanation to the threat of validity within a case control study is that of confounding. Confounding is when the possibility that an observed association is due, totally or in part, to the effects or differences between the study groups (attempted suicide and control subjects) other than the exposure being studied, which could affect their risk of developing the outcome (attempted suicide) (Hennekens & Buring, 1987). Another variable (causality) is associated with both the outcome and exposure. It is possible to control for confounders that are known and measured using other study designs; randomisation is the only way to control for confounders that are not known or not measured.

Confounding can be controlled or limited by performing the following measures during the study design or analysis phases. For the purpose of this case control study restriction (including matching for ethnicity), stratification and multivariate analysis have been used.

### *Restriction*

Any restrictions with respect to specific population characteristics or settings should be based on sound evidence. Two types of restriction were placed in the design phase of this study. The first was to restrict the study by ethnicity, to prevent confounding due to ethnic or cultural differences, and the second restriction was by age.

As there was no precedent for a Māori centred/focused epidemiological study it was this authors intention not to narrow the age band to a taitamariki (youth) demarcation, so as to demonstrate if age were a factor that influenced Māori deliberate self-harm (Coupe, 2000a, 2000b). However, an age restriction was imposed to include only people aged 16–50, due to the diversity between risk and protective factors across the various age groups. Hormonal, developmental, emotional and biological states vary with age. Socio-economic, educational and whānau characteristics also change over time and age. Situational factors are likely to be different for adolescents (relationship break up, substance abuse, sexual abuse) than for elders (loss of significant other, loss of mobility, loss of general health) or middle-aged cases (unemployment, redundancy, marriage break up).

The upper age limit was derived from the medical record review that suggested the number of subjects over the age of 50 would be less than eight (4%) per year (pg. 5-157) and to ensure the study would not be overbalanced by older controls subjects who are more frequently at home (for example elderly, home based employment and unemployed). The lower limit was set to ensure the interview could be performed without a parental representative (Ethically, approval must be obtained from a parent or legal guardian to interview anyone under the age of 16) who might sway data received from the younger group.

### *Matching*

Age matching can improve the efficiency of a study design by not ‘wasting’ the controls, for example, when more controls are drawn than is required in certain age groups. The phenomenon can occur when including older age groups in research studies, as population based controls are more likely to participate in research as they have fewer time commitments than their younger counterparts. If a study is carried out to achieve a constant

ratio of cases to controls in broad groups it is called group or frequency matching. If a set of matched controls is selected specifically for each case it is called individual matching. In practice, age is usually a strong confounder. For less strongly related confounders matching leads to only modest gains in precision while complicating study design. More seriously, if a variable is matched in the design the ability to examine the effect of the variable is lost since its distribution in the controls will match that in the cases rather than the study base.

A misconception that variables matched in design could be ignored during analysis, because differences between cases and controls could not be attributed to these variables, leads to generally incorrect estimates of odds ratios. The bias arising by ignoring matching in the analysis is always toward the null. Bias does not occur when matching is unrelated to exposure of interest, so matching is unnecessary.

Matching can reduce a study's efficiency. Overmatching occurs when the matching variable is strongly related to exposure, but not to disease risk (that is, it is not a confounder). Matching is usually justified on the ground of being a statistically efficient control for confounding. Close examination suggests matching should be used as little as possible and only for variables strongly related to disease and exposure and whose status is unequivocally confounding. Matching for ethnicity has been used in this study design although there was much discussion about matching for age to lower the potential for confounding for age. This was resolved through the restriction of age, so the study can make causal inferences for various age groups.

### *Stratification*

Dividing the data according to variable or variables is an analytical strategy called stratification. By dividing the data according to the variable concerned the single experiment of nature in which the variable has not been adequately controlled is transformed into a series of smaller experiments within which the variable is closely controlled. The consequence of the strategy is that individual strata may contain too little data to be informative on their own. The more finely the data is stratified the closer it can control for confounding, but the sparser data becomes within each strata. During analysis confounding can be controlled through the stratification of that potential confounder variable.

### *Multivariate Analysis*

Multivariate analysis offers the most powerful and comprehensive way to consider simultaneously many potential confounders. Multivariate analysis has been used in this study

and is described in the analysis section of this chapter. The most common application to multivariate analysis and the control of confounding is logistic regression analysis. This is where the log odds of the outcome (deliberate self-harm) are modelled as a function of the exposure (risk factor) and potential confounding factors. Multivariate analysis cannot be considered a foolproof measure to control all confounding factors as other factors may not have been considered. The best control for confounding is to ensure the domains being investigated include all possible confounding variables. Confounding variables are drawn from theory, the evidence presented in chapters 2 and 3 and by using logistical regression analysis.

### **Effect Modification**

When the association between the exposure (risk factor) and outcome (deliberate self-harm) varies by levels of a third factor there has been an effect modification. During stratified analysis the presence of effect modification can be determined. When there is an indication that stratum specific estimates do vary, affecting the magnitude and direction of the association between exposure and outcome, then individual reporting of estimates of the effect with confidence intervals by stratum has taken place.

For any association under study, a given factor can be a confounder and an effect modifier, a confounder but not a modifier, an effect modifier but not a confounder, or neither. A confounder depends entirely on whether its distribution between study groups is uneven, so accounting, totally or in part, for the observed association and resulting in a distortion of the true relationship due to the mix of subjects. Thus, the aim is to control confounding and eliminate its effects.

Effect modification unlike confounding reflects a natural characteristic existing independently of study design or subjects. Effect modification answers questions about whether the relationship between exposure and outcome appears to be the same or different for varying levels of a factor after baseline differences in that factor are controlled. Effect modification should be described and reported, not controlled.

### **Bias**

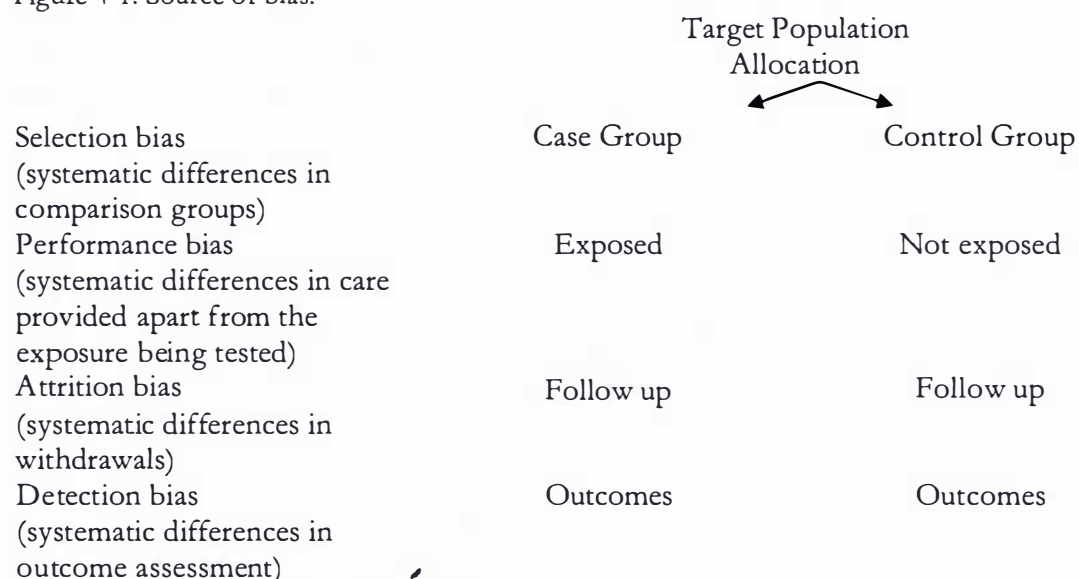
Bias is the systematic error in an analytical study that results in incorrect estimates of the association between exposure and risk. There are various forms of bias that can influence the results of even the most rigorously designed study.



Many sources can generate bias from the way subjects are selected to the way information is obtained, reported and/or interpreted. Therefore, evaluating the level of bias within a study is an important step in interpretation of results. Quantifying bias is more difficult than quantifying confounding and chance. Accounting for bias during analysis may be impossible, so it is imperative to minimise bias during the design phase by anticipating and reducing the possibility. Bias minimisation is also not foolproof, so the interpretation of results must take into consideration the magnitude and direction of the effect.

Two of the most important biases to consider with respect to case control studies are selection and recall bias (component of performance bias). Other biases that can contribute to spurious results in research include performance, attrition and detection bias (Figure 4-1).

Figure 4-1: Source of bias.



Source: Alderson, Green & Higgins (2004).

### *Selection bias*

Selection bias occurs when identifying an individual subject for inclusion in a study on the basis of outcome status (deliberate self-harm) depends on a risk factor. In a case control study the selection of cases and controls is based on different criteria and these in turn are related to the exposure variables or risk factors. Sample selection bias in any study arises from failing to recruit all cases and control.

The question of who is Māori has been the subject of considerable debate (Butcher 2003; Callister 2003; Chapple 2000; Durie 2001; Gould 2000; Kukutai 2003; Pool 2001, 1991). At the heart of the problem of defining ethnic group membership is the lack of definitive criteria. In this case, just what is it that makes a person Māori? Is it a preponderance of Māori

ancestors – akin to the notion of being a “full blood”? Is it knowledge of cultural practices and engagement in Māori networks? Is it having a Māori ancestor, no matter how far back? Or, is being Māori merely a state of mind? Clearly any criteria invoked are not objective, but are products of the motivations and cultural assumptions of those doing the classifying (Kukutai, 2004).

Biological identification of indigeneity from blood samples estimates (Morton et al. 1967) to blood quantum have been utilized in the past to more recent techniques of gene mapping (Robinson, 1998). Kukutai (2004) offers an alternative to the biological marker as a socio-cultural measure associated to cultural identity and ethnic group connection. For Māori this has included degrees of Māoriness scale (Ritchie, 1963), schemas of Māoritanga (Metge, 1964) and more recently Māori cultural identity (Durie et al. 1995; Cunningham et al. 2002; Stevenson, 2004). A further simpler approach to ethnic identification has been to distinguish between single and multi-ethnic people. The assumption is that those who identify with multiple ethnicities have a weaker sense of cultural identity or group attachment, than their single-ethnic counterparts do. Therefore, distinction between single- and multi-ethnic persons is easier to operationalise than either cultural indicators or biological “proofs” (Kukutai, 2004).

Selection of Māori on the basis of ancestry minimises bias. Māori who self-identify may be more inclined to participate in te ao Māori (Māori worldview) and are consequently less culturally alienated and possibly less likely to be inclined towards attempted suicide. Māori with ancestry who do not self-identify in formal environments (for example hospital admission) may be additionally alienated from culture. Māori participation based on levels of cultural alienation can be overcome with good initial contact and explanation of the study. This study endeavoured to minimise selection bias by personal contact with potential cases, rechecking information, and conversations with clinicians and administrators, about as many potential cases as possible. However, the author recognises that a small number of cases may have been missed during the selection process.

Selection bias was minimised in this study by selecting random Māori controls in the Auckland region. The random selection allowed Māori of culturally diverse backgrounds to participate. If the study used the Māori electoral roll to choose participants then a selection bias toward the null would occur since Māori who enrol on the electoral roll are less likely to be culturally alienated (Durie et al. 1995). The screening questions asked of potential participants during the study were ‘Do you have any Māori heritage/ancestry?’ for cases and

‘are you of Māori descent/ancestry?’ for controls. The author acknowledges that although the difference in the two screening questions was small it may have led to different interpretations by potential participants. However, the control screening question was asked of the potential participant after the Māori household had been randomly selected within a meshblock. During the household selection process the gatekeeper question was asked as to whether there was anyone resident who had Māori ancestry. There may have been shortcomings in asking a gatekeeper this question with possible selection bias.

However, the more significant issue was in using ancestry (rather than self-identification of ethnicity) as the main identifier. There were two reasons for using ancestry as the basis for screening for Māori participants in the study. The first and most important was to ensure that people of Māori descent were included in the study. The second reason was to ensure that Māori who did not self identify as Maori also took part in the study. Based on Durie et al. (1995) cultural identity profiles 6% of Māori do not identify as Māori. These 6% of Māori, although a small percentage, could have a compromised identity independent of their access to te ao Māori. The wider net allowed for a more diverse sample but may have underscored the significance of self identification as a more significant measure of ‘being Maori’.

The case and control questionnaires provide three opportunities to describe ancestral, ethnic and self description of identity. Previously ancestry and ethnicity have been discussed. For the purposes of this research self description (‘Which option best describes you?’) has also been employed because of its utilisation in two previous studies on suicidal behaviour, in Pacific young people and Pākehā young people. These studies were running concurrently with the Māori attempted suicide case control study and the principal investigators of all three projects felt that for future comparative analysis a common ethnicity question would be useful.

There was much debate at the time the Māori attempted suicide case and control questionnaires were developed about the Census of Population and Dwellings ethnicity question. At the time the ethnicity question for 2001 was not finalised but it was going to differ from that asked in 1996. The question was designed to measure ethnicity based on cultural affiliation. Statistics New Zealand research indicated that the 1991 question provided a better measure of this concept than the 1996 question. There were some significant changes in response in 1996 that could be attributed to the wording of the question rather than changes in the population (Statistics New Zealand, 2005). These included increased multiple response (people identifying more than one ethnicity); a consequent reduction in single responses and

a tendency for respondents to answer the 1996 question on the basis of ancestry (or descent) rather than ethnicity (or cultural affiliation). For the purposes of this study the self description ethnicity question was employed based on concurrent research. In future the author would recommend using the Census of Population and Dwellings to assist in the self-definition of Māori.

If the study were only to include Māori who self identified then the sample may have been biased towards those with secure, positive and notional identities who would be less likely to be culturally alienated, colonised or detribalised. In turn Māori with a stronger sense of identity could have been over-represented.

Refusal or non-response from either study group is another source of selection bias that can influence study results. Factors that are associated with differential diagnosis, referral, hospitalisation or treatment between cases and controls can give rise to ascertainment or selection bias. For example, when a deliberate self-harm is not included in the study because the injuries sustained were insufficient to warrant admission to an emergency department.

#### *Attrition bias or response rate*

Attrition bias refers to systematic differences between the comparison groups in the loss of participants from the study.

In this study a response rate of 80% was used in calculations for cases of deliberate self-harm. The response rate for controls was set at 75% and is addressed in the analysis. Those who agreed to participate with respect to the cases were more likely to be different from those who participated as controls due to a vested interest in finding reasons for the outcome. Levels of motivation for the controls may not be as high, so response rates may fall. A low response rate will be a problem if non-response is related to the exposure and other risk factors for the outcome of the study. This can be overcome through broad community consultation and establishing community networks and links that support whānau in time of crisis. In this study support networks will have been established before, during and after interviews to help through these times.

Attrition bias occurs when participation rates vary markedly between cases and controls. Even when there is little difference between the response rates the reason for the differing rates may be different for each group. The extent of this differing selection bias is difficult to measure and the best way to manage selection is to minimise its effect through following study procedures closely even if it involves exhausting fieldwork among the interviewers to



locate and support the subjects during the whole interview process. Assurance that the control subjects were able to become cases from the same geographical region also minimises selection bias.

Potential participants for the study were asked by a Māori interviewer to participate and given an information sheet outlining the study's expectations and a consent form explaining that they could withdraw from the study at any time. Those who did not wish to participate were asked for a reason to ensure that it was not due to any part of the study design. To ensure a good response rate in all age groups, a range of interviewers was available.

The present study cannot minimise the selection bias that occurs when Māori attempt suicide and do not attend an emergency department in one of the three hospitals in the Auckland region. An assumption has been made, however, that Māori who seek treatment, in an emergency department in the Auckland region after a self-inflicted injury could have the same risk factors as Māori who do not seek treatment following an attempt.

#### *Information bias*

There are several types of systematic, observational or information bias that influence the results according to the way exposure or outcome data have been obtained from study groups. If data are incomplete or inaccurate and affects the two groups differently spurious associations may arise. The following types of observational bias relate to the present study: interviewer, recall and misclassification bias.

#### *Interviewer bias*

The present study used several measures to minimise potential observational bias. Interviewers of both cases and controls used strictly structured questionnaires (Appendices 4 and 5); a study protocol (Appendix 3) was developed and implemented to ensure all interviewers were consistent in obtaining, collecting and collating information; and regular auditing of interviews and supervised debriefing sessions ensured quality control.

#### *Recall bias*

Recall bias (or subject bias) arises when individuals with a particular adverse health outcome remember and report previous exposure experience differently from those not similarly affected (control subjects). Prospective data collection about modifiable risk factors derived from questioning and reviewing pertinent medical notes can be incomplete. Some

information may be subject to bias as cases are more likely to recall information than controls, as part of their need to make sense of the event.

Recall inaccuracies can occur with adolescents who tend to recall past histories as being more immediate than they actually were.

Participants who are currently suffering from psychiatric ill health may recall previous episodes of psychiatric ill health more readily than non-suicidal control subjects, thus leading to an overestimation of the relative odds of psychiatric ill health as a risk factor for attempted suicide. Current psychiatric events may influence the recall of recent life stress. In the present study recall bias will be an overestimate of the association between exposure and outcome due to the recall of circumstances for the case group being better than the control groups.

Recall bias was minimised in the study design by incorporating a structured questionnaire bias depends on the exposure under investigation and may be less for an individual's environment (whānau characteristics and environmental background, social factors and service utilisation). Bias was measured by comparing cases to controls using variables that have no influence on caseness. Measurement error can threaten the validity of this type of study. Validated and reliable questionnaires were used in the study to reduce the effect of measurement errors.

#### *Misclassification bias*

Misclassification bias occurs when subjects are erroneously categorised according to outcome status. As most studies carry some degree of inaccuracy in reporting or recording information, misclassification is inevitable. The effect of misclassification depends on whether the misclassification with respect to exposure (or outcome) depends on the individual's outcome (or exposure) status. When the misclassification is random (non-differential), the proportion of subjects erroneously classified in each study group is approximately equal.

Exploring the nature of the interaction whether quantitative, multiplicative or additive may provide tremendous insight into association.

## **PARTICIPANTS**

The following section outlines the selection of the case and control subjects. Since selection bias can affect the validity of case control studies details of subject choice are outlined.

## Case selection

Cases were selected from 250 consecutive Māori admissions to one or other of the three Auckland hospital emergency departments where a primary diagnosis of attempted suicide had been made on patients aged 16-50. There were three entry points for the Auckland region. They spanned three district health board regions (Waitemata, Auckland and Counties Manukau) and three emergency departments of North Shore Hospital, Auckland Public Hospital and Middlemore Hospitals, respectively.

Cases were defined as individuals who

- had identified as Māori on the hospital admission sheet and/or
- had been identified as Māori by admissions clerk's and/or
- had not filled in the admissions sheet or were unable to answer the clerk's requests but had answered yes to the screening question: Do you have any Māori heritage/ancestry?
- had not filled in the admissions sheet or were unable to answer the clerk's requests but had been identified as Māori at some point during a hospital stay and
- had not filled in the admissions sheet or were unable to answer the clerk's requests but had been identified as Māori at some point during screening by the recruiter
- were Auckland residents for at least one month before to admission.

The attempted suicide diagnosis was defined for Auckland Māori residents who required admission to an Auckland emergency department and needed specialised medical and/or surgical attention according to the following treatment criteria:

- Psychiatric treatment where a specialised psychiatric service had been requested to carry out an assessment before discharge or referral.
- Treatment in specialised units including
  - hyperbaric chamber treatment (for CO<sub>2</sub> poisoning),
  - burns units treatment (for self-immolation),
  - orthopaedic units treatment (for jumps from high places), and
  - intensive care units treatment (for poisoning by solids, liquids, or gases; strangulation, asphyxiation, suffocation and hanging; submersion and drowning).
- Surgical treatment requiring anything from general anaesthesia to suturing open wounds (self-mutilation, cutting and laceration; firearms and explosives).

- Medical intervention involving gastric lavage, activated charcoal and neurological observations (cases were also included if they required antidotes for drug overdoses, repeated testing and investigations).

Cases were recruited into the study after being admitted to one of the hospital emergency departments. All the hospitals were visited at least once a week for self-harm reports and day-sheets to be searched. Double and triple screening was implemented to ensure total capture.

The systems used in each hospital were not identical. Auckland Public Hospital had a system where all deliberate self-harm admissions were seen by psychiatric liaison. Medical records were available within liaison to screen and recruit potential cases. Middlemore Hospital made daily emergency department admission sheets and psychiatric/self-harm reports available. As a back-up to the reports, access to the psychiatric liaison room was obtained for a secondary level of screening and recruitment. North Shore Hospital facilitated three levels of screening and recruitment: completed day-sheets of emergency department admittance; self-harm reports from coding; and a psychiatric liaison check.

After diagnosis and ethnicity checks were completed and the subject had signed a consent form, medical records were reviewed. Individual participants were approached when medical and psychiatric liaison staff considered it would be safe for them to be seen. The timing for the initial approach of potential subjects was always a matter of judgement. Difficulties could arise if an individual was approached before being ready to talk or if too much time had past and there was reluctance to relive the event.

Exclusion criteria were:

- classification as Māori through self-identification but without ancestry
- diagnosis is of accidental or recreational deliberate self-harm
- imprisonment at the time of the suicide attempt
- residence at the household of less than one month and/or stays of less than three days a week
- residence being home detention, a hotel or a motel.
- being younger than 16 and older than 50 at the time of the suicide attempt
- transference into an emergency department from outside the Auckland region and/or
- dying before being discharged from hospital.



## Control selection

The type of control group chosen for research on suicide attempts is an important consideration. The major determinant is the nature of the exposure or risk factors to be investigated. In this study, where general risk factors were to be identified, general population controls were required. In fact controls should be chosen from a random sample of the population that generated the cases. Where the aim was to examine risk and protective factors for suicidal behaviour in the presence of depressive disorders – which are found in the majority of suicide attempters (Haw, et al. 2001), then depressed individuals who made serious suicide attempts would need to be compared with depressed individuals who did not have a history of suicidal behaviour. This may seem obvious, but control groups are often chosen inappropriately (Hawton, 2001).

A total of 250 controls were selected from an Auckland population-based cluster-sampling scheme with a fixed number of dwellings per cluster. Statistics New Zealand has divided New Zealand into small geographic areas called primary sampling units (PSUs), based on meshblock boundaries and containing between 50-100 dwellings. Meshblocks provided starting points for household selection. The probability that a PSU was included was proportional to the number of dwellings in that PSU. Statistics New Zealand provided the starting point of a randomly selected street and street number within each meshblock.

Nine recruiters approached 15 households in each meshblock beginning from the designated starting point using a predetermined procedure to identify all eligible Māori in the household. In situations where there was more than one eligible respondent, one Māori person was randomly selected. If the person selected was available, their consent was then sought and an interview arranged or contact details obtained and further attempts were made to set up an interview. If the person was not available a letter of introduction and a brochure were left with the person who opened the door for the eligible person consideration.

If the person who answered the door was the randomly selected participant the interviewer gave them a letter of introduction and a brochure outlining the study and any obligations that would arise through their participating.

Control subjects were defined as individuals who

- answered yes to the question, *Are you of Māori descent?*
- were aged 16-50
- had been Auckland residents for at least one month.

At the interview, the interviewer would repeat the study objectives and expectations, including options for participant withdrawal, the participant's voluntary status and their consent to participate.

The sequence of households visited and the outcome of all visits were recorded. Up to three return visits were made to each starting point at different times on different days in order to maximise the chance of contacting a member of the household. This method of selection of starting points and recruiting from households had been used successfully in the Te Hoe Nuku Roa Māori profiles framework (Durie et al. 1996), the meningococcal case control study carried out in Auckland, and the National Nutrition Survey (Ministry of Health, 1997).

Exclusion criteria for controls were:

- classification as Māori through self-identification but without ancestry,
- being younger than 16 and older than 50
- residence at the household of less than one month and/or stays of less than three days a week
- residence being home detention, a hotel or a motel.

### *Research Methodology*

This part of the chapter describes the study's sampling methodology including questionnaire development, kaupapa Māori methodology, data collection procedures, the interview process, research protocols, statistical issues and ethical considerations.

## **QUESTIONNAIRE**

Data were collected about a series of risk factors for suicidal behaviour for both case and control subjects. From chapters two and three it is evident a range of data sources have been used to investigate risk and protective factors.

### **Cultural Indicators**

Te Hoe Nuku Roa was a longitudinal Māori household survey of 665 households. The study was built on a relational framework (Durie et al. 1995) made up of four interacting axes: *paihere tangata* (human relationships), *te ao Māori* (Māori culture and identity), *ngā āhuatanga noho-ā-tangata* (socio-economic status), *ngā whakanekeneke* (change over time).

Each axis forms a *pūtake* (root), from which subsets, *ngā peka* (branches), take form, resulting in *ngā rau* (leaves), the areas of inquiry that will provide essential information to quantify and qualify *ngā peka* and *ngā pūtake*. The significance of Te Hoe Nuku Roa is that items on one axis can be linked with items on another. This provides for the creation of a more complete profile of Māori than has been possible. Most descriptions of Māori have suffered from cross-sectional limitations and single sector interest.

For the purposes of the Māori attempted suicide case control study, the Māori culture and identity (te ao Māori) axis of Te Hoe Nuku Roa was utilised. Cultural identity was defined according to responses to six (Questions 2, 4, 8.1, 9.4, 10 and 15 in Appendices 4 and 5), based on self-identification, whakapapa, marae participation, whānau, whenua tipu and te reo Māori (language). These cultural indicators construct the four cultural identity profiles, a secure identity, a positive identity, a notional identity and a compromised identity.

Table 4-1: Cultural identity profiles.

Cultural indicators	Identity Profiles			
	Secure	Positive	Notional	Compromised
2: Identify as Māori	Yes	Yes	Yes	No
4: Number of Māori generations specified	Three or more	Two	One	Any response
8.1: Times to own marae last year	Several or more than once per month	Few times	No times or once	Any response
9.4: Role whānau plays in life	Very large or large	Small	Very small	Any response
10: Interest Māori land	Yes	Yes or don't know	No or don't know	Any response
15: Te reo Māori ability	Native, fluent, learning to advanced level	Learner, understands but doesn't speak, basic level	No ability	Any response
Minimum criteria	Q.2 = yes + positive responses from three other questions	Q.2 = yes + positive responses from two other questions	Q.2 = yes + negative responses from three other questions	Q.2 = no + any response from other questions

Self-identification as Māori together with involvement and/or knowledge of key characteristics associated with the Māori cultural base defines the secure identity profile. Self-identification aside, subjects may have links to five characteristics but a secure identity requires evidence of high levels of involvement in three of the five.

A positive response to self-identity and medium or moderate responses to two of the six characteristics were used to assign subjects to the positive identity grouping. A positive self-identity but little indication of involvement and/or knowledge of Māori cultural processes among three of the five questions formed the basis for a notional identity.

When subjects failed to identify as Māori it was considered their Māori cultural identity was compromised, even when there was evidence of participation in cultural institutions and knowledge.

### **Demographics and Socio-economic Factors**

Demography is the scientific study of human populations, especially with reference to size, structure, and distribution. The demographic questions included gender (Q 29), age (Q 30), sexual orientation (Q 146 controls and Q 164 cases), marital status (Q 32), geographical distribution (recruitment), household structure (Q 31) and ethnicity (Q 1) (restricted in the study to Māori).

Socio-economic factors reported in the questionnaire include employment (Qs 33–34.7 and Q 41), education (Qs 35–37) and income (Qs 40 and 42). Other areas under investigation included housing situation (Q 38), transport availability (Q 39), financial access to health services (Qs 43–44) and childhood socio-economic factors (Qs 45–50).

### **General Health Questionnaire**

The General Health Questionnaire (GHQ-28) has been used extensively internationally and is recognised as a reliable and validated form for assessing general health status. The GHQ is a self-administered screening instrument designed to detect current diagnosable psychiatric disorders. Its focus is on breaks in normal functioning rather than lifelong traits. The GHQ was designed to cover four identifiable elements of distress: depression, anxiety, social impairment and hypochondriasis (indicated by organic symptoms).

The GHQ was designed for use in general population surveys, medical settings and out-patient clinics. Questions ask whether subjects had recently experienced a symptom or type of behaviour. Emphasis is on changes in a condition, not on an absolute level of a problem, so items compared present state to normal situations with responses ranging from 'less than usual' to 'much more than usual'.

The main version of the GHQ contains 60 items, but shorter versions have been recommended (Goldberg, 1972; Goldberg & Hillier, 1979; McDowell & Newell, 1987). The GHQ-28 or scaled GHQ contains items selected via factor analysis (Goldberg & Hillier,



1979). The 28-item version provides four scores measuring somatic symptoms, anxiety and insomnia, social dysfunction and severe depression. It is intended for investigations requiring more information than would be provided by a single score.

There are two scoring methods for the GHQ-28, the likert scores (1, 2, 3, 4) and the two point score (0, 0, 1, 1) also known as 'the GHQ score'. A score of four or five positive answers identifies a possible case. The threshold scores can be altered depending on the expected prevalence of the disorder and purpose of the study.

Versions of the GHQ have shown a high level of reliability using test-re test coefficients after six months and inter-rater reliability. Validation studies have been undertaken in many countries. The association between demographic variables and the GHQ has shown females have tended to show higher scores than males; there is little association over age; and there is a significant tendency for lower social class respondents to have higher scores (Goldberg, 1978). Transcultural research has compared the GHQ against other psychiatric case-finding instruments in a Welsh community. No significant differences in case-recognition were found and all instruments had misclassification rates of 10% or less (Winston & Smith, 2000).

For the purposes of the current study the GHQ-28 four-scales questions were for somatic symptoms (Qs 51–57), anxiety and insomnia (Qs 58–64), social dysfunction (Qs 65–71) and severe depression (Qs 72–78).

### **Health Services**

Four main questions to assess utilisation, accessibility and barriers to health services were incorporated and originated from Te Hoe Nuku Roa questionnaire. Identification of social and health services were covered in Q 79 and registration with primary services in Q 79.1. Questions 80.1-80.11 asked about the number of times the subjects received treatment over the past 12 months from general practitioners, specialists, nurses, naturopaths, tohunga, dentists and hui, and the level of satisfaction about such treatment. Recent (within the last month) health service utilisation of general practitioners, emergency departments, Māori health services and 24-hour accident and emergency departments was assessed in Q 81-81.8d. Barriers to health service utilisation were evaluated in Q 82 and 82.1.

## **Social Supports**

For the purposes of the research social supports included the number of time spent with close friends (Q 83-85), children and close relatives (Q 88-92), confidante (Q 93 and Q 94), attendance at religious meetings (Q 86), and time spent in the neighbourhood (Q 95).

## **Background Issues**

Two main questions (Qs 96 and 97) addressed abuse issues, both distal and precipitating, in the form of physical, verbal, emotional and sexual abuse. The frequency of abuse covered a time-frame of not at all, once or twice, weekly and monthly and provided an option for the participant to refuse.

Two questions (Qs 98 and Q 99) asked about authoritative involvement in formal (law, police and justice) and informal (bosses, teachers, principals and family members) senses. After an initial yes answer a specifying question was also asked.

The final question in the section queried changes in relationships over the previous month and the specifics of the change. The question was asked twice in the case questionnaire as an internal validation mechanism.

## **Hospital Anxiety and Depression Scale**

Zigmond and Snaith (1983) wanted to overcome the problem of using symptom rating scales in settings where physical and psychiatric conditions overlapped causing misleading high scores on depression and anxiety rating scales. The self-assessment Hospital Anxiety and Depression Scale (HADS) was developed and found to be reliable instrument for detecting anxiety and depression in a hospital medical outpatient. The anxiety and depressive subscales were found to be valid measures of severity of emotional disorder. The scale defines and distinguishes between anxiety and depression.

The eight items comprising the depression scale were based on the anhedonic state of the central psychopathological feature of depression that responds well to antidepressant drug treatment. The eight items comprising the anxiety scale were chosen from the Present State Examination (Wing, Cooper & Sartorius, 1974) and research by Snaith and colleagues (1982) into the psychic manifestations of anxiety neuroses (Zigmond and Snaith, 1983). Initial development of the HADS found a weak item in the depression scale and it was removed from the final version. To keep the scale balanced the weakest anxiety subscale item was also removed.

Assessment of the severity of anxiety and depression are rated on five-point (0-4) scales for each question. For both the anxiety (HADS-A) and depression (HADS-D) subscales, scores of 7 or less indicate a likely non-case, 8-10 borderline cases, and scores of 11 or more indicate a likely case of depression or anxiety.

The HADS was incorporated into the study questionnaire (Qs 101-114). Despite the word 'hospital' being in the scale's title subsequent work has shown the scale to be valid also in primary care and community settings. The HADS has been found to perform well in assessing the symptom severity and caseness of anxiety disorders and depression in somatic, psychiatric and primary care patients and in the general population (Bjelland et al. 2002). In most studies an optimal balance between sensitivity and specificity was achieved when caseness was defined by a score of 8 or above on both the HADS-A and HADS-D. The sensitivity and specificity for both the HADS-A and HADS-D of approximately 0.80 was very similar to the sensitivity and specificity achieved by the GHQ-28. The HADS has been validated and used appropriately with indigenous populations (Haggerty et al. 2001; Mumford et al. 1991).

Questions were also asked about diagnosis, mental health care and medication used currently and in the past, and whether there was a family history of or friend affected by mental illness and/or suicidal behaviour (Qs 115-123).

### **Substance Utilisation**

Eleven items were used to assess current and alcohol utilisation. Frequency and quantities were also requested along with the CAGE alcohol screening test (Ewing & Rouse, 1970) of feelings about use including cutting down, criticism, guilt and morning use. The CAGE is an internationally recognised instrument for evaluating the presence of an alcohol problem. If Māori responded positively to two or more CAGE questions they would be considered as having a problem with alcohol. Two further questions about the frequency of use of marijuana and other illicit drug over the previous 12 months were (Qs 124-134).

### **Suicidality**

The Composite International Diagnostic Interview (CIDI) is a comprehensive and fully standardized diagnostic interview designed for assessing mental disorders according to the definitions of the Diagnostic Criteria for Research of ICD-10 and DSM-III-R (World Health Organization, 1997). The CIDI contains 276 symptom questions many of which are coupled with probe questions to evaluate symptom severity, as well as questions for assessing help-

seeking behaviour, psychosocial impairments, and other episode-related questions. Although primarily intended for use in epidemiological studies of people with mental disorders, it has been used extensively for clinical and other research purposes (Wittchen, 1994).

In international multicentre studies, several smaller centre studies and American Indian services utilisation, the CIDI was judged to be acceptable for most subjects and was found to be appropriate in different settings and countries. There is, however, still a need for reliability studies in general population samples, the area for which the CIDI was primary intended (Wittchen, 1994).

The objective of the studies referenced to in the previous paragraph was to examine cross-national differences in somatic symptoms associated with psychological distress. Data from the World Health Organization collaborative study of psychological problems in general health care (5438 patients at 15 sites) were used to examine somatic symptoms associated with psychological distress. At each site, a stratified random sample of consecutive primary care patients completed the GHQ-28 and the CIDI. At all sites, the number of current CIDI somatic symptoms (whether medically explained or not) was strongly associated with current psychological distress (measured by selected GHQ-28 items). These data show a strong association between somatic symptoms and psychological distress, which did not vary across disparate cultures and levels of economic development. Cultural factors, however, may influence the meaning attached to symptoms or the likelihood of presentation for health care (Simon et al. 1996). The CIDI has been used on a Māori sample as part of a Māori mental health outcomes pilot study. A full survey is to be mounted based on an evaluation of the pilot (Ministry of Health not yet produced).

Composite International Diagnostic Interview–Suicidality questions were incorporated into the questionnaire. Subjects were asked whether they had ‘thought about taking their life’; ‘made plans to take their life’ or ‘made an attempt on their life’ and how old they were the first time and whether it had happened in the last 12 months. If they had made an attempt on their life, they were asked how often this had occurred over their lifetime, the seriousness of the attempt, and the results and subsequent the subsequent medical attention and hospitalisation (Qs 135–144).

The Beck’s Scale of Suicide Intent (SIS) is a semi-structured, 15-item interviewer rating scale used to evaluate the severity of suicidal intent for a previous suicide attempt, usually an attempt immediately preceding an interview (Beck et al. 1974). There are two sections in the



SIS: one assesses “objective” characteristics of the suicide attempt (such as precautions taken against discovery, the degree of planning, the taking of precautions against discovery), and the other assesses “subjective” characteristics (such as expectation of fatality and the perceived seriousness of the attempt). Although developed for use with adults, the SIS has been recommended as appropriate for research with adolescents (Steer & Beck, 1988).

The items are scored 0, 1 or 2, yielding a possible range of total scores from 0 to 30. The first eight items consist of questions regarding the objective circumstances of the suicidal act. The remaining items consist of questions regarding the patient’s subjective report of the acts intent.

The SIS has been used with medically hospitalised suicide attempters (Brown et al. 1991; Hawton et al. 1999; Spirito et al. 1996), psychiatrically hospitalised suicide attempters (Enns et al. 1997; Nasser & Overholser, 1999; Overholser, Freihert & DiFilippo, 1997; Spirito et al. 1996), youths presenting in an emergency department (Kingsbury, 1993; Spirito et al. 1994), Aboriginal youths (Enns et al. 1997), and sexually and other physically abused adolescents (Shaunese et al. 1993).

The SIS was initially developed for adult populations and the scale correlates as expected with constructs such as depression and hopelessness, but data regarding the relationship between intent and medical lethality of attempts are mixed, since medical lethality does not equal suicidal intent. Although the SIS appears to be useful as a research instrument, and aspects of suicide intent (e.g., precautions against discovery) have been shown to have predictive value in adults, it is not clear whether the SIS conveys any unique information about prognosis or treatment considerations in adolescents (Goldston, 2000).

Beck’s Scale of Suicide Intent (SIS) was used in the case questionnaire (Q 145–162) only and was employed to assess the intent during the suicide attempt.

## **THE STRUCTURED QUESTIONNAIRE**

A composite structured questionnaire was completed with each of the cases and control subjects. The information obtained from the interview, included protective and risk factors for potential health promotion pathways to inform a prevention strategy a goal of the study. It was possible to categorise the questions in the questionnaire as shown into Table 4-2.

## **KAUPAPA MĀORI RESEARCH**

The two paradigms of epidemiological and kaupapa Māori research were both applied in the study of 250 Māori deliberate self-harm cases and 250 Māori controls. The amalgamation of the two research strands involved four distinct phases: consultation, design, analysis and dissemination (Coupe, 2001).

Before research started the author consulted iwi, hapū, whānau and Māori about research into Māori suicide prevention. As an important part of the kaupapa Māori research process, consultation ensured the research was needed, timely and actionable, and was not undertaken as simply an academic exercise. Kaupapa Māori research requires Māori (iwi, hapū and whānau) consultation at local and national levels. The Auckland Māori population includes members of all iwi both tangata whenua (Māori of the land – Auckland) and taurahere (Māori from other tribal regions). Therefore, it was important that all iwi were consulted before research commenced. Consultation with tangata whenua and iwi outside of the Auckland region over the year leading up to the research implementation. The Māori attempted suicide case control study recruited participants aged 16–50. However, a discussion with all age groups was important to ensure the wider Māori community was informed and agreeable (Coupe, 2001).

To develop a rigorous, culturally appropriate, quantitative epidemiological study the study's design was prepared in partnership with Māori. The interviewers and researchers and the participants controlled the interview process. Timing was at the convenience of both, the participant chooses the interviewer, follow up occurred and a koha was given. Both the participant and interviewer chose an interview venue that was safe and comfortable for both and the involvement of whānau was encouraged. The whānau was informed of the interview process, that the participant needed to be able to build rapport with the interviewer, and that the interview would not necessarily involve its participation (only as requested by the participant). Support was an integral part of the interview process. Before interviewing began the researcher inquired whether if any external supports were in place for the participant. If there were none in place alternative supports were found. These were often in the form of Māori health and mental health providers in the area in which the participant lived (Coupe, 2001).

Table 4-2: Questionnaire structure.

Variable Domains	Description	Total questions	Question number
Cultural Indicators	Identity, whakapapa, marae access, tikanga/kawa knowledge, Whānau access, Māori organisational support, te reo Māori: access, ability, knowledge, practice and childhood experience.	123	2–28.1
Demographic & Socio-economic Factors	Age, gender, sexual orientation, living arrangements, socio-economic status (income, education, employment) and childhood circumstances.	72	29–50, 164 case, 146 control
General Health Questionnaire (GHQ–28)	Recent self-reported health indicators; four sections on somatisation, anxiety, social impairment & depression.	28	51–78
Health Service Accessibility	Primary, secondary and Māori health services including barriers to utilisation.	58	79–82.1
Social Supports	Friends and confidantes, extended whānau, children, community groups and neighbourhood	13	83–95
Environmental Factors	Abuse (physical, verbal, emotional and sexual); formal and informal authoritative involvement in/formally and relationship changes.	14	96–100
Hospital Anxiety & Depression Scale (HADS) & Mental Health Factors.	HADS and diagnosis, current/past medication, family psychiatric and suicidality history, environmental psychiatric and suicidality history	28	101–123
Substance Use	Present and past alcohol use, cannabis and other illicit drug recent usage.	11	124–134
Suicidality (CIDI)	Thoughts, plans and attempts in the past and recently.	18	135–144
Beck's Scale of Suicide Intent (SIS–14) and Event Characteristics	Deliberate self-harm: intent, seriousness, method and planning, event characteristics, substance use, method employed, first time, recent changes in relationships.	20	145–162 case

(Appendices 4 and 5)

Incorporating questions around cultural identity facilitated a Kaupapa Māori analysis. To ensure the research was performed in a culturally sensitive environment the following domains were integrated: Identity and accessibility to te reo Māori, whakapapa, whenua, whānau, marae, and te ao Māori; socio-economic factors (years of education and all work possibilities, that is including voluntary work); protective factors (health services provision, whānau support, and access to confidantes).

To guarantee ongoing consultation and dissemination, both Māori and non-Māori media were used. Print, television and radio all took the opportunity to interview the principal investigator on the study's aims, objectives, methods and expectations. The media made frequent contact with the researcher throughout the research period for updates and results. A final media statement was released to help disseminate information.

## **DATA COLLECTION PROCEDURES**

### **Interview Process**

Interviewers were recruited for the study who were competent in te reo Māori, had knowledge of tikanga and Māori protocols, and had previous research experience. Training of the interviewers involved ensuring they had extensive knowledge of support networks for participants as well as themselves (see also the discussion of ethical considerations later in this chapter). Each interviewer was experienced and trained in extracting accurate and candid information from the participants without causing any additional distress or unease. None of the interviewers was given instruction to act as a clinician, however, they were advised if the participants sought information about their health status they could act as a liaison person between appropriate support networks and the participants.

Interviews were held wherever the respondents felt most comfortable whether that was on marae, in their own home or at Māori health clinics. The interviewer observed strict kawa (protocols) for each of these places. Koha was left *after* the interview to cover any costs incurred by the respondent. Koha for this particular study took many forms including petrol vouchers, food and non-alcoholic beverages, music vouchers and transport. Most respondents chose not to take up the koha being happy to assist in the development of Māori suicide prevention activity without personal reward.



The involvement of whānau in discussion before and after the interview was usually encouraged and accepted by the subjects. Before the interview all subjects were given a brochure pertaining to the study and a consent form outlining the study's obligations to them.

The structured questionnaires, brochures and consent forms were offered in English and Māori depending on participants requirements. Most interviews were carried out with an interchange of te reo Māori and te reo Pākehā (English). The validation of the te reo Māori parts of the answers was performed at the interview stage when participants repeated their answers in English.

As self-determination is an important part of a Māori political framework, participants were given a large measure of control over the interview process. Participants were able to choose or had significant control over the timing, venue and process of the interview. Often this meant interviews were performed in homes.

For the most part control subjects chose to have their interviews at the time of their recruitment, although due to time constraints some made appointments later in the week. Case subjects often wanted their interviews after they had gained some rapport with the interviewer and this took time. Interviewer empathy with the whānau was often required to gain access for them to the case and to discuss issues that had been raised as a consequence of the attempted suicide.

Once case subjects were located and ready to interview, discussions began with the reminder that appropriate support and health services were in place and available; only then did the interview proceed. When the interview finished (a process that took several minutes to several hours and across days as determined by the participant), the interviewer gave each participant an 0800 phone number that could be called free of charge, 24 hours a day, 7 days a week. The phone number was explained as a point of contact about the research, not a clinical hotline. Control subjects were accorded the same sensitivity and information as the case subjects and were similarly given the opportunity, if they so required, for health services support and direction.

All the information supplied during the interview was confidential to the study. The intellectual property of the participants was regarded highly and if any of the participants requested, a copy or their original questionnaire was made available.

Information was stored under lock and key, and the principal investigator had the only key to the storage cabinet. The research team had access to this information only in a non-

identifiable form on the database. The data entry technicians saw only unidentifiable raw data. Consent forms were kept separate from the raw data and questionnaires to guarantee confidentiality.

#### *Informed consent*

Consent to be interviewed was managed as per the standard protocols established by the Auckland Ethics Committee.

## **RESEARCH PROTOCOLS**

### **Pilot Testing**

During July 2000 a pilot study was undertaken in Auckland to test various parts of the research. First, a questionnaire was piloted with Māori who had no history of suicidal behaviour. This was to test for the cultural appropriateness of the questionnaire and the length of time it would take for the control interviews.

Secondly, Māori with suicidal behaviour and diagnosed psychiatric histories were then asked to take part in the interview process to assess its appropriateness, the emotional involvement during the interview, and the amount of time needed to perform case interviews. This ensured the research participants would be safe and comfortable when the interview was being performed.

Thirdly, control recruitment was tested in the Te Atatū North area to assess the time it would take to locate a Māori household, and finish a site, and caseness the number of Māori captured within that site. Assessments were made for people who were willing to participate in a study trying to prevent suicide in one ethnic population. The research information sheet, consent forms (in Māori and English) and start-point paper work were tested and subsequently improved.

This process allowed the research team to refine the questionnaire and interview process with both the case and control subjects. This meant coding and data entry procedures could be polished before the study started on 1 August 2000.

### **Interviewer Training**

Interviews with study participants, including cases and controls, were conducted over a 25-month period by a team of interviewers. The author and principal investigator was one of the

interviewers and provided the bulk of the research supervision and training for the other interviewers. The investigation team provided supervision and training on a monthly basis.

Initial training of interviewers included ethical considerations, hospital approval letters, study protocols (Appendix 3), ways to approach potential subjects, letters of introduction, brochures, consent, interviewing principles, techniques and procedures, questionnaires, case log books (one for each hospital), the control log book, travel and mileage.

Questionnaire practice was encouraged with whānau members, other interviewers and an ongoing quality control evaluation for each of the interviewers ensured high interviewing standards were maintained. After a successful evaluation interviewers were asked to perform interviews with other non-participants before the study began. Ongoing debriefing, training and regular supervision were performed with interviewers. Minutes of all monthly meetings were kept to ensure quality and safety for the interviewers.

### **Interviewer Supervision**

Once the initial training was completed regular scheduled, weekly supervision was performed with the interviewers. The procedure for continual monitoring and quality control included daily and weekly supervision.

Daily supervision via the telephone ensured safety and monitored time management. This was the mechanism for disseminating potential case subjects to interviewers to locate and recruit. Interviewers could contact the research supervisor (author) at any time for any reason, for example, for debriefing or making queries about potential cases.

Weekly supervision enabled interviewers to hand over the previous week's interviews and all the associated paperwork: consent forms and completed and checked questionnaires; travel and mileage claims forms; start-point completions and associated questionnaires. During these weekly meetings the interviewers could debrief fully and consider solutions to logistical problems in the field.

At the weekly sessions the research supervisor released previous interviews when there had been discrepancies for interviews to clarify any situations. If they were not able to clarify, interviews were asked to go back to the subject and request clarification.

To maintain quality control the research supervisor attended interviews with the interviewers and performed some of the case and control interviews. Completed interviews were chosen at random, the respondent was called and asked how comfortable they felt with the research. This tested the research procedure.

## **DATA QUALITY AND MANAGEMENT**

Each case and control subject was assigned a unique identifier. Personal identifiers such as name, hospital identification number and telephone number were not entered onto the computerised database. Case and control logs collected patient identification information so to preserve confidentiality these books were removed and stored in a locked filing cabinet with the consent forms until data processing began. All forms were reviewed in the field by the research co-ordinator and in the data management office by a supervisor. Errors and discrepancies were resolved by referring to the original form. All editing and coding decisions were maintained in log books.

In addition to the quality control procedures performed throughout the data collection phase, data were subjected to computer checks once they had been entered into the Microsoft Access and SAS package. Computer checks included all questionnaires for case and control subjects being double entered to ensure accuracy in the data entry, and checking of response ranges to ensure no outliers occurred during data entry. Internal consistency checks ensured consistency and logical answers, and frequency checks of each item checked the distribution of answers was consistent with expectations for those distributions.

While recording and data entry errors could not be eliminated entirely it was anticipated the stringent pilot testing, study protocol development, extensive interviewer training and continual supervision, accurate data entry, debriefing, extensive knowledge about individual case and control subjects, and computer checks would minimise errors and maximise data capture and recording consistency.

## **STATISTICAL ISSUES IN THE CASE CONTROL DESIGN**

### **Sample Size Calculations**

Table 4-3 shows the sample size calculations that were optimal for the study. The proportion of controls culturally alienated was selected at 25% due to the prevalence of cultural identity levels found in Durie and colleagues (1996). The minimum odds ratio (OR) capable of being detected (OR=2.0) was chosen as a compromise between the time involved to collect 490 cases at 1.5 (epidemiological optimum) and lack of epidemiological power at 2.5.



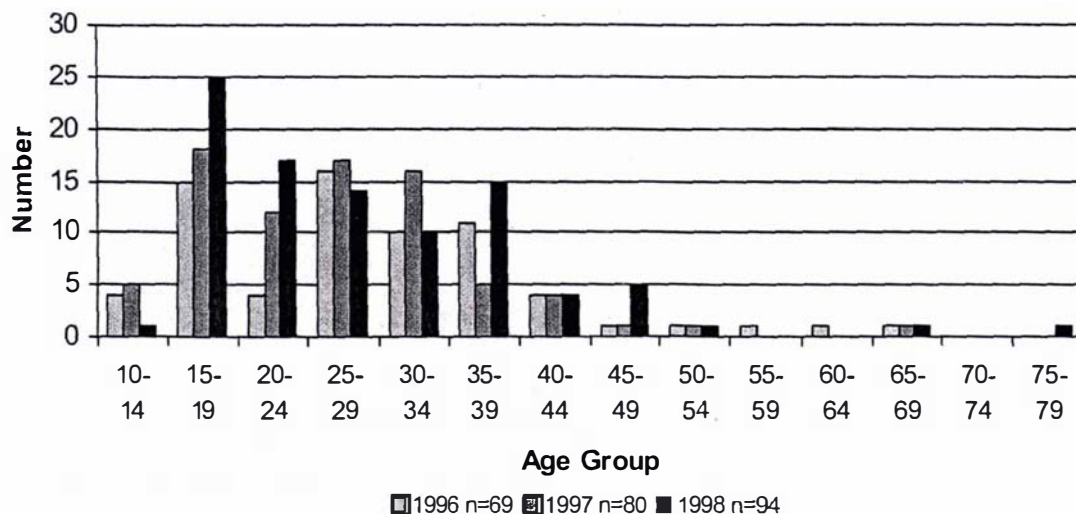
Table 4-3: Sample size calculations.

Proportion of control exposed (%)	Cases required to detect odds ratio of 1.5–2.5 with various case to control ratios (80% power and $\alpha=5\%$ )								
	1:1 cases:controls			1:2 cases:controls			1:3 cases:controls		
	1.5	2.0	2.5	1.5	2.0	2.5	1.5	2.0	2.5
RR	1.5	2.0	2.5	1.5	2.0	2.5	1.5	2.0	2.5
15%	691	226	125	526	173	96	471	155	87
25%	490	165	94	371	126	72	332	112	64
35%	421	147	86	317	111	65	283	98	57

Using data to achieve a power of 80% 250 Māori attempted suicides and 250 Māori controls would realise an odds ratio of risk acceptable for exposure (on OR greater than 2) and a statistically significant probability that the two samples differ due to a true difference in the two populations (Type 1 error, 95%). The predictor variable is discrete and the outcome variable is dichotomous (attempted suicide or not).

From hospitalisation data New Zealand Health Information Services (1999) the time estimated to collect enough cases (about 250) to give enough statistical power and significance was approximately 30 months. A balance needed to be obtained between power and the time to collect enough cases for the study to be robust and produce effective results. As Figure 4-2 indicates there was an increase in the number of Māori presentations to Auckland hospitals over time, although there was an increase in the numbers of Māori presentations to Auckland hospitals, with 94 in 1998 it would take at least 30 months to recruit the number of cases required. Restriction to the 16–50 year age span extended the period for completion slightly.

Figure 4-2: Māori hospitalisation for self-inflicted injury by age group, from Auckland public hospitals, 1996-1998.



## Statistical Analysis

### *Odds ratio*

The index of association for the case control study is the odds ratio (OR), since the OR is unaffected by the ratio of cases to controls, and in the study of rare events (such as attempted suicide) the OR will closely approximate the relative risk (Schlesselman, 1982). Where the risk factors are scored as a dichotomous (present/absent) variable the case status and risk factor were described in two by two, fourfold or contingency tables. As the name suggests the two by two table consists of two rows and two columns each representing the presence or absence of the exposure or disease. Four cells are created (a, b, c, and d) representing the number of individuals with particular combinations of exposure and disease status. Specifically illustrated in Table 4-4 the rows represent exposure status (yes/no) and the columns represents the disease status (yes/no).

Table 4-4: Presentation of data in a two-by-two table from a case control study with count denominators.

Risk Factor	Disease or Caseness (attempted suicide)		Total
	Yes	No	
Exposed	a	b	a+b
Not Exposed	c	d	c+d
Total	a+c	b+d	a+b+c+d

The margins of the table represent the total number of individuals in each row and column. The sum of all four cells is the study's total sample size. In the case control study where participants are selected on the basis of disease status it is usually not possible to calculate the disease's rate of development given the presence or absence of exposure. The relative risk can be estimated, however, by calculating the ratio of the odds of exposure among cases to that among controls. This OR is expressed in the following formula (Hennekens & Buring, 1987):

$$OR = \frac{a/c}{b/d} = \frac{ad}{bc}$$

If the risk factor and outcome have a value of one they are not statistically associated, if the OR is greater than one then there will be an increased risk of outcome, and if the OR is less than one the exposure may be protective.

There are several methods to test the statistical significance of an OR. The Mantel-Haenszel technique is a method of adjusting for confounding factors when analysing the relationship between a dichotomous outcome and a dichotomous risk factor. The Mantel-Haenszel test measures the strength of association by estimating the common OR. In the two by two table, one OR explains the odds of success proportion of row 1 and those of row 2. On the other hand, in a two by two by two table, there are two ORs, so the two by two by two table requires the overall OR, to be calculated to be calculated measure the strength of association.

The design effect represents the cumulative effect of design components such as stratification, unequal weighting, and clustering and this differs with each research design. An example of sampling variability increases when cluster sampling is used rather than simple random sampling (Rosander, 1977). The design effects of this research will be relatively small (about 1.28) due to the small cluster size and a minimal intra-class correlation coefficient (Table 4-5).

Table 4-5: Cluster size of the number of households with Māori residents in Auckland.

Auck and	Māori aged ≥ 16 years	Households ≥1 Māori	Total	Māori (%)	Households >1 eligible Māori (cluster size)
West	63 945	5 982	69 927	14.7	2.20
North	42 351	7 317	49 665	8.5	1.28
South	99 378	12 750	112 125	18.8	2.82
Central	67 452	15 630	83 082	11.4	1.70

### Statistical Power

The statistical power of intervention and prevention studies needs to be of an adequate level to produce a valid research project. Because suicide is an infrequent event special measures have been used to increase the statistical power. The approach ranged from using alternative endpoints such as suicide attempts to finding ways to increase the size of the population under study (Goldsmith et al. 2002).

### Test for Significance

To test the statistical significance of the OR chi-squared tests were employed of the null hypothesis  $OR=1$  with a 95 % confidence interval. If the OR is significant (probability less than 5%) then using the Bradford-Hill criteria to determine causality with multiple studies could determine the association between outcome (suicide attempt and risk factors/protective

factors). The logit approach provides the most straightforward estimate of confidence intervals on an OR with a 95% confidence interval. This logit model has the advantage of generalising to the multivariate case via logistic regression. The above description is for risk factors scored as dichotomous variables, but these may also be extended to calculate OR estimates for risk factors with multiple categories (Thompson, 1994). The above analysis considers the relationship between single risk factors and the outcome. However, in attempted suicide there is more likely to be multiple risk factors.

Due to the sheer number of tests in the univariate part of the analysis of this research will count only probabilities less than 0.01 as possible associations not due to chance.

### **Two by Two Tables and Univariate Analysis**

Hypothesis testing for stratified data is an extension applied to crude data. The components of the test statistic are now derived not from a single table, but from a sum of the relevant components in each of the strata. The Mantel-Haenszel test statistic with one degree of freedom is a simple extension of the chi-squared formulae for a series of two by two tables. Thus, the Mantel-Haenszel chi-square test is calculated to evaluate whether or not the association between risk factors and the risk of attempted suicide after adjustment for age changes. If the crude and adjusted OR estimates are similar, an assumption can be made that there was virtually no confounding of the association under investigation by age.

Age may be an effect modifier and there may be other exposure variables as confounder or effect modifiers, which will need to be further investigated during the analysis. A fundamental problem with stratified analysis is its inability to control simultaneously for even a moderate number of potential confounders. Considering only a few confounders can lead to many strata representing the possible combinations, even with a large study it is likely that many strata would contain only a few, if any, individuals making analysis unreliable (Hennekens & Buring, 1987).

### **Multivariate Analysis**

Multivariate analysis allows for the efficient estimation of measures of association while controlling for several confounding factors simultaneously, even in situations where stratification would fail due to insufficient numbers. The use of the multiple logistic regression method makes it possible to obtain adjusted estimates of the OR. Canonical discriminate analysis will identify those significant risk factors that are commonly related



(Coupe, 1993). Multivariate analysis was applied to the current study to model the risk and protective factors for Māori who have attempted suicide.

## **ETHICS**

Many ethical considerations were addressed in the study. Information was not to be released to a third party and was to be used only for the purposes of this study with total subject anonymity. Consent to view clinical records from various health professionals required separate consent forms for each. Consultation with iwi, whānau, hapū, Māori, providers, trauma specialists, and Māori liaison within hospitals was performed throughout the research process. Consultation regarding questionnaires, selection criteria, the use of information, storage, and intellectual property was assisted by a Kaitiaki group, which is a Māori advisory group that ensures cultural and ethical safety for participants and interviewers. Ethical approval was obtained from the National Ethics Committee (Ministry of Health) prior to research being carried out (Approval number 2000/066). Informed consent was obtained from all participants after an information sheet was given to the participant and explained fully all participants understood and agreed to the research. If participants agreed to take part the consent form was also signed and witnessed by the interviewer. Participants were informed of their right to withdraw from the study at any time during the research process. Māori research was carried out by Māori researchers to address some of the issues of cultural safety. Support networks were established and kept informed before, during and after investigation. Participants and interviewers alike were made well aware of these networks. The study design ensured all participants in the research were supported and protected throughout the study. All participants were offered a short report on the outcome of the study as part of continued consultation, and hui were held to ensure information was returned to Māori in a culturally appropriate way.

## **CONCLUSION**

Given the nature of suicide and the wall of silence that often grows around it, research encounters a succession of barriers limiting the progress of understanding, preventing and treating the problem. Because suicide research is an accumulation of various independent disciplines there are many issues facing interdisciplinary research. For example, problems in

communication, jargon and rivalries (Goldsmith et al. 2002); ethical and safety concerns from working with people who are at risk of suicide.

As mentioned previously, part of this research was to determine the attributable risk associated with Māori attempted suicide. A case control study design was considered the most appropriate for the research, enabling identification of a sufficiently large number of cases and controls over a relatively short time. Compared with other research designs, it is the most appropriate for examining factors that operate acutely after an event. A further advantage to the case control design is the ability to evaluate multiple possible exposures and for diseases or outcomes with long latent periods.

There are, however, disadvantages to the case control design. Both the exposure and disease occurred before the study, creating more potential for biases and an unclear temporal relationship between exposure and outcome. The design is inefficient when exposure is rare and incidence cannot be calculated directly.

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## CHAPTER 5

# KAINAMU WHAKAMOMORI WHAKAMARAMATANGA: DESCRIPTION OF MĀORI ATTEMPTED SUICIDE

<b>Ngā Peke Whakamaramatanga – Descriptive Strands</b>	<b>Ngā Rau Whakamaramatanga – Descriptive Themes</b>
Broad Approach	Introduction Māori attempted suicide medical record review Māori attempted suicide cases Māori community-based controls Case and control refusals
Cultural Indicators	Identity and whakapapa Marae, Tikanga, Whānau, Whenua Māori organisations Kai Te reo Māori
Demographic Factors	Gender and age Living environment
Socio-economic Factors	Education Employment Income Assets
Environmental Factors	Social environment Interpersonal abuse
Health Service Utilisation	Health service organisations Health service utilisation
Health Indicators	General Health Questionnaire–28 Hospital Anxiety and Depression Scale Mental ill health
Substance Utilisation	Alcohol, marijuana, other illicit drugs
Suicidality	Composite International Diagnostic Interview, Beck's Scale of Suicide Intent



## **INTRODUCTION**

This chapter describes a medical record review and the two study populations of Māori who attempted suicide in the Auckland region (the cases) and the community-based controls. The first section describes the cases and the environment from which they have been drawn. The second section describes the community controls selection and distribution. A brief section on the types of refusal and their distribution is followed by eight sections on cultural indicators, demographic, and socio-economic factors, health service utilisation, environmental factors, health indicators, substance utilisation and suicidal behaviour.

### **MEDICAL RECORD REVIEW OF MĀORI OF ATTEMPTED SUICIDE.**

A medical record review was performed as part of this study and as a prelude to the Māori attempted suicide case control study. The review was completed with Māori who presented to emergency departments in Auckland public hospitals following an episode of attempted suicide from 1 July 1999 to 31 December 2000. The aims of the review were to describe the population of Māori who attempted suicide, estimate the time needed to recruit sufficient number of cases for an analytical study, assist the development of a questionnaire, and determine the level of safety required in an interview.

The domains of the record review at the time of admittance to an Auckland emergency department included social and demographic factors, admittance information, historical admittance to emergency departments, attempted suicide circumstances, services provision, and discharge data.

For the 18-month study period records from emergency departments were collected from Auckland Public, North Shore and Middlemore Hospitals. Admission records were screened daily for patients who identified as Māori. Background and medical information for these patients were obtained from clinical medical records. Information from medical records were extracted onto data sheets. The process depended on the availability of hospital records. When a person entered one of the three hospitals their medical records were requested from archives for reactivation. When ambulance officers, triage nurses, doctors and specialists filled in their forms about the incident, these were collated in the emergency department, ward or archives. After the patient was discharged the file went to coding where ICD-10-MA was used to code the incident on the medical records. At this point the researcher was able to

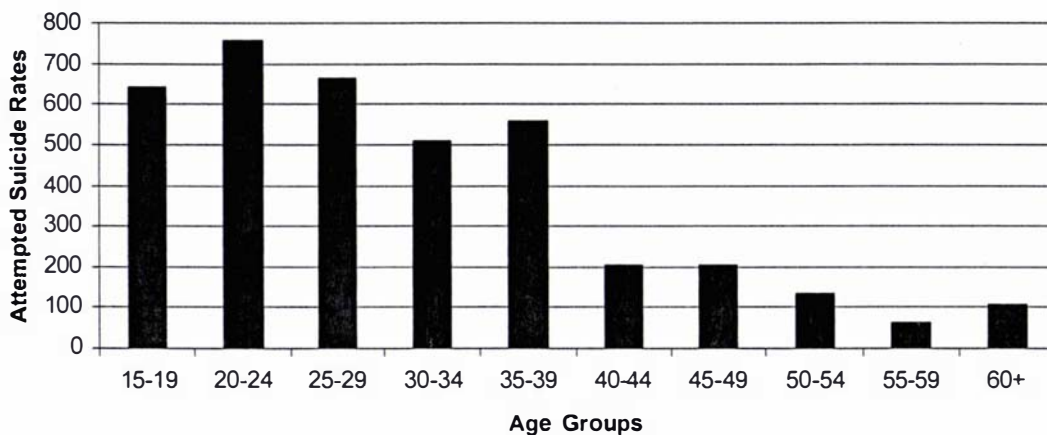
access the historical medical information to complete the medical record review. The written information from the data sheets was entered into EPI-INFO™ and analysed. All data was double-entered to ensure data integrity and accuracy. Māori who were not resident in Auckland for one month before admission, recreational drug overdoses where patients indicated a desire to have fun and patients who died from their injuries were excluded from the data extraction process.

### Who attempted suicide?

During the study period there were 310 Māori presentations at an emergency department for attempted suicide, representing 252 individuals. Females accounted for 61% of presentations. Māori who presented for attempted suicide ranged in age from 15 to 74, with a median age of 27 and a mean of 29.

Figure 5-1 shows the group aged 20-24 had the highest rate of presentation for attempted suicide among Māori in Auckland (756 per 100,000), followed closely by the groups 25-29 (664 per 100,000) and 15-19 (641 per 100,000). Māori who presented for attempted suicide, ethnically self-identified as sole-Māori (86%), Māori/Pākehā (11%) and Māori/Pacific (3%). Middlemore Hospital had the highest number of presentations (43%), followed by Auckland Public Hospital (33%) and North Shore Hospital (24%).

Figure 5-1: Age distribution of Māori attempted suicide in Auckland region, 1 July 1999 to 31 December 2000.



Only 25% of people who presented were employed. Twenty one percent were unemployed, 17% were receiving a benefit, 7% were students, 5% were homemakers or inmates, and 25% did not have an occupation recorded. Of those who were employed just under half (47%) were engaged in unskilled or manual work. Seventy percent of those receiving a benefit were sickness or invalid beneficiaries. Just over half (56%) of those who presented lived with

whānau, 10% lived alone, 9% were flatting or boarding and 25% did not have their living arrangements recorded.

### How did Māori attempt suicide?

Table 5-1 shows the methods used by Māori to attempt suicide. Most of the episodes involved poisoning by solids or liquids (70%).

Table 5-1: Method of Māori suicide attempt in Auckland region 1 July 1999-31 December 2000.

Method	Number	%
Poisoning by solid liquid	216	70.1
Analgesics (Paracetamol)	43	20
Prescription medicines	115	50.1
Antidepressants	32	15
Benzodiazepine	22	10
Antimanic/anticonvulsants	22	10
Antipsychotic	20	9
Hypnosedative	19	9
Cutting or piercing	47	15.36
Hanging strangulation & suffocation	24	7.89
Combinations of above	12	3.9
Poisoning by gas and vapours	1	0.3
Other	8	2.6

Fifteen percent involved cutting or piercing, 8% involved hanging, strangulation or suffocation, 4% involved a combination of methods, and only one presentation involved carbon monoxide poisoning. Three percent of the records did not specify a method. Of those who attempted poisoning 53% took prescription medications and 20% analgesics (paracetamol).

### What are the circumstances of attempted suicide?

Most of the suicide attempts took place at home (79%), followed by public places (8%), psychiatric and rehabilitation units (2%) and while in custody (3%); 8% did not state a venue. Forty percent of the injuries occurred between 6 pm and midnight and 31% of the presentations occurred in the same period. Alcohol was recorded as being involved in 37% of Māori presentations. A higher proportion of females (43%) were recorded as having alcohol involvement compared to males (28%). Forty-two percent of presentations were given a blood ethanol test. Of those tested 33% were over the legal limit for driving. The incidence of drug use was 15% and the principal drug was marijuana (38%), followed by combinations of drugs (18%) and solvents (13%).

## **Previous contact with emergency departments**

First-time suicide attempts accounted for 71% of the presentations. Of the 35 who repeatedly presented, 74% attempted suicide twice, 17% three times, and 9% more than five times. In addition, 46% (116) had previously had contact with the same emergency department. Of those nearly a quarter had been seen before for attempted suicide (24%), 16% for injuries, 25% for medical reasons and 9% for psychiatric reasons.

## **What do emergency departments provide?**

Fifty-three percent of Māori who presented to emergency department were given medication. Eighty eight percent received psychiatric intervention, 9% received a social work assessment, and 16% were referred to a cultural service.

For every eight Māori attempted suicide presentations, one refused treatment or absconded (13%) before they could be seen. Māori who absconded or refused services were: females (16%) or males (10%), aged 30-34 (25%), 40-44 (18%), 25-29 (17%); likely to have consumed alcohol (19%) and/or drugs (20%); and presented to Middlemore Hospital (18%) in the evening (17%).

Of those Māori who presented for attempted suicide, just over half were hospitalised overnight (52%), with most staying for an average, of two nights.

## **What post discharge plan?**

Eighty-seven percent of the medical records reviewed discussed a post-discharge plan. Once discharged 67% of people were released to a family home, 18% went into psychiatric care (including respite care), 4% into custody, and 11% to other institutions. Follow-up plans included referrals to community mental health services (56%), 13% to hospital psychiatric or psychological services, 9% to general practitioners, 4% to cultural services, and the remainder to a variety of other services.

## **Summary of review**

Attempted suicide among Māori living in Auckland was common. The study found one Māori presented every two days to an Auckland hospital emergency department for attempted suicide. Two hundred and fifty-two Māori presented to emergency departments over 18 months. During this period 35 Māori made two to five repeat presentations. The median age of Māori who presented to emergency departments within the Auckland region was 27 years. Most identified solely as Māori, lived in South Auckland, were not in paid



employment and were living with whānau at the time of their presentation. The method of choice was poisoning by a liquid or solid substance, most likely a medication prescribed for sleep or a psychiatric condition.

The results provided previously unknown information about Māori who presented to emergency departments following an attempted suicide. The study was limited by possible under reporting of Māori ethnicity and the parameters imposed by the information in medical records. Other individuals may have chosen not to present to emergency departments after harming themselves and may have sought help from other service providers as out-patients or not sought any medical treatment. These individuals were not captured by this review study.

One-fifth of Māori presented following an overdose of analgesics (paracetamol). Analgesics have a restricted availability in other countries but are readily accessible in New Zealand (Boyce, Oakley-Brown & Hatcher, 2001). The study suggested one way to reduce the problem of deliberate self-harm would be to legislate to decrease paracetamol availability.

The study also found that almost a half of the presentations had previously been to the same emergency department and about a third of those more than twice. Previous research has identified that interventions provided in an emergency department create an opportunity to prevent further injuries (Birmayer & Hemenway, 1999; Roche et al. 2001). Service provision within the emergency department is limited to medical and psychiatric interventions. One in eight presentations absconded or refused emergency department services. Increasing the accessibility to cultural interventions may decrease the refusal rate. Overnight admissions, although initially costly, can be of benefit and less costly in the longer term if culturally appropriate treatment and follow-up services could be established during the in-patient time.

While most Māori presentations had post-discharge plans for referrals to community mental health services, hospital psychiatric or psychological services and general practitioners there was no evidence in the medical notes whether these occurred. Only 4% of the presentations had any mention of cultural referral after being discharged. Perhaps, if Māori who attempt suicide had the hope of participating in treatment and the promotion of health and well being promotion by Māori, more cultural plans would be offered. At the time of the study, there no Māori psychiatric nurses or doctors employed in Auckland psychiatric liaison units. By working proactively with western models of prevention Māori would be able to decrease hospitalisation rates for attempted suicide and develop culturally appropriate strategies for Māori suicide prevention.

Many questions arose from the medical record review. Do the population profile, method of suicide attempt and management of Māori attempts differ from other ethnicities who attempt suicide? Do they differ from other areas in New Zealand? How do Māori who attempt suicide differ from Māori who do not attempt suicide? Are management plans established in an emergency department followed through into the community? Does providing culturally appropriate treatment improve services for Māori? The following research was designed from the medical record review to answer some of these questions and to move from describing the problem to designing effective interventions.

## **MĀORI ATTEMPTED SUICIDE CASES**

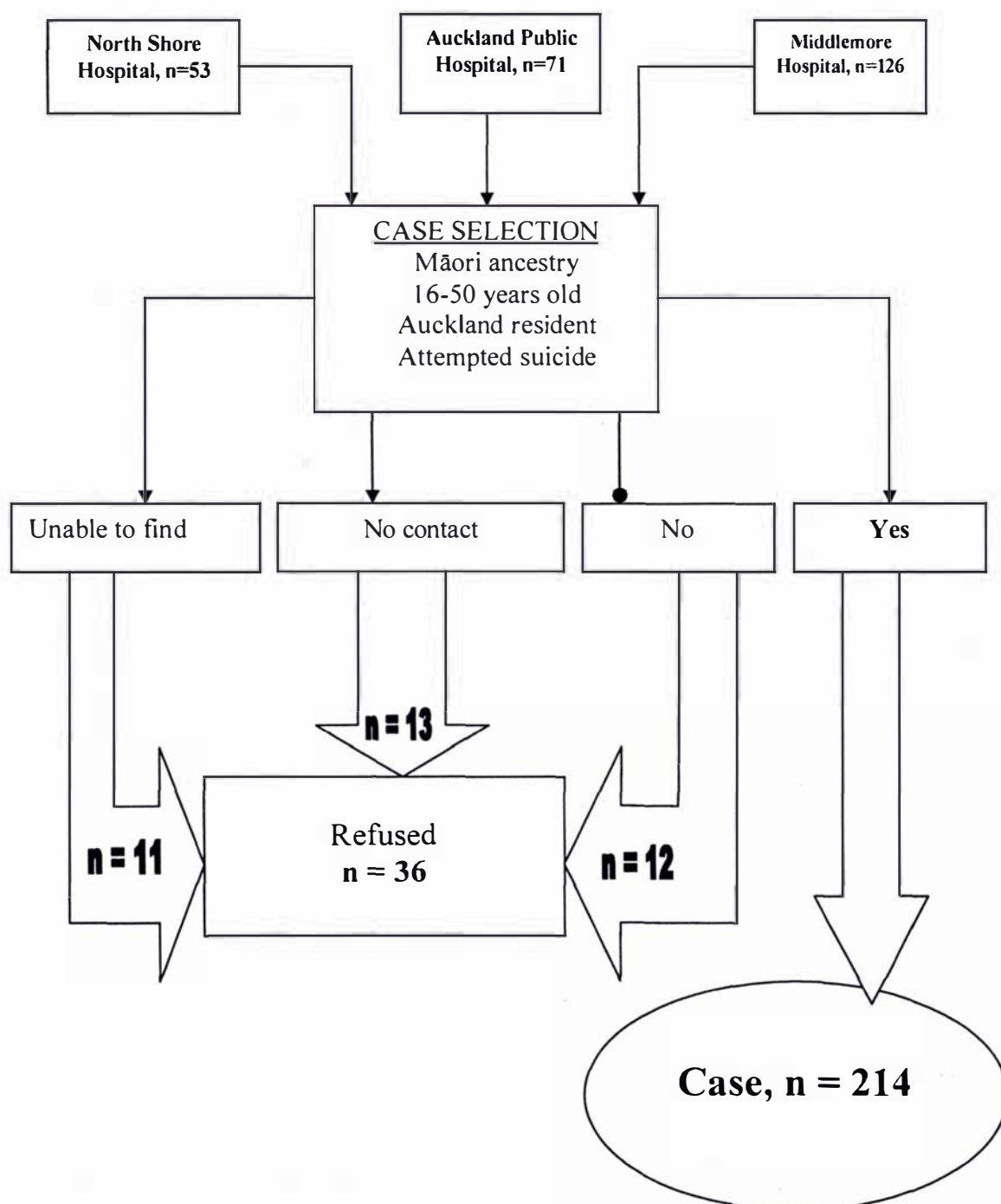
The first Māori centred and focused prospective case control design was used to collect information about Māori who attempted suicide between 1<sup>st</sup> August 2000 and 13<sup>th</sup> January 2002. The study included cases aged 16–50, who had received treatment at North Shore Hospital, Middlemore Hospital and Auckland Public Hospital for attempted suicide.

In 2001, the three Auckland district health board (DHB) regions (Figure 5-2) had a total population of 1,173,021 and a Māori population of 130,218 (11%). The Auckland DHB serves the Auckland population that resides between Portage Road, Avondale in the west to Portage Road, Otahuhu in the south, as well as the people living on the islands of the Hauraki Gulf. There were approximately 367,734 people (29,109 Māori, 8%) living in the Auckland DHB area.

Counties Manukau DHB covers the Franklin, Papakura and Manukau local authority areas. The Māori population was about 61,395 (17%) of the total Counties Manukau population (375,534). Young people were over-represented, making up 58% of the Counties Manukau Māori population, compared with 36% of the total New Zealand Māori population. Māori were over-represented in the less affluent areas of Manukau Manurewa (26%), Otara (25%) and Takanini Papakura (24%) but equitably represented in Māngere, Papatoetoe, Otahuhu, (19%) and South Rural (16%) (Jackson et al. 2001).

Waitemata DHB provides health services for people who live in North Harbour and West Auckland. North Harbour is made up of North Shore City and parts of Rodney District. West Auckland is made up of Waitakere City and the rest of Rodney District. In 2001 429,753 people lived within the Waitemata DHB's area. There were 39,684 (9.2%) Māori living within the Waitemata DHB. In addition, more than 50% of the 1996 Māori population lived

Figure 5-3: Māori attempted suicide case selection.

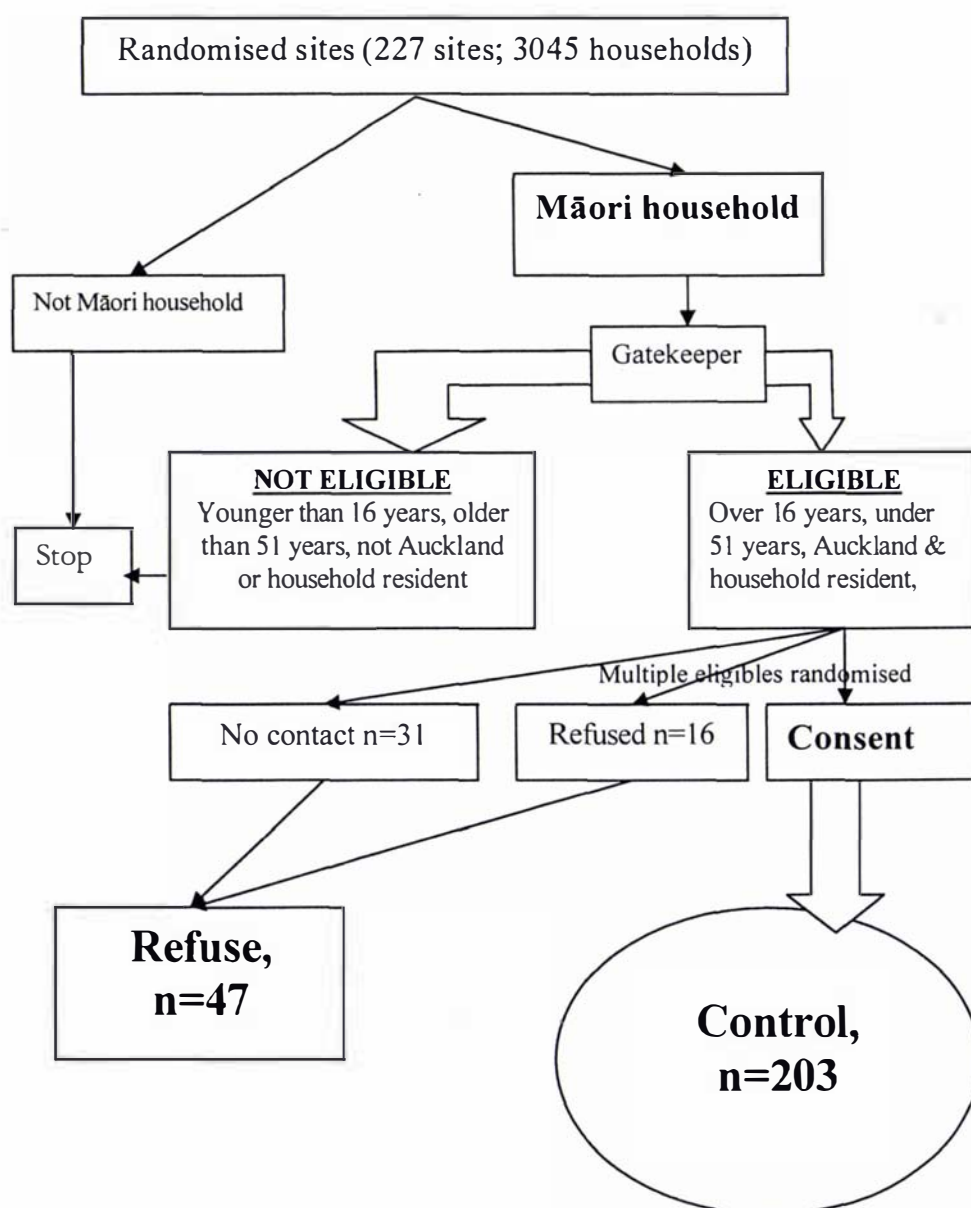


attempted suicide, 127 per 100,000 and had the lowest response rate (73.6%) from selection through to interview. Middlemore Hospital followed with a response rate of 84.9% equating to 107 case interviews (237 per 100,000). A response rate of 95.8% and an incidence of 294 per 100,000 of Māori attempted suicide were encountered at Auckland Public Hospital. The annual denominator data available for the three DHB's were not 100% accurate due to differences in age groups used (...15–19 years; 20–24 years...) by the 2001 census and by the study (16–20 years; 21–25 years...).

## MĀORI COMMUNITY-BASED CONTROL

The selection of controls was different from the cases (Figure 5-3). Two hundred and fifty Māori households were selected from 227 randomly selected sites (meshblocks) from primary sampling units generated from Statistics New Zealand census data (Figure 5-4). A Māori household was defined as a residence in which a person had Māori ancestry.

Figure 5-4: Māori randomised control selection.

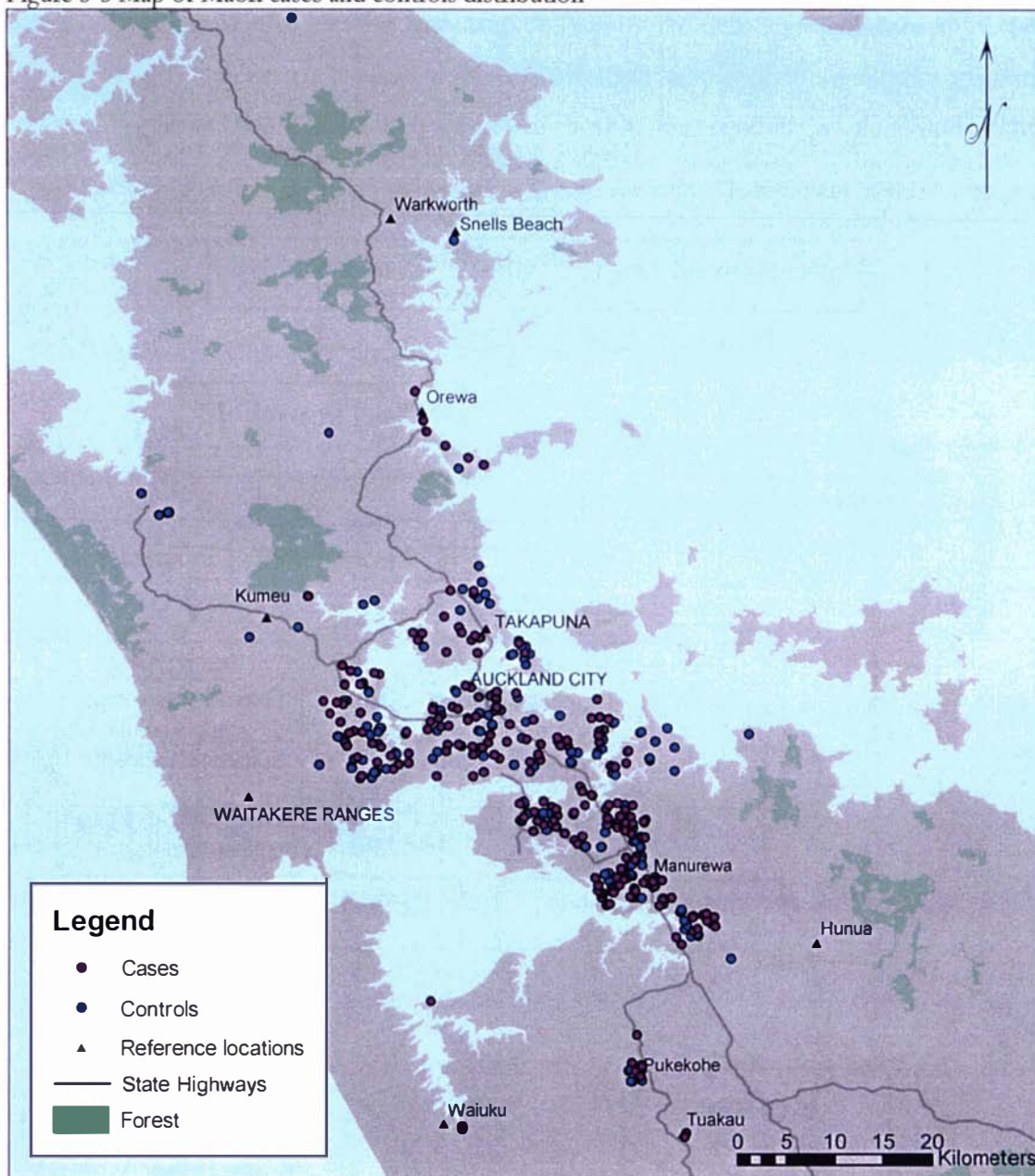


A total of 3,045 households were visited to find the 250 selected Māori controls from the regions illustrated in Table 5-2. Of the 250 Māori selected from these household, to participate in the Māori attempted suicide case control study, 81.2% continued through to



complete the interview. Figure 5-5 maps the distribution of the Māori attempted cases and controls selected for the study and their distribution within the Auckland region.

Figure 5-5 Map of Māori cases and controls distribution



## CASE AND CONTROL REFUSALS

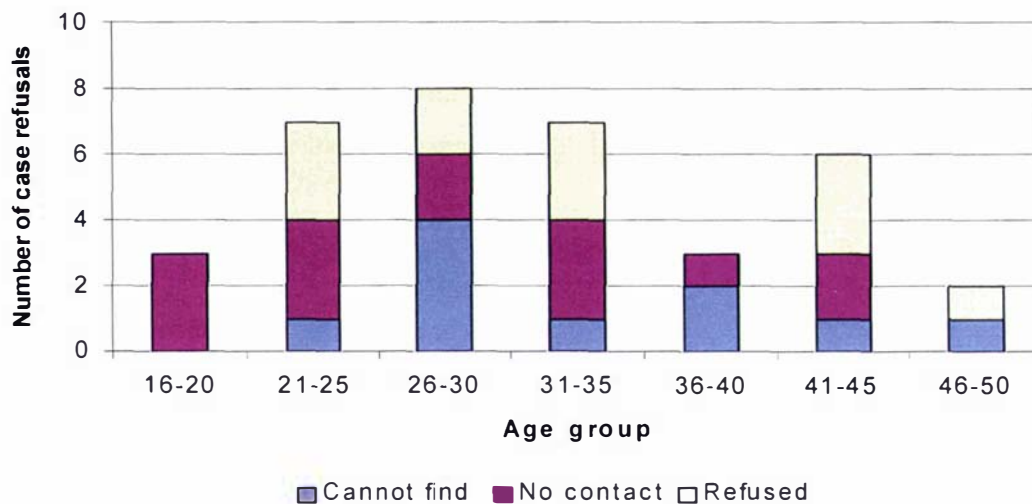
Four hundred and seventeen of the 500 (83.4%) recruited Māori participants completed the interview.

### Cases

Only three attempts were made to access participants, if there was still no contact, they were counted as refusals. There were 36 cases who preferred not to participate (14.4%). There

were three types of ultimate refusal among the cases. The most frequent refusal (39%) occurred when a recruiter was not able to contact the case (the address was correct but the person was not available, not present and/or not at home). Ten false addresses were given to the hospital administrator (28%) and 12 genuine refusals (33%) were made.

Figure 5-6: Māori attempted suicide case refusals by five-year age groups.



Case refusals were more likely to have been to the North Shore Hospital for treatment (26.4%). The majority of refusals were female (62%) and they were more likely to refuse to participate directly while males were more likely to give false addresses and not contactable.

Not being able to find Māori who had attempted suicide was more likely to happen in the age group 26–30 (Table 5-2). Not being able to contact a person and refusals were not age dependent.

### Controls

Forty-seven controls refused to participate in the study (18.8%). There were two reasons for refusal among controls selected: true face to face refusals and an inability to make contact with the eligible participant. Sixteen refused (34%) and 31 controls (66%) were not able to be contacted to participate. Non-contact with Māori was more frequent due to an inability to gain access via the person who opened the door (the gatekeeper). The refusal rates across the three districts ranged from 12.5% to 20% (Table 5-2).

There were difficulties in determining the age and a few times the gender of the eligible control due to gatekeepers refusing participation before the eligible participant could be contacted. Almost 20% of the refusals were non-gender specified and the remaining refusals were men (51%). Males were also more likely to be non-contactable and true refusals were equal among men and women. No participants requested their questionnaires returned or

Table 5-2: Selection, refusals, interviews, incidence of participation and response rates between Māori attempted suicide cases and controls.

Data Sources	Selected	Unable to contact	Unable to find	Refused	Interviewed	Response Rates %	Denominator (15-49 years)	Incidence per 100,000
<b>Cases</b>	<b>250</b>				<b>214</b>	<b>85.6</b>	<b>69,048</b>	<b>214</b>
North Shore Hospital (WDHB)	53	4	3	7	39	73.6	21,186	126
Auckland Public Hospital (ADHB)	71	1	1	1	68	95.8	16,641	282
Middlemore Hospital (CMDHB)	126	9	6	4	107	84.9	31,221	237
<b>Controls (227 sites, 3405 households)</b>	<b>250</b>				<b>203</b>	<b>81.2</b>	<b>69,048</b>	<b>203</b>
Waitemata region	90	10		8	72	80.0		
Auckland region	24	2		1	21	87.5		
Counties Manukau region	136	19		7	110	80.9		
<b>Total</b>	<b>500</b>	<b>45</b>	<b>10</b>	<b>28</b>	<b>417</b>	<b>83.4</b>		

withdrew from the study. Most case interviews were performed in respondent homes and a few over the telephone. One case interview was performed in a hospital ward. Records were kept as to the clinical follow-up subjects received to gauge the influence support may have had on the research.

## **CULTURAL INDICATORS**

The greatest number of items in the analysis was recorded in the cultural indicator section. One hundred and eleven variables were analysed in that section. To present the information in a more manageable way, eight subsections have been designated to indicate each component of access to te ao Māori (Māori worldview).

### **Identity and Whakapapa (Genealogy)**

Two questions about self-identity illustrated few differences between cases and controls when asked whether they identified as Māori (Table 5-3). One hundred and ninety eight cases (92.5%) and 187 (92.1%) controls identified as Māori. However, when identification was solely Māori, cases were significantly more likely than controls to chose only one ethnic identity (OR=2.4, CI 1.59, 3.63). Fifty-eight percent of cases and 37% of controls identified as solely Māori.

Four questions about access to genealogical knowledge (whakapapa) were used. The first question was based on the number of family generations a subject could name without having to make reference elsewhere. Almost 11% of cases compared with controls (32.5%) were unable to name ancestors (tupuna) beyond great-grandparents (OR=0.25, 0.14, 0.44,  $p<0.0001$ ).

Subsequent questions asked whether the subject could name their tribal affiliations (iwi, hapū and waka). Māori who had attempted suicide were less likely to name their iwi (80.4%), hapū (22.4%) and waka (22.4%) than the controls (iwi 92.1%, hapū 43.8% and waka 65.8%). Being able to name iwi, hapū and waka was significantly associated to suicidal behaviour (OR=0.35, 0.37, 0.34;  $p<0.0001$  respectively).

### **Marae (Village Common)**

Four questions (Table 5-3) on marae participation and accessibility were administered to assess access to traditional cultural centres (papakāinga). Māori who had ever been to a marae (OR=0.09, CI 0.04, 0.21;  $p<0.0001$ ), in the last 12 months (OR=0.31, CI 0.20, 0.50;  $p<0.0001$ ); had a marae they considered their own (OR=0.32, CI 0.21, 0.50;  $p<0.0001$ ) and



had been in the last 12 months (OR=0.35, CI 0.22, 0.56;  $p<0.0001$ ) were all associated to attempted suicide.

### **Tikanga (Māori Customs)**

The tikanga subsection (Table 5-3) investigated three aspects of Māori custom: knowledge, and comfort at Māori gatherings (hui) and tangihanga (funerals). One hundred and fifty one cases (60.5%) compared with 116 controls (57.5%) had knowledge of tikanga (OR=1.80, CI 1.18, 2.75,  $p<0.004$ ), but fewer cases than controls felt comfortable where tikanga was employed at hui (OR=0.23, CI 0.13, 0.41,  $p<0.0001$ ) or tangihanga (OR=0.29, CI 0.18, 0.48,  $p<0.0001$ ).

When participants were given the choice of funeral arrangements both marae tangihanga (OR=2.74, CI 1.36, 5.59,  $p<0.002$ ) and church services (OR=7.75, 3.41, 17.81,  $p<0.0001$ ) dominated among cases. Chapel funerals and house services were not significant when cases were compared to community-based controls.

### **Whānau (Family Networks and Affiliations)**

Fourteen questions (Table 5-3 and Table 5-4) were focussed on whānau interactions. In relation to the previous queries on funeral preferences, both the cases' and controls' whānau favoured urupā (73.3% compared with 72.1%, respectively) and town cemetery (23.8% compared with 24.4%), for burial of tūpāpaku. Generally, having contact with whānau was associated to suicidal behaviours (Table 5-4). In response to the question, *have you contacted your family in the last year?* there was a significant association if there was whānau contact (OR=0.37, CI 0.15, 0.85,  $p<0.01$ ). There was not a significant association if Māori went to stay with whānau (OR=0.99, CI 0.62, 1.59,  $p=0.9694$ ) but if whānau stayed with them (OR=0.19, CI 0.12, 0.29,  $p<0.0001$ ) or they attended a gathering together (OR=0.26, CI 0.17, 0.41,  $p<0.0001$ ) was associated to suicide attempt.

Due to the shear number of chi-square tests performed in the following section a significance level of  $p\leq 0.01$  was allocated as an indicator of an association not being due to chance, to avoid overstating significance levels due to the multiple tests employed in this section.

Significant relationships occurred with participants and whānau who had: strong links (OR=0.16, CI 0.09, 0.29,  $p<0.0001$ ), supportive (OR=0.15, CI 0.08, 0.26,  $p<0.0001$ ) or positive expectations (OR=0.47, CI 0.31, 0.72,  $p<0.0001$ ) or played a constructive part in their life (OR=0.33, CI 0.2, 0.53,  $p<0.0001$ ). Feeling close to whānau or relatives was also

associated (OR=0.22, CI 0.09, 0.54,  $p<0.0002$ ), but seeing them once a month or more was not (OR=0.61, CI 0.36, 1.01,  $p=0.0416$ ).

### **Whenua (Customary Land)**

Both the cases (72%) and controls (73.9%) had an equal number of subjects who associated to people, who were considered whānau in the wider community (Table 5-4). Having a confidante (OR=0.19, CI 0.09, 0.37,  $p<0.0001$ ) and increased communication with the confidante (OR=2.52, CI 1.23, 5.24,  $p=0.0061$ ) was associated to attempted suicide. Close to 75% of the controls had children in comparison to 52% of cases, leading to an association to suicidal behaviour (OR=0.36, CI 0.23, 0.56,  $p<0.0001$ ).

A further section in Figure 5-6 considers the relationship Māori had with whenua and the benefit received from that association. Only 39 of the cases (18.8%) had any interest in Māori customary land, that is, as an owner' or part owner or beneficiary compared with the community sample (51.5%) (OR=0.22, CI 0.13, 0.36,  $p<0.0001$ ). Of the 11 queries around the type of relationship Māori had with the land six had significant correlations (Figure 5-6).

These associations included having a whānau land share (OR=0.25, CI 0.15, 0.42,  $p<0.0001$ ); being a trust beneficiary (OR=0.07, CI 0.02, 0.23,  $p<0.0001$ ); attending whenua (OR=0.21, CI 0.08, 0.48,  $p<0.0001$ ) and Waitangi Tribunal meetings to claim back tribal land (OR=0.17, CI 0.04, 0.50,  $p<0.0001$ ); visiting land holdings (OR=0.21, CI 0.12, 0.36,  $p<0.0001$ ) and keeping well informed about the land (OR=0.14, CI 0.07, 0.50,  $p<0.0001$ ). The association to other types of land ownership were inconclusive due to the small number of Māori that solely owned land, had shares in Māori land corporations, had claims on the land, or were uncertain about their Māori land ownership.

### **Māori Organisations**

Due to the small number of both cases and controls who had links with Māori organisations (Table 5-6) there was only one association. It was that between Māori and marae committees (OR=0.12, CI 0.04, 0.32,  $p<0.0001$ ). Very few Māori (either cases or controls) had benefited from fisheries, forestry, or geothermal rights. Kaupapa Māori organisations fared no better, only accessing a marae committee was protective against suicidal behaviour. Accessing other organisations including iwi trust boards, the Waitangi Tribunal, Te Puni Kōkiri, the Māori land court, the Māori Women's Welfare League, Māori wardens and congress, the New Zealand Māori Council, the Māori church, and the Māori district council, showed no association due to the low levels of access to these organisations.

*Kainamu Whakamomori Whakamaramatanga: Description of Māori Attempted Suicide*

Table 5-3: Cultural indicators (whakapapa, marae, tikanga, tangihanga, whānau) between Māori attempted suicide cases and controls (question 2–8.6).

Cultural Indicators		Case		Control		Odds ratio (OR)	Confidence Interval (CI)		Probability P value	Chi-square	
		No.	%	No.	%						
2	Whakapapa	identify as Māori	198	92.50	187	92.10	1.06	0.48	2.33	0.8767	0.02
3		sole Māori	125	58.41	75	36.95	2.40	1.59	3.63	<0.0001	19.19
4		generations 4+	23	10.80	66	32.51	0.25	0.14	0.44	<0.0001	29.07
5		iwi name	172	80.40	187	92.10	0.35	0.18	0.67	0.0005	11.97
5a		hapū name	48	22.43	89	43.84	0.37	0.24	0.58	<0.0001	21.6
5b		waka name	48	22.40	93	45.80	0.34	0.22	0.53	<0.0001	25.39
6	Marae	ever been to a marae	148	69.10	195	96.00	0.09	0.04	0.21	<0.0001	51.52
7		been to marae last 12 months	75	46.58	145	73.60	0.31	0.20	0.50	<0.0001	27.23
8		your marae name	97	45.30	146	71.90	0.32	0.21	0.50	<0.0001	30.23
8.1		been to your marae last 12 months	57	34.55	103	60.23	0.35	0.22	0.56	<0.0001	22.15
8.2	Tikanga	knowledge of tikanga	151	60.56	116	57.14	1.80	1.18	2.75	0.004	8.12
8.3		comfort at a hui	141	65.89	178	89.45	0.23	0.13	0.41	<0.0001	31.74
8.4		comfort at a tangihanga	132	61.68	166	84.69	0.29	0.18	0.48	<0.0001	27.22
8.5a	Tangihanga	marae tangihanga (funeral)	126	90.00	128	76.65	2.74	1.36	5.59	0.002	9.48
8.5b		funeral chapel	9	40.91	19	19.39	2.88	0.96	8.60	0.03	4.61
8.5c		house service	26	25.00	30	21.90	1.19	0.62	2.26	0.573	0.32
8.5d		church service	31	57.41	16	14.81	7.75	3.41	17.81	<0.0001	31.51
8.6	Whānau	whānau prefer urupā	157	73.36	145	72.14	1.06	0.67	1.68	0.7795	0.08
		whānau prefer town cemetery	51	23.83	49	24.38	0.97	0.60	1.56	0.8966	0.02



Table 5-4: Cultural indicator (whānau, children) between Māori attempted suicide cases and controls (question 9a–9.5, 88–94).

Cultural Indicators			Case		Control		Odds ratio (OR)	Confidence Interval (CI)		Probability P value	Chi-square
			No.	%	No.	%					
9a	Whānau	contact last 12 months	190	88.79	194	95.57	0.37	0.15	0.85	<0.01	6.56
9b		stayed with	162	75.70	154	75.86	0.99	0.62	1.59	0.9694	0.00
9c		stayed with you	87	40.85	159	78.71	0.19	0.12	0.29	<0.0001	61.44
9d		attend conference together	51	23.94	110	54.46	0.26	0.17	0.41	<0.0001	40.55
9.1		strong links	135	63.08	185	91.58	0.16	0.09	0.29	<0.0001	55.6
9.2		supportive	131	61.21	185	91.58	0.15	0.08	0.26	<0.0001	52.36
9.3		expectations positive	112	52.34	140	70.00	0.47	0.31	0.72	<0.0002	13.51
9.4		plays positive part in life	132	61.68	168	83.68	0.33	0.20	0.53	<0.0001	23.80
9.5		whānau wider community	154	72.00	150	73.90	0.91	0.58	1.43	0.6581	0.2
91		feel close to	182	85.85	194	96.52	0.22	0.09	0.54	<0.0002	14.36
92		see at least 1/month	158	74.88	167	83.08	0.61	0.36	1.01	0.0416	4.15
93		confidante	157	73.36	190	93.60	0.19	0.09	0.37	<0.0001	30.45
94		frequent communication with confidante	144	91.72	154	81.48	2.52	1.23	5.24	0.0061	7.50
88		Children	total	109	51.66	151	74.75	0.36	0.23	0.56	<0.0001
89	alive		109	51.90	148	73.27	0.39	0.25	0.61	<0.0001	19.97
90	see at least 1/month		78	37.14	138	68.32	0.27	0.18	0.42	<0.0001	40.02



Table 5-5: Cultural indicator (whenua) between Māori attempted suicide cases and controls (question 10–10.3b, 13).

Cultural Indicators			Case		Control		Odds ratio (OR)	Confidence Interval (CI)		Probability P value	Chi-square
			No.	%	No.	%					
10	Whenua	whenua	39	18.80	104	51.50	<b>0.22</b>	0.13	0.36	<0.0001	48.23
10.1a		sole ownership	0	0.00	4	2.00					
10.1b		whānau share	29	13.60	78	38.40	<b>0.25</b>	0.15	0.42	<0.0001	33.7
10.1c		incorporation shareholder	1	0.50	9	4.40					
10.1d		trust beneficiary	3	1.40	36	17.70	<b>0.07</b>	0.02	0.23	<0.0001	32.70
10.1e		don't know about	12	5.61	8	3.94	<b>1.45</b>	0.54	3.97	0.4265	0.63
10.1f		claim	1	0.50	2	1.00					
10.2a		attend meetings	8	3.70	32	15.80	<b>0.21</b>	0.08	0.48	<0.0001	17.33
10.2b		visit	21	9.80	70	34.50	<b>0.21</b>	0.12	0.36	<0.0001	37.07
10.2c		court or Waitangi Tribunal	4	1.90	21	10.30	<b>0.17</b>	0.04	0.50	<0.0003	13.25
10.2d		well informed	13	6.10	65	32.00	<b>0.14</b>	0.07	0.50	<0.0001	46.01
10.2e		live on	0	0.00	11	5.40					
10.3a		receive money	3	1.40	22	10.80	<b>0.20</b>	0.02	0.40	<0.0001	16.42
10.3b		receive benefit	2	0.90	20	9.90	<b>0.09</b>	0.01	0.36	<0.0001	16.54
13		want more contact with Māori	42	19.63	107	52.71	<b>0.22</b>	0.14	0.35	<0.0001	49.53

### **Kai (Customary Food Preparation)**

The number of Māori who had attempted suicide and who participated in customary kai preparation was almost half the number of community subjects (Table 5-6). Māori involvement in food gathering and preparation activities such as gathering shellfish (OR=0.26, CI 0.17, 0.40,  $p<0.0001$ ), or kina (OR=0.42, CI 0.26, 0.68,  $p<0.0002$ ), picking ruha (OR=0.54, CI 0.33, 0.87,  $p=0.0069$ ), making rewena (OR=0.50, CI 0.31, 0.82,  $p=0.0037$ ) and preparing hāngī (OR=0.27, CI 0.17, 0.42,  $p<0.0001$ ) were all associated to attempting suicide. The only traditional food preparation activity not associated was reserving fermented corn (kānga pirau, OR=0.82, CI 0.26, 2.54,  $p<0.7065$ ).

### **Te Reo Māori (Māori Language)**

The largest cultural subsection concerned Māori language with 41 questions about utilisation, importance, enhancement, reading, writing, listening and watching. Participants were questioned about the language used for conversation about everyday things. No difference in the association between cases and controls was found regarding spoken language (English, Māori, Pacific, New Zealand Sign Language or any other languages, Table 5-7).

All participants in the study spoke English and although a Māori interview was available, none of the participants chose to carry out their interviews in te reo Māori (Table 5-7). Similar percentages of cases (15.9%) and controls (21.7%) could speak te reo Māori (OR=0.68, CI 0.40, 1.15,  $p=0.1313$ ). However, more controls spoke Pacific Island languages (3.9%), other languages (5.4%) and could apply New Zealand sign language (3.5%) compared to cases (1.4%, 2.8%, 0.9%, respectively).

Community subjects, when asked to describe their overall ability (OR=0.19, CI 0.10, 0.35,  $p<0.0001$ ), speaking (OR=0.32, CI 0.18, 0.54,  $p<0.0001$ ) and understanding (OR=0.14, CI 0.07, 0.28,  $p<0.0001$ ) te reo Māori at a basic level (appropriate to their age), were more able than cases (Table 5-7).

Community subjects used te reo Māori more than Māori who had attempted suicide in all the situations (Table 5-7), for example at marae (OR=0.35, CI 0.23, 0.55,  $p<0.0001$ ), at home (OR=0.37, CI 0.24, 0.57,  $p<0.0001$ ), at work (OR=0.32, CI 0.19, 0.54,  $p<0.0001$ ), around children (OR=0.20, CI 0.13, 0.32,  $p<0.0001$ ), with kaumātua (OR=0.41, CI 0.27, 0.63,  $p<0.0001$ ), with whānau (OR=0.29, CI 0.19, 0.45,  $p<0.0001$ ), and at learning institutions (OR=0.10, CI 0.05, 0.21,  $p<0.0001$ ).



Table 5-6: Cultural indicators (organisations and Māoritanga) between Māori attempted suicide cases and controls (question 10.3c–12f).

Cultural Indicators			Case		Control		Odds ratio (OR)	Confidence Interval (CI)		Probability P value	Chi-square
			No.	%	No.	%					
10.3c	Fisheries	Fisheries money	1	0.50	2	1.00					
10.3d		Fisheries benefit	0	0.00	3	1.50					
10.3e	Forestry	Forestry money	3	1.40	8	3.90					
10.3f	Geothermal	Mineral/geothermal money	0	0.00	4	0.00					
11a	Organisations Contact	Iwi/Māori Trust Board/Waitangi Tribunal	4	1.90	20	9.90					
11b		Te Puni Kōkiri (Māori Affairs)	1	0.50	14	6.90					
11c		Māori Land Court	2	0.90	23	11.30					
11d		Māori Women's' Welfare League	4	1.90	6	3.00					
11e		Māori wardens	10	4.70	16	7.90	0.57	0.23	1.38	0.176	1.83
11f		Māori congress	0	0.00	2	1.00					
11g		New Zealand Māori Council	0	0.00	3	1.50					
11h		marae committee	5	2.30	34	16.80	0.12	0.04	0.32	<0.0001	25.46
11i		Māori Church Hāhi Māori	2	0.90	25	12.30					
11j		Māori District Council	0	0.00	0	0.00					
12a	Kai (customary food)	gather shellfish	51	23.83	111	54.68	0.26	0.17	0.40	<0.0001	41.63
12b		gather kina	39	18.22	70	34.48	0.42	0.26	0.68	<0.0002	14.23
12c		pick puha	40	18.69	61	30.05	0.54	0.33	0.87	<0.0069	7.30
12d		make rewena	36	16.82	58	28.71	0.50	0.31	0.82	<0.0037	8.38
12e		preserve kanga piro	7	3.27	8	3.96	0.82	0.26	2.54	0.7065	0.14
12f		prepare hāngi	47	21.94	104	51.23	0.27	0.17	0.42	<0.0001	38.54

Both cases (72.9%) and controls (79.8%, Table 5-7) believed being able to speak and understand te reo Māori was important (OR=0.68; CI 0.42, 1.10, p=0.098) including using it during Māori ceremonies (OR=0.67; CI 0.29, 1.56, p=0.3164), public or civic ceremonies (OR=0.95; CI 0.54, 1.65, p=0.8391), and in public institutions (OR=0.37, CI 0.24, 0.57, p<0.0001). However, the relationship with te reo Māori in these situations on Māori attempted suicide is unclear.

Enrolling in Māori language courses (cases 65.9%, controls 70.4%) was the most popular mechanism for enhancing levels of te reo Māori (Table 5-8) among study participants (OR=0.81, CI 0.52, 1.25, p=0.319), but was not statistically different between the two populations. More community members (controls) would seek assistance from kaumātua (56.1%), te reo Māori speakers (44.3%), and extended whānau (53.7%), and continue their present mechanisms of learning (23.2%) compared with cases. Learning from kaumātua (OR=0.32, CI 0.21, 0.49, p<0.0001), Māori speakers (OR=0.16, CI 0.09, 0.27, p<0.0001), extended whānau (OR=0.31, CI 0.20, 0.48, p<0.0001), continuing present learning (OR=0.10, CI 0.04, 0.24, p<0.0001) and prior learning (OR=0.27, CI 0.15, 0.48, p<0.0001) were all protective from suicidal behaviour.

Reading, writing and watching in te reo Māori medium (Table 5-8) among controls was at a significantly increased level. Listening to Māori radio, adults speaking te reo Māori and to children during a subject's childhood, and believing there is enough opportunity to learn (OR=0.44, CI 0.28, 0.70, p=0.0469) were not significant in later suicidal behaviour (Table 5-9).

## DEMOGRAPHIC FACTORS

Demographic data is presented in Table 5-10 and depicts several aspects of demography including gender, sexual orientation, age, living environment, marital status and childhood factors.

### Gender

The gender difference within cases and controls was even. Females made up 64% of cases and 65% of controls. The two case participants who identified themselves as transgender were not included in any gender analyses.



Table 5-7: Cultural indicator (te reo Māori) between Māori attempted suicide cases and controls (question 14a–20.1b).

Cultural Indicators		Case		Control		Odds ratio (OR)	Confidence Interval (CI)		Probability P value	Chi-square	
		No.	%	No.	%						
14a	Te Reo	English	214	100	202	99.50					
14b		Māori	34	15.90	44	21.70	<b>0.68</b>	0.40	1.15	0.1303	2.29
14c		Pacific Island	3	1.40	8	3.90					
14c		NZ Sign	2	0.90	7	3.50					
14e		other languages	6	2.80	11	5.40	<b>0.50</b>	0.16	1.51	0.1776	1.82
15		overall ability	146	68.54	187	92.12	<b>0.19</b>	0.10	0.35	<0.0001	36.08
16		speaking	146	68.22	177	87.19	<b>0.32</b>	0.18	0.54	<0.0001	21.41
17		understanding	148	69.16	189	94.03	<b>0.14</b>	0.07	0.28	<0.0001	41.91
18		satisfied with level of te reo	103	48.13	40	19.70	<b>3.85</b>	2.43	6.12	<0.0001	38.21
19a		main language on marae	78	36.45	122	60.10	<b>0.35</b>	0.23	0.55	<0.0001	24.36
19b		main language at home	61	28.50	99	48.77	<b>0.37</b>	0.24	0.57	<0.0001	22.75
19c		main language at work	30	14.02	65	32.02	<b>0.32</b>	0.19	0.54	<0.0001	20.67
19d		main language around children	64	29.90	129	63.55	<b>0.20</b>	0.13	0.32	<0.0001	54.83
19e		main language with kaumātua	78	36.45	110	54.19	<b>0.41</b>	0.27	0.63	<0.0001	18.57
19f		main language whānau	73	34.11	125	61.58	<b>0.29</b>	0.19	0.45	<0.0001	35.34
19g		main language at school, kohunga, wananga	12	6.15	61	30.20	<b>0.10</b>	0.05	0.21	<0.0001	53.21
20		important	156	72.90	162	79.80	<b>0.68</b>	0.42	1.10	0.098	2.74
20.1a		importance at Māori ceremonies	197	92.06	190	93.60	<b>0.67</b>	0.29	1.56	0.3164	1.00
20.1b		importance at civil ceremonies	178	83.18	167	82.27	<b>0.95</b>	0.54	1.65	0.8391	0.04
20.1c		importance in public institutions	54	25.23	95	47.98	<b>0.37</b>	0.24	0.57	<0.0001	22.99

Table 5-8: Cultural indicator (te reo Māori) between Māori attempted suicide cases and controls (question 21a–24.1d).

Cultural Indicators			Case		Control		Odds ratio (OR)	Confidence Interval (CI)		Probability P value	Chi-square
			No.	%	No.	%					
21a	How increase	Māori language course	141	65.89	143	70.44	0.81	0.52	1.25	0.319	0.99
21b		kaumātua	62	28.97	114	56.16	0.32	0.21	0.49	<0.0001	31.49
21c		Māori speakers	24	11.21	90	44.33	0.16	0.09	0.27	<0.0001	57.39
21d		extended whānau	57	26.64	109	53.69	0.31	0.20	0.48	<0.0001	31.76
21e		continue	6	2.80	47	23.15	0.10	0.04	0.24	<0.0001	38.79
22	Te Reo	been learning last 12 months	20	9.40	56	27.60	0.27	0.15	0.48	<0.0001	23.2
23a		read children's books	24	11.32	86	42.35	0.17	0.10	0.29	<0.0001	51.18
23b		read work material	14	6.60	48	23.65	0.23	0.12	0.45	<0.0001	23.64
23c		read bulletins	27	12.61	71	34.98	0.27	0.16	0.45	<0.0001	28.37
24a		write assignments Māori language	7	3.29	30	14.78	0.17	0.07	0.44	<0.0001	18.75
24b		write other assignments	4	1.88	16	7.88					
24c		write correspondence to friends	17	7.98	40	19.70	0.30	0.16	0.58	<0.0001	15.8
24d		write at work	10	4.67	30	14.78	0.28	0.13	0.62	<0.0001	14.57
24.1a		watch to te karere	129	60.28	157	77.34	0.43	0.27	0.68	<0.0002	13.58
24.1b		watch waka huia etc	116	54.20	132	65.02	0.63	0.41	0.97	0.026	4.91
24.1c		watch Māori language television	122	57.02	151	74.38	0.42	0.26	0.66	<0.0001	15.73
24.1d		listen to Māori radio station	92	42.99	92	45.32	0.83	0.55	1.26	0.3614	0.83



Table 5-9: Cultural indicators (te reo Māori) between Māori attempted suicide cases and controls (question 27–28.1).

Cultural Indicators			Case		Control		Odds ratio (OR)	Confidence Interval (CI)		Probability P value	Chi-square
			No.	%	No.	%					
27	Te reo	adults spoke Māori among themselves	70	32.71	78	38.42	0.78	0.51	1.19	0.2235	2.48
27.1		adults spoke Māori to children	51	23.83	59	29.06	0.76	0.48	1.21	0.2251	1.47
28		opportunity to learn	133	62.15	160	78.82	0.44	0.28	0.70	0.0469	3.95
28.1		opportunity to use	133	62.15	149	73.40	3.57	1.51	8.74	0.0012	10.47

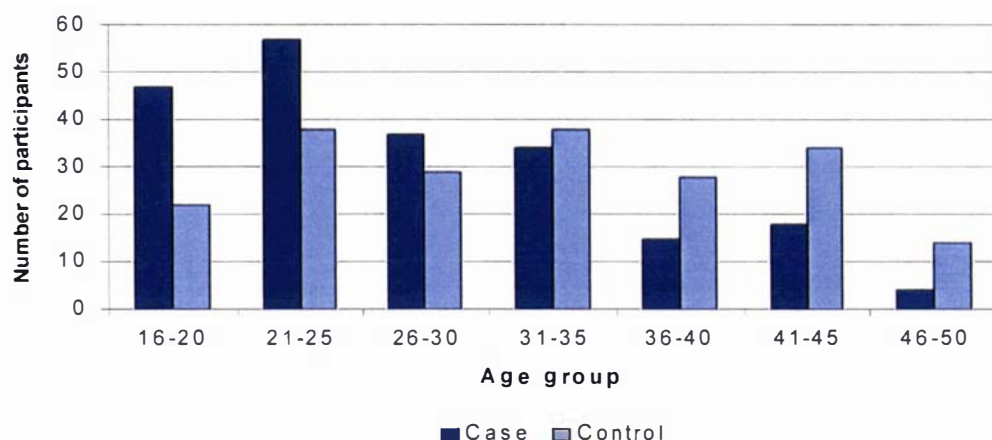
## Sexual Orientation

There were 16 (7.5%) gay, lesbian and bisexual cases compared with ten (5%) controls (OR=1.56, CI 0.65, 3.80,  $p=0.2824$ ) and two transgender (male to female) cases. Being gay, lesbian or bisexual was not associated to attempting suicide, but ‘coming out’ was only significant association (OR=3.48, CI 1.05, 12.76,  $p<0.0218$ ).

## Age

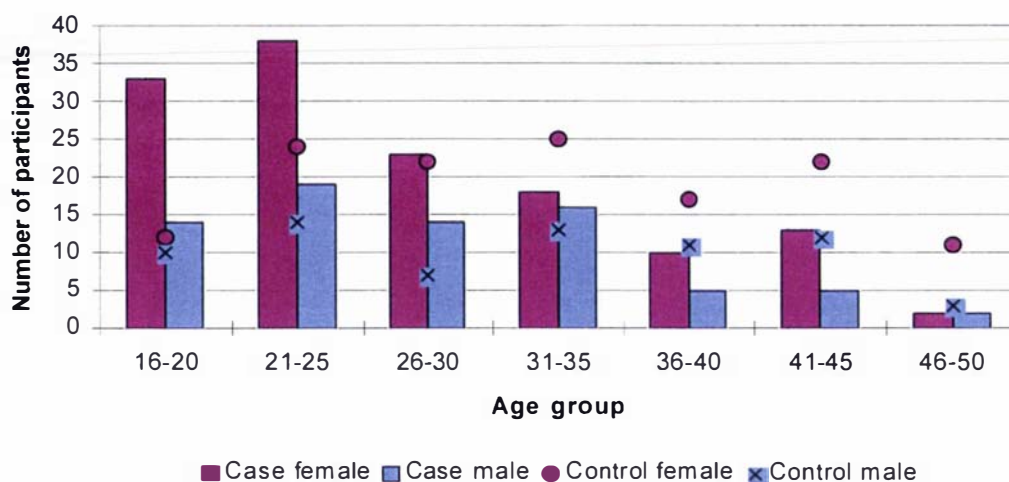
The age distribution of cases (Figure 5-7) was slightly younger than the corresponding controls but not significantly different ( $\chi^2_{df}=11.48$ ,  $p<0.07$ ).

Figure 5-7: Age distribution between Māori attempted suicide cases and controls.



The gender distribution among controls by age (Figure 5-8) was stable across the middle ages (21–45) and dipped in the youngest (16–20) and oldest (46–50) age groups. Female cases were generally younger (16–26 years) and male cases had a relatively similar frequency to those aged 16–35.

Figure 5-8: Age distribution between Māori attempted suicide cases and controls by gender.

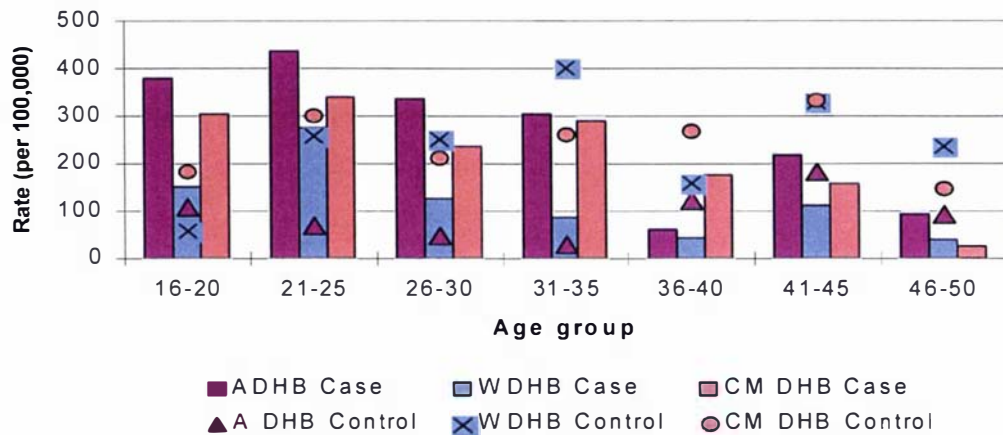




## Living Environment

One of the greatest difficulties in performing a one to one unmatched case control study is to incorporate enough participants in each of the age groups for stratification.

Figure 5-9: Rates of Māori attempted suicide cases and controls participation across the three district health boards.



ADHB: Auckland district health board  
WDHB: Waitemata district health board

CMDHB: Counties Manukau district health board

Figure 5-9 shows the difference in cases and controls by five-year age groups across the three different catchment areas. The most homogenous area with respect to age was Counties Manukau, although fewer cases 36-40, 41-45 and 46-50 years and fewer controls in the youngest 16-20 year olds. Waitemata had more controls in 26-30, 31-35, 36-40, 41-45 and 46-50 year age groups and less controls than case in the 16-20 year age group. Auckland slightly fewer controls in 16-20, 21-25, 26-30 and 31-35 year age groups and fewer cases in the 16-20 year age group.

Results indicated living *alone* was associated to suicidal behaviour, although not statistically significantly (OR=2.04, CI 1.11, 3.78, p=0.0143). Māori *living with others* may be protected (OR=0.49, CI 0.26, 0.90, p=0.0143) particularly if living with *partners* (OR=0.38, CI 0.25, 0.58, p<0.0001) and *children* (OR=0.22, CI 0.15, 0.35, p<0.0001). Living with extended whānau and other people was not significantly associated, with being at risk of becoming a case.

## Marital Status

Being single (OR=2.95, CI 1.93, 4.50, p<0.0001) or in a defacto relationship (OR=1.95, CI 1.11, 3.43, p<0.0001) and being married (OR=0.17, CI 0.10, 0.28, p<0.0001) was associated to attempting suicide. Other forms of marital status (being separated, divorced or widowed) was not associated to suicidal behaviours.

Table 5-10: Demographic factors between Māori attempted suicide cases and controls (question 29–29b, 164, 164a, 31–32d, 45 and 45.1).

Demographics		Case		Control		Odds ratio (OR)	Confidence Interval (CI)	Probability P value	Chi-square		
		No	%	No	%						
29	Gender	Male	75	35.05	70	34.48					
29a		Female	137	64.02	133	65.52					
29b		Transgender	2	0.93	0	0.00					
164	Sexual orientation	Gay, lesbian or bisexual	16	7.51	10	4.95	<b>1.56</b>	0.65	3.80	0.2824	1.16
164a		come out	14	6.54	4	1.97	<b>3.48</b>	1.05	12.76	<0.0218	5.26
31	Living environment	live with others	175	81.78	183	90.15	<b>0.49</b>	0.26	0.90	0.0143	6.00
		live alone	39	18.22	20	9.85	<b>2.04</b>	1.11	3.78	0.0143	6.00
31a		live with partner, husband, wife	71	33.18	115	56.65	<b>0.38</b>	0.25	0.58	<0.0001	23.17
31b		live with children	55	25.70	123	60.59	<b>0.22</b>	0.15	0.35	<0.0001	51.71
31d		live with other whānau	75	35.05	72	35.47	<b>0.98</b>	0.64	1.50	0.9283	0.01
31f		live with other people	55	25.70	40	19.70	<b>1.41</b>	0.87	2.30	0.1449	2.12
32	Marital status	single	123	57.75	64	31.68	<b>2.95</b>	1.93	4.50	0.0001	28.38
32a		separated	12	5.63	15	7.43	<b>0.74</b>	0.32	1.74	0.4599	0.55
32b		divorced	5	2.35	6	2.97	<b>0.79</b>	0.20	2.96	0.6933	0.16
32c		widowed	2	0.94	2	0.99	<b>0.95</b>	0.07	13.19	0.9575	
32d		married	25	11.74	90	44.55	<b>0.17</b>	0.10	0.28	<0.0001	55.61
		de-facto	46	21.60	25	12.38	<b>1.95</b>	1.11	3.43	0.0127	6.20

Table 5-11: Demographics factors between Māori attempted suicide cases and controls (question 45a, 49a-49d).

Demographics			Case		Control		Odds ratio (OR)	Confidence Interval (CI)		Probability P value	Chi-square
			No.	%	No.	%					
	Childhood	number of adults in household – 1	26	12.74	19	9.36	<b>1.40</b>	0.72	2.74	0.2925	1.11
		number of adults in household – 2	156	76.10	149	73.76	<b>1.13</b>	0.71	1.82	0.5872	0.29
		number of adults in household – 3	23	11.22	34	16.83	<b>0.62</b>	0.34	1.14	0.1032	2.65
45a		only child	19	9.27	20	9.85	<b>0.93</b>	0.46	1.90	0.8537	0.03
		Siblings	186	91.18	183	90.15	<b>1.07</b>	0.53	2.17	0.8412	0.04
49a		before high school, family own car	167	78.04	177	87.19	<b>0.52</b>	0.30	0.90	<0.014	6.03
49b		before high school, family own TV	186	86.92	192	95.05	<b>0.35</b>	0.15	0.77	<0.004	8.26
49c		before high school, family own phone	177	82.71	182	90.10	<b>0.53</b>	0.28	0.97	<0.0286	4.79
49d		washing machine	188	87.85	195	96.06	<b>0.30</b>	0.12	0.71	<0.002	9.35

## **Childhood Factors**

Few childhood factors were associated with suicidal behaviour (Table 5-11). Testing eliminated – the number of adults in the household, being an only child or having siblings, owning a car or a phone, as factors that may affect a person's suicidal behaviours. Childhood factors of owning a television (OR=0.35, CI 0.15, 0.77,  $p<0.004$ ) and washing machine (OR=0.30, CI 0.12, 0.71,  $p<0.002$ ) were associated.

## **SOCIO-ECONOMIC FACTORS**

The socio-economic factors under investigation in the Māori attempted suicide case control study were education, employment, income and assets.

### **Education**

Only six of the possible 21 variables in the education subsection were significant (Table 5-12). Leaving school before 15 years of age was associated to suicidal behaviour (OR=3.73, CI 2.03, 6.88,  $p<0.0001$ ). Leaving school after 15, 16, or 17 years (OR=0.27, 0.40, 0.38, respectively  $p<0.0001$ ) and been to a tertiary institution (OR=0.31, CI 0.14, 0.67,  $p<0.0009$ ) were the only other associated factors for Māori attempted suicide.

Only a few cases (9%) and controls (12%) were attending an educational institution when they were interviewed. The majority of these participants were attending polytechnics (6.5% and 9% respectively). Attending more than one primary (OR=0.79, CI 0.52, 1.20,  $p=0.2467$ ) or secondary school (OR=1.33, CI 0.87, 2.04,  $p=0.1714$ ) were not significantly associated to attempting suicide.

### **Employment**

Table 5-13 illustrates working (OR=0.41, CI 0.27, 0.62,  $p<0.0001$ ) as a paid worker (OR=0.47, CI 0.31, 0.71,  $p<0.0002$ ), or a homemaker (OR=0.17, CI 0.08, 0.34,  $p<0.0001$ ) were associated to suicidal behaviour. Being unemployed was also associated to suicidal behaviour (OR=5.58, CI 3.46, 9.00,  $p<0.0001$ ). Two other variables were tested but too few subjects were retired or carried out voluntary work to be able to test for difference.

### **Income**

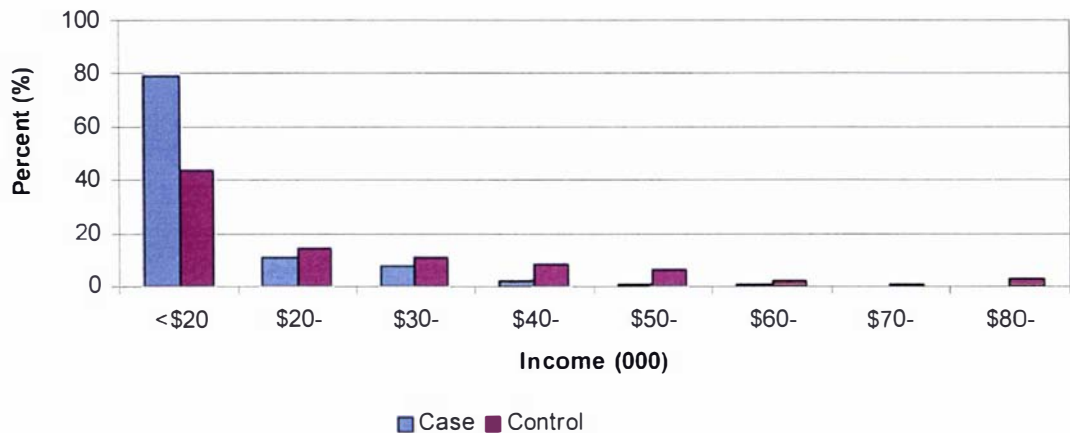
Earning an income from wages or salary (OR=0.43, CI 0.28, 0.66,  $p<0.0001$ ) and or being self-employed (OR=0.21, CI 0.06, 0.67,  $p=0.0024$ ) were associated to attempting suicide



(Table 5-13). Only 30% of cases were earning an income at the time of the study. One hundred and thirty-eight cases (64.5%) and 70 controls (34.5%) were collecting government benefits (Table 5-14). Receiving a government benefit was associated to attempting suicide (OR=3.45, CI 2.26, 5.27,  $p<0.0001$ ).

Cases received no other form of revenue, whereas five (2.5%) controls received money from Māori land and rents; three (1.5%) benefited financially from forestry; and one from their whānau, hapū and iwi. Due to the lack of cases receiving an income from these options no analysis was performed to assess difference. No subjects received any direct benefit from either the Fisheries Commission (Te Ohu Kaimoana) or Treaty of Waitangi claims.

Figure 5-10: Income distribution between Māori attempted suicide cases and controls.



Commonly cases and controls earned less than \$20,000 per year, but the controls had a higher distribution of income (Figure 5-10). Earning more than \$30,000 per year was progressively more associated to attempting suicide (Table 5-14; OR=0.24, CI 0.13, 0.42,  $p<0.0001$ ). No cases earned more than \$70,000 and only 12 (6%) controls did.

When participants were asked whether they felt better off than their parents in relation to their position in the community (OR=0.42, CI 0.27, 0.67,  $p<0.0001$ ) or in terms of wealth (OR=0.24, CI 0.15, 0.39,  $p<0.0001$ ) fewer cases were capable of answering positively.

### Asset

Owning a home (OR=0.42, CI 0.27, 0.65,  $p<0.0001$ ) or a vehicle (OR=0.27, CI 0.17, 0.41,  $p<0.0001$ ) were both associated to suicidal behaviour and being homeless (OR=4.09, CI 1.40, 12.78,  $p=0.0032$ ). Renting a home showed no association with suicidal behaviour (Table 5-14).

Table 5-12: Educational differences between Māori attempted suicide cases and controls (question 35–37b).

Education		Case		Control		Odds ratio (OR)	Confidence Interval (CI)		Probability P value	Chi-square	
		No.	%	No.	%						
35	Education	Left school ≤15 years of age	57	26.14	18	9.10	3.73	2.03	6.88	p<0.0001	22.08
35a		Left school > 15 years of age	153	72.85	180	90.91	0.27	0.15	0.49	p<0.0001	22.08
35b		Left school > 16 years of age	80	38.10	120	60.61	0.40	0.26	0.61	p<0.0001	20.61
35c		Left school > 17 years of age	34	16.19	65	32.83	0.38	0.23	0.62	p<0.0001	15.31
36a		currently at secondary	3	1.40	5	2.46	0.56	0.11	2.74	0.4303	0.62
36b		currently at polytechnic	14	6.54	18	8.87	0.72	0.33	1.57	0.3732	0.79
36c		currently at university	3	1.40	11	5.42	0.25	0.05	0.98	0.023	5.17
36		highest primary	12	5.82	2	1.03	5.97	1.25	39.13	0.0089	6.84
36.1		highest secondary	183	88.83	164	84.10	1.40	0.81	2.43	0.1974	1.66
36.2		5th form	87	40.65	76	37.44	1.14	0.76	1.73	0.5016	0.45
36.3		6th form	26	12.15	25	12.31	0.98	0.53	1.84	0.9588	0
36.4		7th form	12	5.61	26	12.81	0.40	0.19	0.87	0.0108	6.51
36.5		highest tertiary	11	5.34	29	14.87	0.31	0.14	0.67	0.0009	11
37a		attended > 1 primary school	123	58.29	129	63.86	0.79	0.52	1.20	0.2467	1.34
		attended > 2 primary schools	50	23.70	70	34.65	0.59	0.37	0.92	0.0143	6
		attended > 3 primary schools	30	14.22	42	20.79	0.63	0.37	1.09	0.0787	3.09
		attended > 4 primary schools	24	11.37	25	12.38	0.91	0.48	1.72	0.7532	0.1
		attended 1 secondary school	130	61.90	135	67.50	0.83	0.54	1.28	0.388	0.75
37b		attended > 1 secondary schools	75	35.71	65	32.50	1.33	0.87	2.04	0.1714	1.87
		attended > 2 secondary schools	28	13.66	18	9.00	1.60	0.82	3.14	0.1401	2.18
		attended > 3 secondary schools	10	4.88	5	2.50	2.00	0.61	6.85	0.2057	1.6



Table 5-13: Economic factors between Māori attempted suicide cases and controls (question 34–34.6, 41, 40a–40k).

Economic factors			Case		Control		Odds ratio (OR)	Confidence Interval (CI)		Probability P value	Chi-square
			No.	%	No.	%					
34	Employment	Employed	69	32.24	109	53.69	0.41	0.27	0.62	<0.0001	19.55
34.1		Paid	69	32.24	102	50.25	0.47	0.31	0.71	<0.0002	13.92
34.2		Homemaker	12	5.61	53	26.11	0.17	0.08	0.34	<0.0001	33.2
34.3		Student	18	8.41	19	9.36	0.89	0.43	1.84	0.7338	0.12
34.4		Unemployed	115	53.74	35	17.24	5.58	3.46	9.00	<0.0001	60.11
34.5		Retired	1	0.47	0	0.00					
34.6		Voluntary	0	0.00	8	3.94					
41		full time employment	48	22.75	84	43.08	0.39	0.25	0.61	<0.0001	19.04
40a	Income	wages/salary	66	30.84	103	50.74	0.43	0.28	0.66	<0.0001	17.07
40b		Self-employed	4	1.87	17	8.37	0.21	0.06	0.67	0.0024	9.2
40c		government benefit	138	64.49	70	34.48	3.45	2.26	5.27	<0.0001	37.42
40d		Māori land	0		5	2.46					
40e		rents	0		5	2.46					
40f		whānau/hapū/iwi	0		1	0.49					
40g		fisheries	0		0						
40h		forests	0		3	1.48					
40i		Treaty of Waitangi	0		0						
40j		investment	0		5	2.46					
40k		other	21	9.81	20	9.85	1.00	0.50	1.99	0.9893	0

Table 5-14: Economic factors (income, parental comparisons and assets) between Māori attempted suicide cases and controls (question 42-42g, 50a, 50b, 38a, 38c, 39c).

Economic factors			Case		Control		Odds ratio (OR)	Confidence Interval (CI)		Probability P value	Chi-square
			No.	%	No.	%					
42	Income	earn < \$20,000	92	43.19	79	39.30	1.17	0.78	1.77	0.4224	0.64
42a		earn ≥ \$20,000-\$29,000	121	56.81	122	60.70	0.85	0.56	1.28	0.4224	0.64
42b		earn ≥ \$30,000-\$39,000	21	9.86	63	31.34	0.24	0.13	0.42	<0.0001	29.44
42c		earn ≥ \$40,000-\$49,000	6	2.82	40	19.90	0.12	0.04	0.30	<0.0001	30.48
42d		earn ≥ \$50,000-\$59,000	2	0.94	23	11.44	0.07	0.01	0.30	<0.0001	20.06
42e		earn ≥ \$60,000-\$69,000	1	0.47	11	5.47	0.08	0.00	0.57	0.0025	9.17
42f		earn ≥ \$70,000-\$79,000	0	0.00	7	3.48					
42g		earn ≥ \$80,000	0	0.00	5	2.49					
50a	Compared to parents	position in community	45	21.03	78	38.61	0.42	0.27	0.67	<0.0001	15.39
50b		wealth	36	16.82	91	45.50	0.24	0.15	0.39	<0.0001	39.88
38a	Assets	renting	136	63.55	115	56.65	1.33	0.88	2.02	0.1506	2.07
38		home owner	48	22.43	83	40.89	0.42	0.27	0.65	<0.0001	16.43
		neither renting or owning home	19	9.36	5	2.46	4.09	1.40	12.78	0.0032	8.66
39		Vehicle	92	42.99	150	73.89	0.27	0.17	0.41	<0.0001	40.75



## **ENVIRONMENTAL FACTORS**

Two major environmental sections were included in this subsection including the social environment and interpersonal abuse.

### **Social Environment**

Māori who had close friends (OR=0.35, CI 0.15, 0.81,  $p<0.0069$ ), attended religious meetings (OR=0.31, CI 0.17, 0.58,  $p<0.0001$ ) and felt the neighbourhood they lived in had a positive sense of community (OR=0.52, CI 0.34, 0.78,  $p<0.001$ ) were associated to suicidal behaviours (Table 5-15). The amount of time Māori spent with their friends or being in trouble with the law or an authoritative figure (that is a boss, teachers, head-masters or parents) were not associated to attempting suicide for Māori.

A negative correlation to a changing personal relationship was associated to Māori suicidal behaviour (OR=4.76, CI 3.08, 7.36;  $p<0.0001$ ). Over 69% of cases had had a change in their personal relationships in the month leading up to the interview, but only 32% of the community sample.

### **Interpersonal Abuse**

Interpersonal abuse Table 5-16 was divided into two temporal distributions (recent within the last 12 months and childhood). Māori were questioned about the physical, verbal, emotional and sexual abuse they had received over these periods. All were associated to attempting suicide for Māori.

The greatest effect of abuse on suicidal behaviour was the interpersonal violence received in the previous 12 months (Table 5-16). Sexual abuse was experienced by 33 (15.5%) of the cases and five (2.5%) of the controls (OR=7.15, CI 2.49, 21.33;  $p<0.0001$ ) significantly associated to attempting suicide. Very closely behind was recent emotional (OR=6.51, CI 4.14, 10.26;  $p<0.0001$ ), physical (OR=5.45, CI 3.17, 9.41;  $p<0.0001$ ) and verbal abuse (OR=3.21, CI 2.10, 4.92;  $p<0.0001$ ).

Abuse experienced in childhood was significantly associated to attempting suicide although the association was not as strong as recently experienced abuse (Table 5-16). In childhood at least 40% of cases and 23% of controls had been sexually (OR=2.20, CI 1.40, 3.47;  $p<0.0001$ ), emotionally (OR=3.68, CI 2.40, 5.66;  $p<0.0001$ ), physically (OR=3.64, CI 2.37, 5.59;  $p<0.0001$ ) and or verbally abused (OR=3.43, CI 2.23, 5.28;  $p<0.0001$ ), all associated to attempting suicide.

Table 5-15: Environmental differences between Māori attempted suicide cases and controls (question 83–86, 95, 98–100).

Environment			Case		Control		Odds ratio (OR)	Confidence Interval (CI)		Probability P value	Chi-square
			No.	%	No.	%					
83	Social supports	close friends	189	88.32	194	95.57	0.35	0.15	0.81	0.0069	7.29
84		number see at least 1/month	186	97.89	193	98.97	0.48	0.06	3.09	0.3931	0.73
85		time seeing friends	162	86.63	160	82.90	1.34	0.73	2.44	0.3128	1.02
86	Religion	attend meetings	19	8.92	48	23.76	0.31	0.17	0.58	<0.0001	16.83
95	Sense of community	positive sense	101	47.64	127	63.82	0.52	0.34	0.78	0.001	10.85
98	Environment	in trouble with law	82	38.32	79	38.92	0.98	0.64	1.47	0.9003	0.02
99		in trouble with authoritative figure	45	21.03	47	23.15	0.88	0.54	1.44	0.6014	0.27
100		change personal relationship	149	69.63	66	32.51	4.76	3.08	7.36	<0.0001	57.32

Table 5-16: Interpersonal abuse difference between Māori attempted suicide cases and controls (question 96a–97d).

Interpersona Abuse			Case		Control		Odds ratio (OR)	Confidence Interval (CI)		Probability P value	Chi-square
			No.	%	No.	%					
96a	Recent abuse (in last 12 months)	physical	88	41.31	23	11.44	5.45	3.17	9.41	<0.0001	46.91
96b		verbal	148	69.48	83	41.50	3.21	2.10	4.92	<0.0001	32.69
96c		emotional	147	69.01	51	25.50	6.51	4.14	10.26	<0.0001	78.07
96d		sexual	33	15.49	5	2.50	7.15	2.49	21.33	<0.0001	20.79
97a	Childhood abuse	physical	135	63.68	65	32.50	3.64	2.37	5.59	<0.0001	39.96
97b		verbal	152	71.70	85	42.50	3.43	2.23	5.28	<0.0001	35.82
97c		emotional	143	67.45	72	36.00	3.68	2.40	5.66	<0.0001	40.7
97d		sexual	83	39.52	46	22.89	2.20	1.40	3.47	<0.0001	13.17

## HEALTH SERVICE UTILISATION

The utilisation of health services incorporated several areas, including the types of organisation used over the last 12 months or four weeks, and barriers to using services.

### Health Service Organisations

More cases (60.8%) than controls (46.3%) had a community services card and associated to attempting suicide (OR=1.79, CI 1.19, 2.70;  $p=0.0031$ ). Having medical insurance was associated to suicide attempt (OR=0.19, CI 0.10, 0.38;  $p<0.0001$ ). Fifty-one (25%) controls had medical insurance compared with 13 cases (6%). Both cases (90.4%) and controls (91%) were registered with a general practitioner (Table 5-17).

When asked who was responsible for their health and social services several options could be chosen including Māori organisations (OR=0.66; CI 0.27, 1.63;  $p=0.3303$ ), hospitals (OR=0.52; CI 0.29, 0.95;  $p=0.0214$ ), community health (OR=1.21; CI 0.79 1.84;  $p=0.3586$ ) and social services (OR=3.93; CI 1.75, 9.10;  $p<0.0002$ ), and private organisations – general practitioners (OR=0.49; CI 0.33, 0.74;  $p<0.0004$ ).

### Health Service Utilisation

Utilising health services (Table 5-17) over the last 12 months did not appear to be significantly associated to attempting suicide with the exception of Māori who attended a dentist (OR=0.25, CI 0.15, 0.43;  $p<0.0001$ ), health hui (OR=0.08, CI 0.00, 0.56;  $p=0.0014$ ) or seminar (OR=0.07, CI 0.00, 0.51;  $p=0.0008$ ) or had been to a nurse (OR=0.30, CI 0.17, 0.52;  $p<0.0001$ ). Although attending some of the other health organisations (general practitioner, medical specialist, naturopath, community health centre, community health worker, or Māori healer) appeared to be related but the association was not significant and may have been due to chance.

Going to a general practitioner for mental health reasons (OR=23.82, CI 5.53, 144.50;  $p<0.0001$ ) or an emergency department (OR=7.59, CI 4.32, 13.44;  $p<0.0001$ ) for either injury (OR=7.28, CI 3.57, 15.20;  $p<0.0001$ ) or other reasons (OR=26.72, CI 3.81, 535.20;  $p<0.0001$ ) in the month (Table 5-18) leading up to the interview demonstrated an association to suicidal behaviour. Other health services (Māori health service and 24 hour a day accident and emergencies) did not show significant relationships to attempted suicide.



Table 5-17: Health intervention differences between Māori attempted suicide cases and controls (question 43, 44, 79.1, 79a–79f, 80.1–80.11).

	Health Intervention	Case		Control		Odds ratio (OR)	Confidence Interval (CI)		Probability P value	Chi-square
		No.	%	No.	%					
43	Community services card	130	60.75	94	46.31	<b>1.79</b>	1.19	2.70	<0.0031	8.72
44	Medical insurance	13	6.07	51	25.12	<b>0.19</b>	0.10	0.38	<0.0001	29.02
79.1	Registered with general practitioner	189	90.43	184	91.09	<b>0.92</b>	0.45	1.89	0.819	0.05
79a	Māori organisations	10	4.67	14	6.90	<b>0.66</b>	0.27	1.63	0.3303	0.95
79b	Hospital	23	10.75	38	18.72	<b>0.52</b>	0.29	0.95	0.0214	5.29
79c	Community health centre	82	38.32	69	33.99	<b>1.21</b>	0.79	1.84	0.3586	0.84
79d	Community social service centre	33	15.42	9	4.43	<b>3.93</b>	1.75	9.10	0.0002	13.85
79e	Private organisation – general practitioner	89	41.59	120	59.11	<b>0.49</b>	0.33	0.74	<0.0004	12.77
79f	don't know	7	3.27	16	7.88	<b>0.40</b>	0.14	1.05	0.0395	4.24
80.1	last 12 months been general practitioner	157	74.41	153	75.74	<b>0.93</b>	0.58	1.49	0.7542	0.1
80.2	last 12 months been medical specialist	41	19.34	56	27.72	<b>0.63</b>	0.38	1.01	0.05	4.04
80.3	last 12 months been naturopath	3	1.42	11	5.45	<b>0.25</b>	0.04	0.97	0.0235	5.13
80.4	last 12 months been nurse	22	15.09	59	29.21	<b>0.30</b>	0.17	0.52	<0.0001	21.09
80.5	last 12 months been community health centre	25	11.79	37	18.32	<b>0.60</b>	0.33	1.07	0.0632	3.45
80.6	last 12 months been community health worker	19	9.05	19	9.41	<b>0.96</b>	0.47	1.96	0.9001	0.02
80.7	last 12 months been Māori healer	9	4.23	10	4.95	<b>0.85</b>	0.31	2.31	0.7242	0.12
80.8	last 12 months been dentist	25	11.74	70	34.65	<b>0.25</b>	0.15	0.43	<0.0001	30.77
80.9	last 12 months been health hui	1	0.47	12	5.94	<b>0.08</b>	0.00	0.56	0.0014	10.15
80.10a	last 12 months been health seminar	1	0.47	13	6.54	<b>0.07</b>	0.00	0.51	0.0008	11.23
80.11	last 12 months got prescription	142	67.62	116	57.43	<b>1.55</b>	1.02	2.36	0.0327	4.56



Table 5-18: Health intervention differences between Māori attempted suicide cases and controls (question 81.1–81.6d).

Health Intervention		Case		Control		Odds ratio (OR)	Confidence Interval (CI)		Probability P value	Chi-square
		No.	%	No.	%					
81.1	General practitioner in last month	82	38.32	59	29.06	1.52	0.99	2.33	0.0461	3.98
81.1a	Injury	8	3.74	11	5.42	0.68	0.24	1.86	0.4114	0.67
81.1b	Illness	28	13.08	26	12.81	1.02	0.56	1.89	0.9332	0.01
81.1c	Mental health	41	19.16	2	0.99	23.82	5.53	144.5	<0.0001	37.11
81.1d	Other	16	7.48	14	6.90	1.09	0.49	2.44	0.819	0.05
81.3	Emergency department in last month	97	45.33	20	9.85	7.59	4.32	13.44	<0.0001	64.79
81.3a	Injury	63	29.44	11	5.42	7.28	3.57	15.20	<0.0001	41.08
81.3b	Illness	5	2.34	7	3.45	0.67	0.18	2.40	0.4978	0.46
81.3c	Mental health	4	1.87	1	0.49	3.85	0.40	91.16	0.1972	1.66
81.3d	Other	25	11.68	1	0.49	26.72	3.81	535.2	<0.0001	22.26
81.4	Māori health service in last month	14	6.54	5	2.46	2.77	0.91	8.99	0.0461	3.98
81.4a	Injury	0	0.00	3	1.48					
81.4b	Illness	1	0.47	2	0.99					
81.4c	Mental health	6	2.80	0	0.00					
81.4d	Other	5	2.34	0	0.00					
81.6	24 hour Accident and Emergency in last month	8	3.74	8	3.94	0.95	0.32	2.83	0.9143	0.01
81.6a	Injury	3	1.40	4	1.97	0.71	0.12	3.79	0.6519	0.2
81.6b	Illness	4	1.87	1	0.49	3.85	0.40	91.16	0.1973	1.66
81.6c	Mental health	3	1.40	0	0.00					
81.6d	Other	0	0.00	1	0.49					

Table 5-19: Health intervention differences between Māori attempted suicide cases and controls (question 82–82f).

Health Intervention		Case		Control		Odds ratio (OR)	Confidence Interval (CI)		Probability P value	Chi-square
		No.	%	No.	%					
82	Prevent usage	164	76.64	96	47.29	3.66	2.35	5.69	<0.0001	38.12
82a	cost	145	67.76	72	35.47	3.82	2.50	5.86	<0.0001	43.41
82b	distance	78	36.45	15	7.39	7.19	3.84	13.65	<0.0001	50.65
82c	cultural factors	7	3.27	9	4.43	0.73	0.24	2.19	0.5373	0.38
82d	not knowing of service	8	3.74	12	5.91	0.62	0.23	1.67	0.2999	1.07
82e	no confidence	47	21.96	16	7.88	3.29	1.73	6.31	<0.0001	16.07
82f	other	8	3.74	8	3.94	0.95	0.32	2.83	0.9144	0.01

Barriers to using health services (OR=3.66, CI 2.35, 5.69;  $p<0.0001$ ) were investigated in Table 5-19. The strongest association between barriers to services and attempted suicide was the ability of participants to get to the services (OR=7.19, CI 3.84, 13.65;  $p<0.0001$ ), followed by cost (OR=3.82, CI 2.50, 5.86;  $p<0.0001$ ) and a lack of confidence in the service (OR=3.29, CI 1.73, 6.31;  $p<0.0001$ ). The greatest barrier to accessing health services measured by the largest percentage of cases and controls accessing health services was cost (Table 5-19). Other aspects like cultural factors and lack of knowledge about the service were not notably associated to suicidal behaviour among Māori.

## HEALTH INDICATORS

Health indicators for the Māori attempted suicide case control study included two well known tools of measurement, the General Health Questionnaire (GHQ-28) and the Hospital Anxiety and Depression Scale (HADS). Both of the tools scoring systems have been described in Chapter 4.

### General Health Questionnaire-28

Scoring for the GHQ-28 takes on the 0, 0, 1, 1 form. The four sections incorporating seven questions each are outlined below. An overall score and odds have been calculated when the four sections on somatic symptoms, social impairment, anxiety and depression have been amalgamated.

#### *Somatic symptoms*

When Māori were asked if they had recently *been feeling perfectly well* with possible responses – the same or better than usual, cases (22.5%) were far less likely than their counterpart controls (82.8%) to express a positive response (Table 5-20). This response was experienced across all the somatic symptoms including *needing a good drink* (33.3% cf 82.3%); *feeling run down* (20.7% cf 70.9%); *feeling ill* (42.7% cf 85.2%); *getting pains* (53.5% cf 85.2%) and having *tightness or pressure* (52.1% cf 89.2%) in their heads; and *having hot and cold spells* (79.3% cf 90.1%).

Figure 5-11 demonstrates the distribution of total somatic scores for both cases and controls. Cases are distributed evenly across the most of the scores and had a mean of 1.9. In contrast the community-based controls have a lower score distribution for somatic symptoms. Apart from three subjects who had scores of at least six, on the whole, controls had scores between zero and



seven. The mean score for controls was 0.6, considerably lower than the cases. Only 5% of cases had a zero score and 56% of controls (OR=25.61, CI 12.33, 54.67;  $p<0.0001$ ). Accounting for weighting (meshblock and within household eligibility clustering) somatic symptoms within the GHQ-28 was associated to attempting suicide (OR=2.05, CI 1.80, 2.33;  $p<0.0001$ ).

### *Anxiety*

Anxiety was measured by seven variables (Table 5-21) including sleep deprivation, strain, mood and anxiety. Scoring could be 'not at all' or 'no more than usual' (0) and 'rather' or 'much more than usual' (1). Subjects were asked if they had recently *lost sleep over worry* only 20% of cases and 72% of controls had negative responses. When asked about *staying asleep*, controls generally had little difficulty (83.3%) compared with cases (23%). The majority of cases (78%) and a few community subjects (20%) felt constantly under *strain*, similar to getting *edgy and bad tempered* (77% cf 25%), things getting *on top of you* (80% cf 20%) and *feeling nervous and strung up* all the time (74% cf 11%). The minority of cases (38%) and controls (11%) felt they were getting *scared and panicky* for no good reason.

Similar to somatic symptoms the cases distributed across scores from zero to seven (Figure 5-12), with scores peaking at six. The greatest number of controls scored zero with a mean control score of 0.6. The cases mean was much higher at 2.3. Over 50% of the controls had scores less than one compared with only 12% of the cases (OR=10.22, CI 6.15, 17.09;  $p<0.0001$ ). Accounting for weighting (meshblock and within household eligibility clustering) anxiety within the GHQ-28 was associated to attempting suicide (OR=2.03, CI 1.79, 2.32;  $p<0.0001$ ).

### *Social impairment*

Social impairment questions in the GHQ-28 were centred on time management, performance satisfaction, decision-making capabilities and enjoyment (Table 5-22). Scoring was the same as the previous subsections on somatic symptoms and anxiety. The time keeping questions investigated the participant's ability to keep *busy and occupied* and took *longer to do things*, the results indicate the cases were evenly distributed (55% & 56%, respectively) and far more controls felt they were 'better than usual' in performance (92% cf 84%, respectively). On the whole cases were worse than controls in *doing things well* (37% and 89%, respectively); *tasks completed satisfactorily* (40% cf 82%); *played a useful part* (25% cf 89%); *decision making* (34% cf 92%) and *enjoying normal day-to-day activities* (22% cf 84%).



Table 5-20: GHQ-28; somatic symptoms scores between Māori attempted suicide cases and controls.

Somatic symptoms		Case scores (numbers and percent)				Control scores (numbers and percent)			
		0	%	1	%	0	%	1	%
51	felt well	48	22.5	165	77.5	168	82.8	35	17.2
52	needed a drink (alcohol)	71	33.3	143	66.7	167	82.3	35	17.7
53	felt run down	44	20.7	169	79.3	144	70.9	59	29.1
54	felt ill	91	42.7	123	57.3	173	85.2	30	14.8
55	got pains in head	114	53.5	100	46.5	173	85.2	30	14.8
56	got tightness pressure in head	111	52.1	103	47.9	181	89.2	22	10.8
57	had hot and cold spells	169	79.3	43	20.7	183	90.1	20	9.9

Figure 5-11: GHQ-28 score; somatic symptom distribution between Māori attempted suicide cases and controls

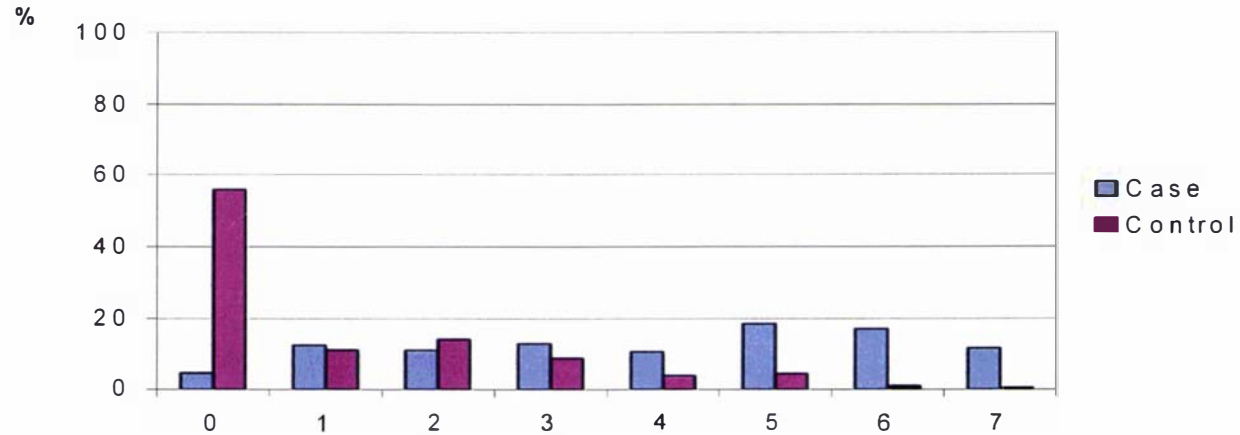


Table 5-21: GHQ-28; anxiety scores between Māori attempted suicide cases and controls.

Anxiety		Case scores (numbers and percent)				Control scores (numbers and percent)			
		0	%	1	%	0	%	1	%
58	lost sleep over worry	42	19.7	172	80.3	147	72.4	56	27.6
59	had difficulty staying asleep	49	23	165	77	169	83.3	34	16.7
60	felt under strain	46	21.6	168	78.4	163	80.3	40	19.7
61	got edgy and bad tempered	50	23.5	153	76.5	152	74.8	51	25.2
62	got scared and panicky no reason	132	62	82	38	181	89.2	22	10.8
63	everything was getting on top of you	42	19.7	172	80.3	163	80.3	40	19.7
64	felt nervous and strung up	77	36.2	137	73.8	181	89.2	22	10.8

Figure 5-12: GHQ-28 score; anxiety distribution between Māori attempted suicide cases and controls.

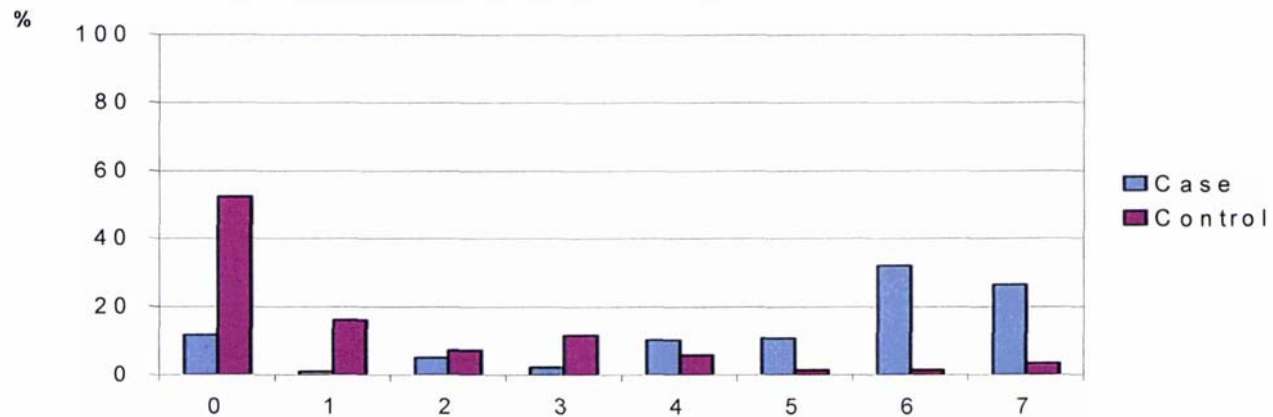


Table 5-22: GHQ–28; social impairment scores between Māori attempted suicide cases and controls.

Social Impairment		Case scores (numbers and percent)				Control scores (numbers and percent)			
		0	%	1	%	0	%	1	%
65	managed to keep busy and occupied	118	<b>55.4</b>	96	44.6	186	<b>91.6</b>	17	8.4
66	took longer to do things	120	<b>56.3</b>	94	43.7	170	<b>83.7</b>	33	16.3
67	did things well	79	<b>37.1</b>	135	62.9	181	<b>89.2</b>	21	10.8
68	satisfied with tasks completed	85	<b>39.9</b>	129	40.1	166	<b>81.8</b>	36	9.2
69	felt playing useful part	54	<b>25.4</b>	160	74.6	181	<b>89.2</b>	22	10.8
70	felt capable making decisions	72	<b>33.8</b>	142	66.2	187	<b>92.1</b>	16	7.9
71	Enjoyed normal activities	47	<b>22.1</b>	167	77.9	171	<b>84.2</b>	32	15.8

Figure 5-13: GHQ–28 score; social impairment distribution between Māori attempted suicide cases and controls.

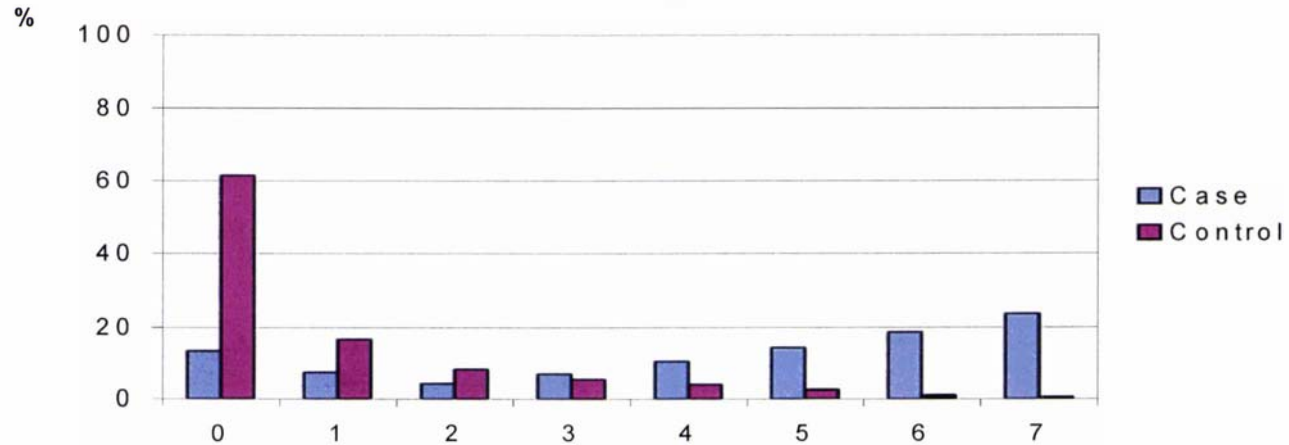
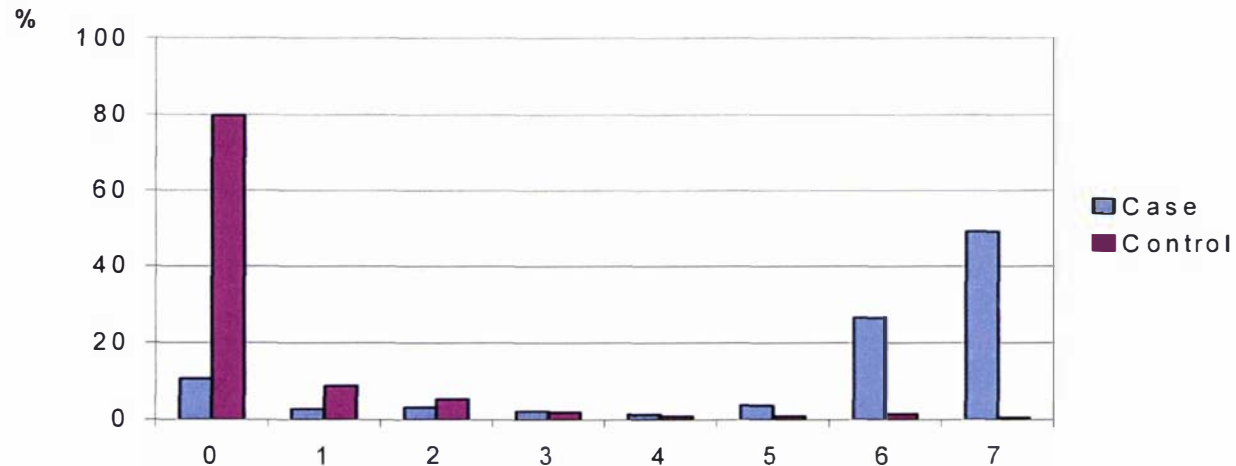


Table 5-23: GHQ-28; depression scores between Māori attempted suicide cases and controls.

Depression		Case scores (numbers and percent)				Control scores (numbers and percent)			
		0	%	1	%	0	%	1	%
72	thought you're worthless	46	21.6	168	78.4	185	91.1	18	8.9
73	thought life is hopeless	40	18.8	174	81.2	189	93.1	14	6.9
74	thought life isn't worth living	43	20.2	170	79.8	196	96.6	7	3.4
75	thought possibility do away with yourself	35	16.4	178	83.6	183	90.1	20	9.9
76	couldn't do anything because of nerves	94	44.1	119	55.9	192	94.6	11	5.4
77	wished you were dead and away from it all	42	19.7	171	80.3	194	95.6	9	4.4
78	had idea of taking your life	29	13.6	184	86.4	187	92.1	16	7.9

Figure 5-14: GHQ-28 score; depression distribution between Māori attempted suicide cases and controls.





The distribution of social impairment (Figure 5-13) is more pronounced among the controls than the cases. Controls have a single very defined peak score of zero (with a mean of 0.4). Approximately 79% of the controls had scores less than two for social impairment. The corresponding cases have a broader even distribution of scores from zero through to the highest possible score (seven). The frequency of scores peaked at six and seven and the mean for the distribution was two. Over 50% of the cases had total scores over five for anxiety (OR=8.26, CI 4.88, 14.07;  $p<0.0001$ ). Accounting for weighting (meshblock and within household eligibility clustering) social impairment within the GHQ-28 was associated to attempting suicide (OR=1.90, CI 1.65, 2.18;  $p<0.0001$ ).

### *Depression*

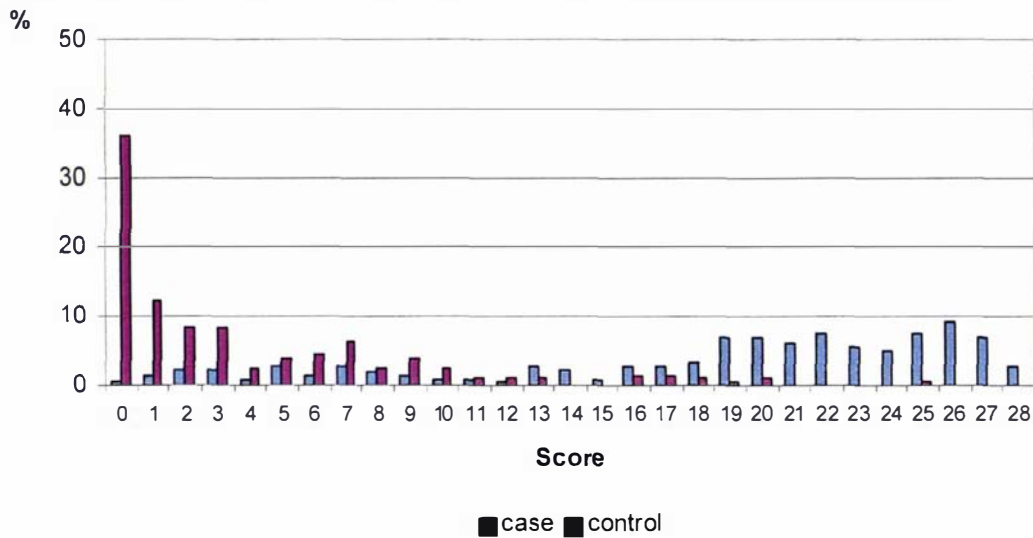
The biggest difference in GHQ-28 scores for this study was in depression (Table 5-23). Over 90% of all the controls responded negatively to all the questions about depression only 44% (13) of the cases did. The four responses could vary from 'definitely not' (0 score) through to 'definitely had' (1 score). When questions were raised with cases and controls about, thinking themselves *worthless* (78% cf 9%); life being *hopeless* (81% cf 7%); life *not worth living* (80% cf 3%); having thoughts of the possibility *doing away with themselves* (84% cf 10%); couldn't do anything because of *nerves* (56% cf 5%); wishing they were *dead and away from it all* (80% cf 4%) and the idea of *taking their lives* coming into their heads (86% cf 8%), there were proportionately more cases than controls.

As Figure 5-14 shows 162 (80%) controls scored the lowest possible total of zero for depression, whereas 49% (105) of the cases scored seven (OR=32.81, CI 18.28, 59.39;  $p<0.0001$ ). Accounting for weighting (meshblock and within household eligibility clustering) depression within the GHQ-28 was associated to attempting suicide (OR=2.25, CI 1.92, 2.64;  $p<0.0001$ ).

### *GHQ-28 score*

Based on a total GHQ-28 score (Figure 5-15) of more than four for participants with a poor general health status, there were 66 controls (33%) and 198 cases (92.5%). Poor general health status was strongly associated to attempted suicide (OR=25.69, CI 13.80, 48.44;  $p<0.0001$ ). Accounting for weighting (meshblock and within household eligibility clustering) the GHQ-28 was associated to attempting suicide (OR=1.29, CI 1.22, 1.35;  $p<0.0001$ ).

Figure 5-15: GHQ-28 total score between Māori attempted suicide cases and controls



### Hospital Anxiety and Depression Scale

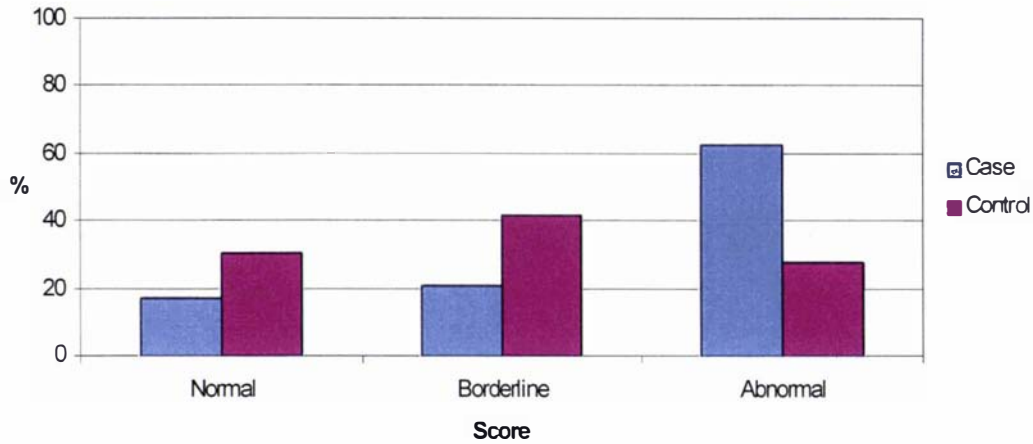
Two major parts are incorporated into the Hospital Anxiety and Depression Scale (HADS). Anxiety is measured through seven items about feeling tense, frightened, worried, relaxed, restlessness and panicked. The seven depression items investigated enjoyment, happiness, motivation, personal appearance and future. Scoring for the HADS was 0, 1, 2, 3 where zero was a positive result and three negative.

#### Anxiety

Seven anxiety items (Table 5-24) inquired with respect to cases and controls about feeling *tense and wound up* (64.4% cf 12.9%), *frightened* (54% cf 28.9%), *worried* (83.1% cf 29.9%), *relaxed* (35.2% cf 91.5%), *frightened like butterflies in stomach* (20.1% cf 7.5%), *restless* (56.8% cf 31.8%) and *panicked* (40.8% cf 10.9%). In all of the anxiety questions more controls than cases scored zero or one compared with cases who scored between two and three.

Figure 5-16 shows the cases (62.4%) exhibiting abnormal levels of anxiety (scores 11-21) were greater than the proportion of controls (27.7%). There were 44 cases (20.7%) and 84 controls (41.6%) with borderline abnormal levels (scores 8-11) of anxiety and only 36 cases (17%) compared with 62 controls (30.7%) had normal levels (scores 0-7) of anxiety. Accounting for weighting (meshblock and within household eligibility clustering) HADS-Anxiety was associated to attempting suicide (OR=1.37, CI 1.28, 1.46; p<0.0001).

Figure 5-16: HADS–Anxiety between Māori attempted suicide cases and controls.



### Depression

Both cases and controls experienced a level of depression as measured by the HADS–Depression (Table 5-25). However, the majority of cases were depressed compared with only few controls. The seven questions asked about lack of *enjoyment* (46% cf 92.6%); not *laughing* (50.7% cf 1%), not being *cheerful* (40.8% cf 5.9%), *slowed down* (29.1% cf 13.9%), *lost interest in appearance* (24.9% cf 16.3%), *not looking forward* to things (46.5% cf 7.4%) and *not enjoy* things (44.1% cf 3.5%). Cases were commonly scored as depressed compared to controls. The distribution of depression among cases (scores 0-21) in comparison to controls (scores 4-13) was wider (Figure 5-19).

Figure 5-17: HADS–Depression between Māori attempted suicide cases and controls.

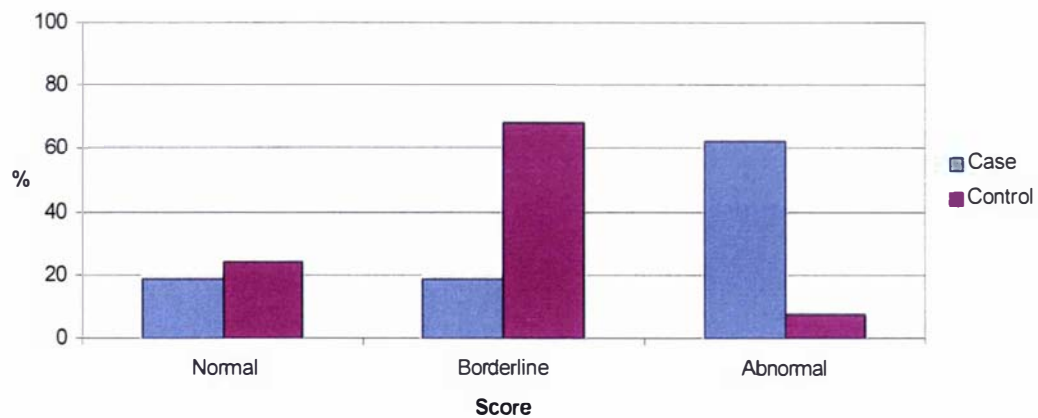


Figure 5-17 shows a greater proportion cases (62%) had abnormal levels of depression compared with controls (7.5%). Similar proportions of cases (19%) and controls (24%) were normal, and a higher proportion of controls (68%) than cases (19%) were borderline depressed.

Table 5-24: HADS–Anxiety scores between Māori attempted suicide cases and controls.

Anxiety		Case				Control			
		0	1	2	3	0	1	2	3
101	felt tense and wound up	14	62	63	74	67	108	17	10
103	had frightened feeling as if something awful going to happen	61	37	55	60	107	42	38	15
105	had worrying thoughts	13	23	55	122	56	86	33	27
107	sat at ease and felt relaxed	14	61	105	33	74	110	18	0
109	got frightened feeling like butterflies in stomach	56	95	35	27	105	81	10	4
111	felt restless	61	31	65	56	77	60	46	19
113	had sudden feeling of panic	69	57	65	22	111	68	16	7

Figure 5-18: HADS–Anxiety distribution totals between Māori attempted suicide cases and controls.

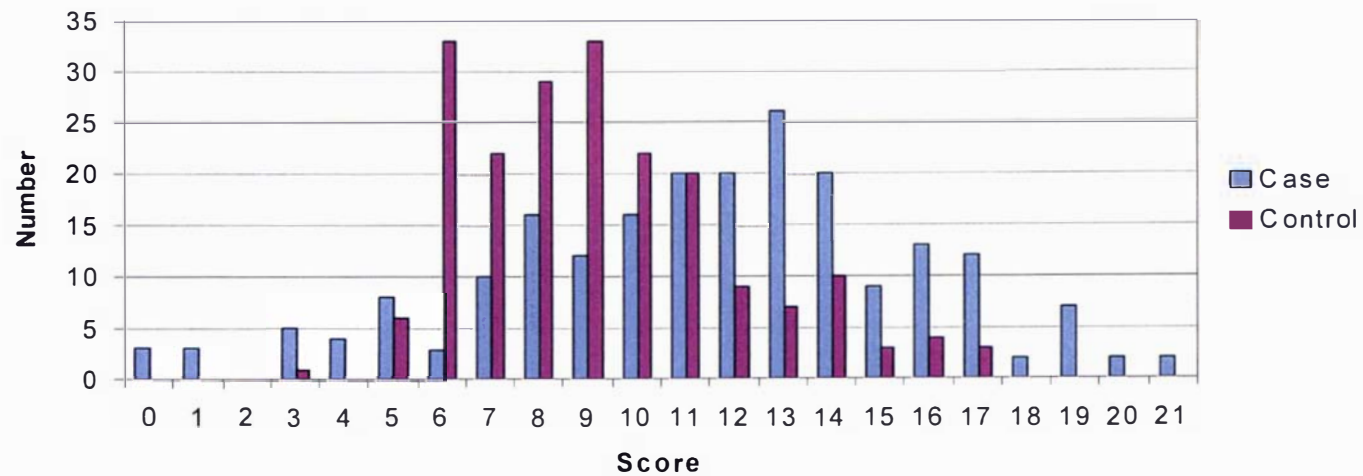
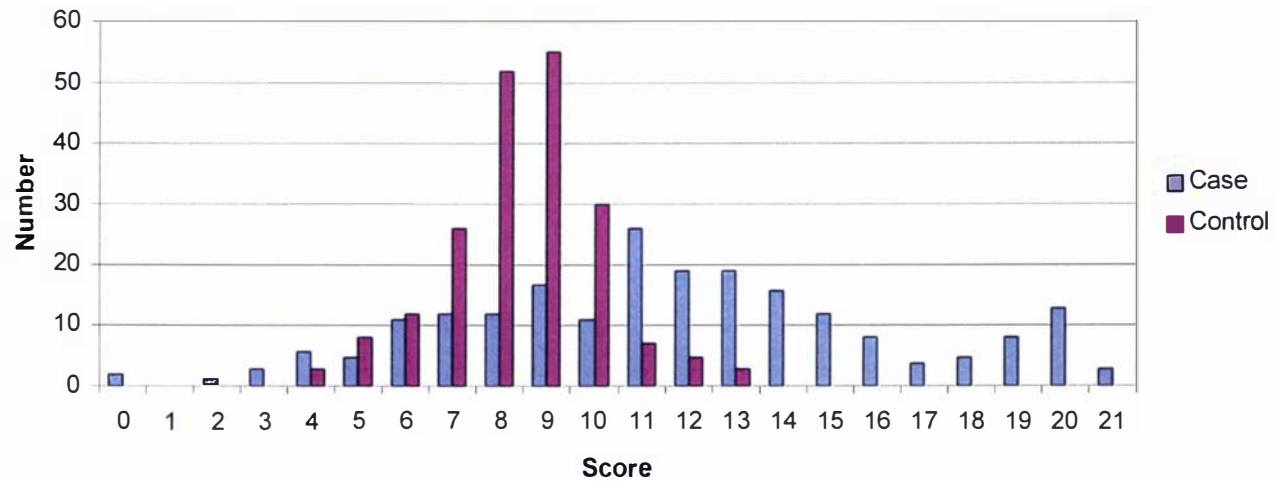




Table 5-25: HADS–Depression scores between Māori attempted suicide cases and controls.

Depression		Case				Control			
		0	1	2	3	0	1	2	3
102	still enjoy thing used to enjoy	39	59	64	51	117	70	13	2
104	laughed and see funny side	52	53	71	37	171	29	2	0
106	felt cheerful	30	96	60	27	130	60	11	1
108	felt slowed down	93	58	33	29	77	97	22	6
110	lost interest in appearance	101	59	40	13	120	48	24	9
112	looked forward to things	40	74	50	49	159	27	11	4
114	enjoyed book, radio, television	41	78	35	59	149	46	5	2

Figure 5-19: HADS–Depression distribution totals between Māori attempted suicide cases and controls.



Accounting for weighting (meshblock and within household eligibility clustering) HADS-Depression was associated to attempting suicide (OR=1.54, CI 1.41, 1.68;  $p<0.0001$ ).

#### Mental Ill Health

Nine additional questions about mental ill health were posed about diagnosis, mental health service utilisation, medication uptake, whānau and environmental history of mental ill health and self-harm (Table 5-26).

Of the nine questions five had significant findings in association with attempted suicide. Forty-three percent of the cases and almost 10% of the controls had had a diagnosis of a mental health or psychiatric disorder. Therefore, a diagnosis was associated to attempting suicide (OR=6.79, CI 3.86, 12.04;  $p<0.0001$ ). Ever being (OR=13.7, CI 6.59, 29.13;  $p<0.0001$ ) or currently under the care of mental health services was also associated (OR=53.96, CI 12.75, 323.01;  $p<0.0001$ ) to suicidal behaviour. Ever having taken (OR=6.26, CI 3.59, 10.99;  $p<0.0001$ ) or currently taking medication for mental ill health was also associated (OR=3.03; CI 1.83, 5.04;  $p<0.0001$ ) for attempted suicide among Māori.

Four of the questions about whānau history and growing up with someone with a psychiatric disorder or self-harm behaviours were not significantly associated to attempting suicide.

## SUBSTANCE UTILISATION

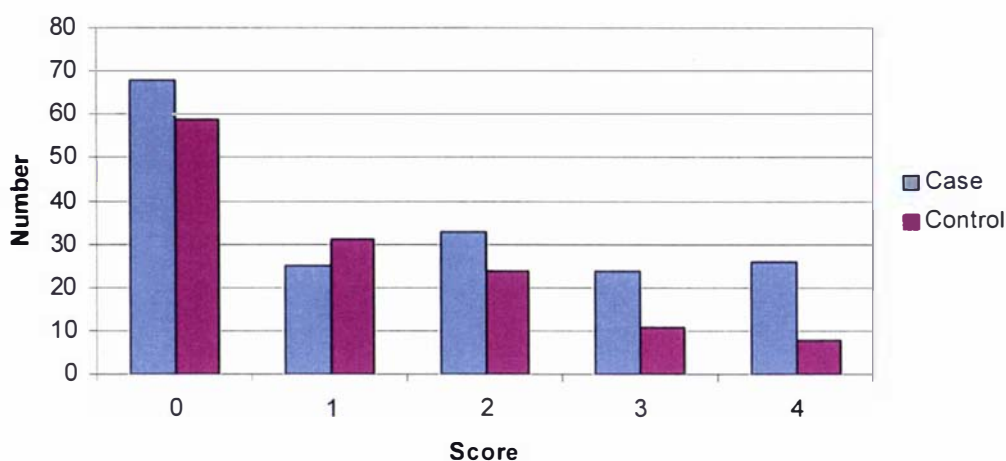
Questions about alcohol, marijuana and other illicit drug use were also incorporated into the study. Substance questions included consumption, frequency and the CAGE alcohol screening test.

### Alcohol

The proportion of cases (95.8%) and controls (90.6%) who had *ever* drunk alcohol was relatively similar (Table 5-27). There was, however, a significant difference between the cases and controls when *current* alcohol consumption was accounted for. Cases (82%) had a much higher percentage of current alcohol consumption than controls (67%). Currently drinking Māori (OR=2.21, CI 1.37, 3.57;  $p<0.0005$ ) were associated to suicidal behaviour. The frequency with which Māori drink alcohol affects the level of association to attempted suicide. Those who drink alcohol 2–7 days per week have a negative association (OR=4.43, CI 2.67, 7.38;  $p<0.0001$ ).

The CAGE alcohol screening test has four indicators to determine whether alcohol consumption is a problem. The majority of both the cases and the controls did not respond positively to the four questions (Figure 5-20).

Figure 5-20: CAGE distribution of total score between Māori attempted suicide cases and controls.



The first indicator to *cut down* on drinking was experienced by the cases and controls equally (40.6% cf 40.4%) so was not significantly different. The second indicator of being *annoyed* by people criticising their drinking (48% cf 22.8%), double the number of cases compared with controls answered yes and this was significantly different (OR=3.13, CI 1.85, 5.31;  $p<0.0001$ ). With the third indicator of the CAGE, a higher proportion of cases (31.4%) than controls (25.2%) *felt bad or guilty* because of their drinking (OR=1.36; CI 0.8, 2.32;  $p=0.2614$ ) but was not a significant factor. Finally, when asked whether they had *drunk alcohol first thing in the morning to steady nerves or get rid of hangover* there was a significantly different response between cases and controls (OR=2.61; CI 1.4, 4.87;  $p=0.0011$ ).

More cases than controls responded negatively to the CAGE questions as a whole (Figure 5-20). Only when a single positive response was indicated out of the four questions did the number of controls exceed the number of case responses. Cases exhibited more positive answers to questions 2-4, while the controls showed the inverse relationship.

## Marijuana

Marijuana consumption (Table 5-28) was associated to suicidal behaviour (OR=3.88, CI 2.53, 5.95;  $p<0.0001$ ). Sixty-eight percent of the cases had consumed marijuana in the previous year compared with 36% of the controls. However, the percentage of Māori who smoke marijuana *daily* was not significantly different between cases and controls. If

Table 5-26: Mental ill health diagnosis, care, whānau and environmental history between Māori attempted suicide cases and controls.

Mental Ill Health		Case		Control		Odds ratio (OR)	Confidence Interval (CI)		Probability P value	Chi-square
		No.	%	No.	%					
115	Diagnosis	91	42.72	20	9.90	<b>6.79</b>	3.86	12.04	p<0.0001	56.87
116	ever under care mental health services	89	41.59	10	4.95	<b>13.67</b>	6.59	29.13	p<0.0001	76.73
117	currently under mental health services	75	35.05	2	0.99	<b>53.96</b>	12.75	323.01	p<0.0001	79.71
118	ever taken medication	90	42.06	21	10.40	<b>6.26</b>	3.59	10.99	p<0.0001	53.11
119	currently taking medication	74	34.58	30	14.85	<b>3.03</b>	1.83	5.04	p<0.0001	21.52
120	whānau history	58	27.10	43	21.29	<b>1.37</b>	0.85	2.22	0.151	2.06
121	grew up with someone	56	26.17	47	23.27	<b>1.17</b>	0.73	1.87	0.4938	0.47
122	whānau history of self-harm	57	26.64	40	19.80	<b>1.47</b>	0.91	2.39	0.0999	2.71
123	grew up with someone who self-harmed	66	30.84	54	26.73	<b>1.22</b>	0.78	1.91	0.3558	0.85

Table 5-27: Alcohol utilisation and CAGE scale between Māori attempted suicide cases and controls.

Alcohol			Case		Control		Odds ratio (OR)	Confidence Interval (CI)		Probability P value	Chi-square
			No.	%	No.	%					
124	Alcohol	ever drunk alcohol	205	95.79	184	90.64	<b>2.35</b>	0.98	5.77	0.0358	4.41
125		currently drink alcohol	175	81.78	136	67.00	<b>2.21</b>	1.37	3.57	0.0005	11.98
126		frequency of drinking 2-7/week	123	70.92	47	34.81	<b>4.43</b>	2.67	7.38	p<0.0001	38.59
129	CAGE	felt should cut down	71	40.57	55	40.44	<b>0.98</b>	0.60	1.59	0.9332	0.01
130		annoyed by others criticism	84	48.00	31	22.79	<b>3.13</b>	1.85	5.31	p<0.0001	20.03
131		felt guilty/bad	55	31.43	34	25.19	<b>1.36</b>	0.80	2.32	0.2614	1.26
132		morning drink	53	30.29	19	13.97	<b>2.61</b>	1.40	4.87	0.0011	10.73



Table 5-28: Marijuana consumption between Māori attempted suicide cases and controls.

Marijuana		Case		Control		Odds ratio (OR)	Confidence Interval (CI)		Probability P value	Chi-square
		No.	%	No.	%					
133	Marijuana	146	68.22	72	35.64	3.88	2.53	5.95	p<0.0001	44.12
	daily	21	9.81	15	7.43	1.36	0.65	2.86	0.3873	0.75
	more than 1/week	61	28.50	17	8.42	4.34	2.35	8.08	p<0.0001	27.46
	weekly	14	6.54	11	5.45	1.22	0.50	2.95	0.6385	0.22
	fortnightly	9	4.21	4	1.98	2.17	0.60	8.53	0.1928	1.70
	monthly	23	10.75	12	5.94	1.91	0.88	4.20	0.0779	3.11

Table 5-29: Other illicit drug utilisation between Māori attempted suicide cases and controls.

Other illicit drugs		Case		Control		Odds ratio (OR)	Confidence Interval (CI)		Probability P value	Chi-square
		No.	%	No.	%					
134	Illicit drugs	88	41.12	21	10.40	6.02	3.45	10.58	p<0.0001	50.61
	daily	10	4.67	2	0.99	4.90	0.99	32.81	0.025	5.02
	more than 1/week	20	9.35	3	1.49	6.84	1.89	29.40	0.0005	12.26
	weekly	3	1.40	1	0.50	2.86	0.26	71.87	0.3441	0.90
	fortnightly	3	1.40	1	0.50	2.86	0.26	71.87	0.3441	0.90
	monthly	8	3.74	5	2.48	1.53	0.45	5.48	0.4598	0.55

marijuana is consumed more than *once a week*, association to suicidal behaviour increased (OR=4.34, CI 2.35, 8.08;  $p<0.0001$ ). Less frequent utilisation was not significantly different between cases and controls.

### **Other Illicit Drug Use**

Fifty-nine percent of the cases and 90% of the controls had not used other illicit drugs (Table 5-29). Utilisation of illicit drugs (other than marijuana) in the previous 12 months was associated to suicidal behaviour (OR=6.02, CI 3.45, 10.58;  $p<0.0001$ ). The frequency of consumption is only related if drugs are consumed more than once a week (OR=6.84, CI 1.89, 29.40;  $p<0.0005$ ). Any other consumption had no significant association between cases and controls.

## **SUICIDALITY**

Two measures of suicidality were used in the Māori attempted suicide case control study, the Composite International Diagnostic Interview and Beck's Scale of Suicide Intent.

### **Composite International Diagnostic Interview – Suicidality**

The CIDI asks questions about suicidal behaviour over a life-time (Table 5-30). The majority of the cases had thought of (93.5%), planned (85%) and/or attempted suicide (97%) in their lifetime. Smaller proportions community based controls had thought of (37%), planned (12%) or attempted suicide (11%).

Looking at suicidal behaviour over the previous 12 months, 92% of cases had thought about it, 82% had made plans and 97% said they had attempted suicide (208 of the 214 cases), compared with controls (7% thoughts, 1% plans and 1% attempted, respectively).

Three remaining questions based on resulting injuries, medical attention and overnight hospitalisation after a self-harm event revealed that 97.7% of the cases' actions resulted in injuries, 99.5% required medical attention and 65% required overnight hospitalisation. Sixty percent of the controls who had attempted suicide caused an injury, 45% required medical attention and 15% required overnight hospitalisation.

### **Becks' Scale of Suicide Intent.**

Fourteen of the fifteen Beck's Scale of Suicide Intent questions were used to assess the level of suicidal intent of the cases who had presented to the three Auckland public hospitals. Forty percent of the cases (87) had someone nearby (in visual or vocal contact) or *present* at the

time of their attempt. Asked whether they could have been *stopped*, 45% (96) said it was highly unlikely.

Most of the cases (58.9%) said they made no *precautions* against being discovered and/or interrupted. Forty-five percent made no attempt to *contact* anyone during or after their self-harm. Most (53%) of the cases took *last steps in expectation of death*. In *preparation* of self-harm the majority of cases did very little (67%). Very few Māori (85%) left *notes* or told anyone of their *intentions* (57%).

For the majority of the cases the purpose of the self-harm was to *escape and/or solve* problems (71%), 57% were *unsure* of their purpose and 31% *exceeded* the act's *lethality*. Cases generally believed they seriously attempted to *end their lives* (58%). Fewer cases did *not want to live* (30%) compared with those who *wanted to die* (35%) or *wanted to die and not live* (35%). Most of the cases were uncertain whether *medical attention* could have saved them (51%) and the level of *impulsivity* was relatively high. Only a quarter of the cases had thought about the suicide attempt more than three hours before performing it.

Table 5-30: Beck's scale of suicidal intent in Māori attempted suicide cases.

Beck's Scale of Suicidal Intent		0	1	2
145	Present	66	87	61
146	Prevent	69	48	96
147	Precautions	126	64	24
148	Gain help	57	61	96
149	Last steps	101	90	23
150	Preparation	143	58	13
151	Note	182	5	27
152	Ill intentions	123	64	27
153	Purpose	21	153	37
154	Method lethality	23	122	67
155	Seriousness	20	69	125
156	Live or die	65	71	75
157	Medical saviour	24	110	77
158	Impulsivity	120	46	47
	Mean	81	75	57

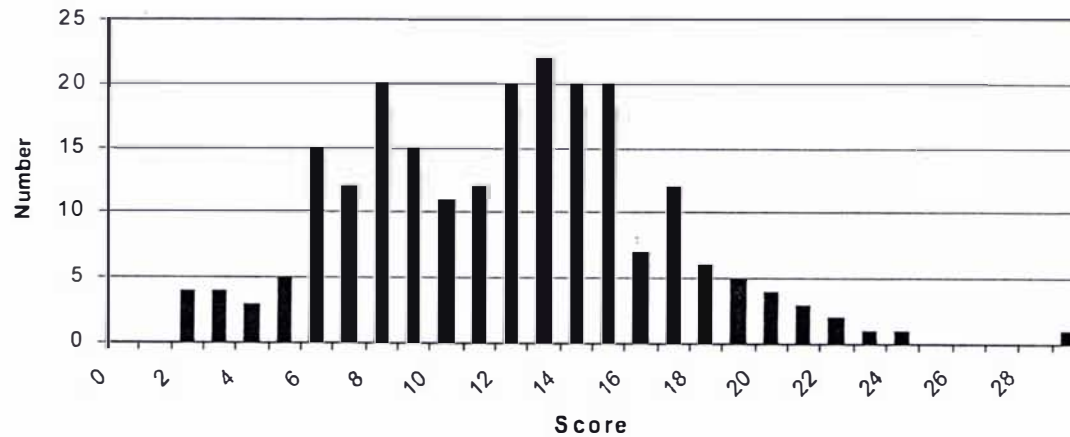
As Figure 5-21 indicates, cases of Māori attempted suicide had a broad level of suicidal intent. The mean for suicidal intent for the case population was 12.



Table 5-31: Composite International Diagnostic Index – Suicidality.

	Suicidality	Case		Control		Odds ratio (OR)	Confidence Interval (CI)		Probability P value	Chi-square
		No.	%	No.	%					
135	ever thought about suicide	200	93.46	75	37.13	24.00	12.56	46.58	p<0.0001	145.8
136	thoughts last 12 months	197	92.06	14	7.14	150.65	68.38	339.89	p<0.0001	294.6
137	ever planned suicide	182	85.05	24	11.88	42.18	23.07	77.85	p<0.0001	222
138	planned in last 12 months	175	81.78	2	1.03	433.01	99.85	2635.45	p<0.0001	270.4
139	ever attempted suicide	207	96.73	22	10.89	241.95	94.97	646.10	p<0.0001	308.7
141	attempted in last 12 months	208	97.02	2	1.05	3276.00	580.00	25095.3	p<0.0001	372.8
142	resulted in injury	208	97.65	12	60.00	27.72	6.83	118.66	p<0.0001	48.99
143	required medical attention	212	99.53	9	45.00	259.11	28.47	5996.21	p<0.0001	110.8
144	required overnight hospitalisation	138	64.79	3	15.00	10.43	2.76	46.33	p<0.0001	18.89

Figure 5-21: Beck's scale of suicide intent: distribution of Māori attempted suicide cases.





## CHAPTER SUMMARY

It took 530 days (less than 18 months) to select the 250 Māori cases of attempted suicide from the three Auckland district health board regions. Each of these regions had extremely high rates of attempted suicide for Māori during the study. A response rate of 85.6% for the cases was very high, matched by the control attrition rate of 18.8%. Three thousand and forty-five households were randomly visited throughout the Auckland region to recruit the 250 controls. The controls interviewed were slightly older than the cases but not significantly. Participant refusals were more likely to be due to non-contact, be female and originate from the North Shore Hospital or Waitemata region.

Cultural indicators were protectively associated to attempted suicide for Māori and included knowledge of whakapapa, iwi, hapū and waka; marae accessibility; comfort at hui and tangihanga; whānau contact; having a confidante and children; having access to whenua and marae committees; being able to prepare traditional kai; and speaking, understanding, using and learning te reo Māori. Indicators that were negatively associated to attempted suicide included sole Māori self-identification and knowledge of tikanga.

The distribution of age and gender between the two study populations was the same; being gay, lesbian or bisexual was not associated to Māori attempted suicide; living with others and being married were protectively associated.

Socioeconomic factors protectively associated to attempted suicide were: leaving school after 15 years of age and going to a tertiary institution; being in paid employment or a homemaker; earning more than \$30,000 annually; owning a home and vehicle; having medical insurance; accessing general practitioners, dentists, health hui, health seminars, or nurses for health services. However, being unemployed, being in receipt of on a government benefit, having a community services card and being prevented from accessing health service was negatively associated.

A person's social environment was important. Having close friends, attending religious meetings and having a strong sense of community were all positively associated. However being verbally, sexually, emotionally or physically abused either in childhood or the previous 12 months were negatively associated.

Health indicators used in the study included the GHQ--28 and the HADS each of which had individual factors measuring anxiety and depression. Both suffering from anxiety and

depression were negatively associated to Māori attempted suicide. The GHQ-28 had two more aspects to its composition, somatic symptoms and social impairment, both of which were negatively associated to attempting suicide. The overall GHQ-28 results were also significantly negatively associated to Māori attempted suicide. Being diagnosed with a mental health disorder, being under the care of mental health services, and taking medication was also negatively associated. Whānau history and growing up with someone with a psychiatric disorder or self-harm behaviours were not associated to Māori attempted suicide. Current alcohol, marijuana and illicit drug use were all associated to Māori attempted suicide. Indicators of suicidality were all highly associated to suicidal behaviour. Most of the cases had a history of suicidal ideation, plans, and attempts, as did some of the controls. The level of suicide intent was variable.

## CHAPTER 6

# KAINAMU WHAKAMOMORI HAUORA: MĀORI HEALTH STATUS AND ATTEMPTED SUICIDE

Ngā Peke Hauora – Health Strands	Ngā Rau Hauora – Health Threads
Broad Approach	Introduction
Health Descriptors	General Health Questionnaire–28 Hospital Anxiety and Depression Scale Interpersonal abuse Substances Health service Suicidality
Health Indicators Gender Age Income Education Employment Interpersonal abuse Substance utilisation	General Health Questionnaire–28 Hospital Anxiety and Depression Scale Substances Interpersonal abuse Suicidality
Health Model	Multivariate analysis

### INTRODUCTION

This chapter is divided into three main sections. The first describes health indicators and their relationship with attempted suicide. The second illustrates how these health indicators relate

to demographics, socio-economic status, interpersonal abuse and substance use. The last section is a model of the health indicators and their relationship with Māori attempted suicide.

## HEALTH DESCRIPTORS

Six health indicators are described in this section. These include the General Health Questionnaire (GHQ–28), Hospital Anxiety and Depression Scale (HADS), interpersonal abuse, substance use, health service use and suicidality.

### General Health Questionnaire–28

Separate logistic regression models weighted for the meshblock clustering effect and household eligibility, and adjusting for age and gender were used to investigate whether the level of somatic symptoms, social impairment, anxiety and depression as measured by the GHQ–28 were associated to attempting suicide.

Table 6-1: Crude General Health Questionnaire–28 individual factors and overall total score, adjusted for gender and age.

GHQ–28	OR (95%CI)	OR Adjusted for age & gender (95% CI)	Chi-squares ( $X^2$ ), P value
Somatic symptom	2.05 (1.80, 2.33)	2.15 (1.80, 2.49)	$X^2_1 = 10.53; p < 0.0001$
Anxiety	1.90 (1.65, 2.18)	1.90 (1.65, 2.23)	$X^2_1 = 60.13; p < 0.0001$
Social impairment	2.03 (1.79, 2.32)	2.06 (1.79, 2.38)	$X^2_1 = 97.35; p < 0.0001$
Depression	2.25 (1.92, 2.64)	2.29 (1.92, 2.69)	$X^2_1 = 99.65; p < 0.0001$
Total	1.29 (1.22, 1.35)	1.30 (1.22, 1.38)	$X^2_1 = 71.01; P < 0.0001$

As Table 6-1 illustrates all of the individual components and the overall GHQ–28 score were associated to attempting suicide. After adjusting for gender and age there was little change to the weighted odds ratio (OR). An overall poor general health status increased the risk of being a case of Māori attempted suicide (OR=1.3, CI 1.22, 1.38,  $p < 0.0001$ ).

The OR indicated an increase in risk for every increase of one point in the GHQ score, so for example, through somatic symptoms there is approximately a doubling of risk for every item ticked as present.

### Hospital Anxiety and Depression Scale

Separate logistic regression models weighted for meshblock clustering effect and household eligibility, and adjusting for age and gender were used to investigate whether the levels of anxiety and depression as measured by the HADS were associated to attempting suicide. As with the GHQ–28 the HADS shows that when anxiety and depression are present there is an



association (Table 6-2), even after gender and age are adjusted for the OR remains unchanged.

Table 6-2: Crude Hospital Anxiety and Depression Scale adjusted for gender and age.

HADS	OR (95% CI)	OR Adjusted for age & gender (95% CI)	Chi-squares ( $X^2$ ), P value
Anxiety	1.37 (1.28, 1.46)	1.37 (1.28, 1.46)	$X^2_1 = 74.96$ ; $p < 0.0001$
Depression	1.54 (1.41, 1.68)	1.54 (1.41, 1.68)	$X^2_1 = 67.71$ ; $p < 0.0001$

Although the GHQ-28 and HADS odds ratios cannot be compared directly they both indicate a negative association to suicide attempt.

### Interpersonal Abuse

Two temporal distributions of interpersonal abuse (during childhood and/or over the previous year) within four types of abuse (physical, verbal, emotional and sexual abuse) are discussed.

#### *Childhood abuse*

Fewer cases and controls were exposed to physical, verbal, emotional and sexual abuse over their childhoods (Figure 6-1 to Figure 6-4).

There were 75 cases (36%) and 135 controls (67.5%) who were not physically abused in their childhood (Figure 6-1). Of the remaining cases ( $n=135$ , 64%) and controls ( $n=65$ , 32.5%) who had been abused (OR=3.6, CI 2.4, 5.6;  $p < 0.0001$ ), frequencies of physical abuse between cases and controls were monthly ( $n=60$ , 28.3%;  $n=19$ , 9.5%), daily ( $n=37$ , 17%;  $n=12$ , 6%), weekly ( $n=20$ , 9%;  $n=11$ , 5.5%) and once or twice ( $n=18$ , 8%;  $n=16$ , 8%).

There were 60 cases (28%) and 115 controls (57.5%) who were not verbally abused in their childhood (Figure 6-2). Of the remaining cases ( $n=152$ , 72%) and controls ( $n=85$ , 42.5%) who had been abused (OR=3.4, CI 2.2, 5.3;  $p < 0.0001$ ), frequencies of verbal abuse between cases and controls were monthly ( $n=63$ , 30%;  $n=22$ , 11%), daily ( $n=55$ , 26%;  $n=28$ , 14%) weekly ( $n=24$ , 11%;  $n=17$ , 8.5%) and once or twice ( $n=10$ , 5%;  $n=14$ , 7%).

There were 69 cases (32.5%) and 128 controls (64%) who were not emotionally abused in their childhood (Figure 6-3). Of the remaining cases ( $n=143$ , 67.5%) and controls ( $n=72$ , 36%) who had been abused (OR=3.7, CI 2.4, 5.7;  $p < 0.0001$ ), frequencies of emotional abuse between cases and controls were daily ( $n=58$ , 27%;  $n=21$ , 10.5%), monthly ( $n=54$ , 25.5%;  $n=15$ , 7.5%), weekly ( $n=20$ , 9%;  $n=13$ , 6.5%) and once or twice ( $n=11$ , 5%;  $n=20$ , 10%).

Figure 6-1: Childhood physical abuse between Māori attempted suicide cases and controls (%).

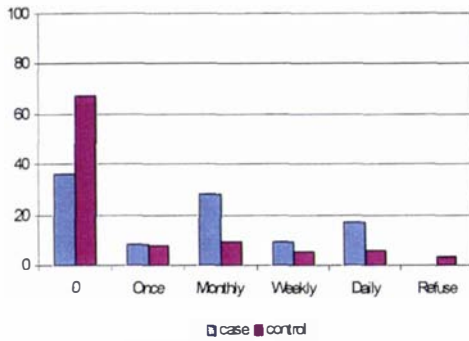


Figure 6-3: Childhood emotional abuse between Māori attempted suicide cases and controls (%).

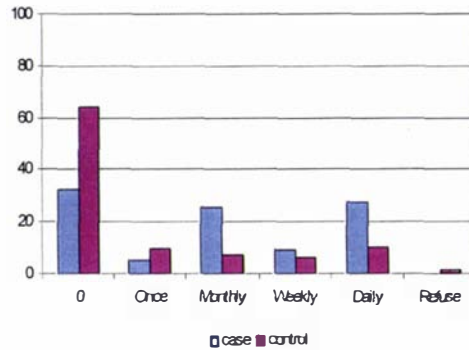


Figure 6-2: Childhood verbal abuse between Māori attempted suicide cases and controls (%).

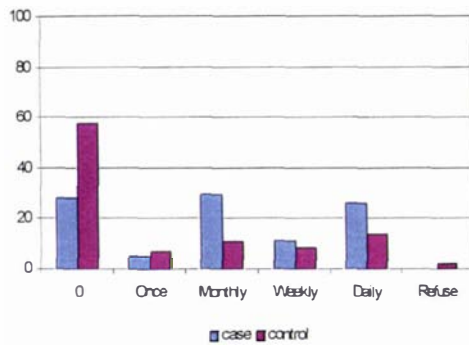
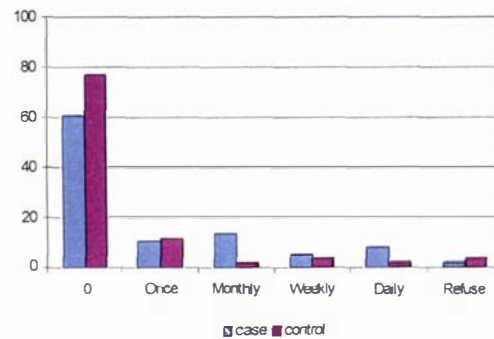


Figure 6-4: Childhood sexual abuse between Māori attempted suicide cases and controls (%).



There were 127 cases (60.5%) and 155 controls (77%) who were not sexually abused in their childhood (Figure 6-4). Of the remaining cases (n=83, 39.5%) and controls (n=46, 23%) who had been abused (OR=2.2, CI 1.4, 3.5; p<0.0001), frequencies of sexual abuse between cases and controls were monthly (n=29, 14%; n=4, 2%), once or twice (n=23, 11%; n=24, 12%), daily (n=17, 8%; n=4, 2%) and weekly (n=10, 5%; n=7, 3.5%).

### *Recent abuse*

Fewer cases and controls were exposed to physical, emotional and sexual abuse over the previous 12 months, but cases were more likely than controls to have been verbally abused on a monthly basis (Figure 6-5 to Figure 6-8). There were 125 cases (59%) and 178 controls (89%) who had not been recently physically abused (Figure 6-5). Of the remaining cases (n=88, 41%) and controls (n=25, 11%) who had been abused (OR=5.5, CI 3.2, 9.4; p<0.0001), frequencies of physical abuse between cases and controls were monthly (n=48, 22.5%; n=3, 1.5%), once or twice (n=18, 8%; n=14, 7%), daily (n=12, 6%; n=0, 0%) and weekly (n=9, 4%; n=2, 1%).

Figure 6-5: Recent physical abuse between attempted suicide cases and controls (%).

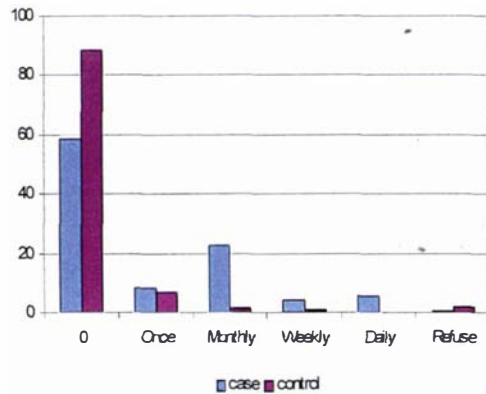


Figure 6-7: Recent emotional abuse between attempted suicide cases and controls (%).

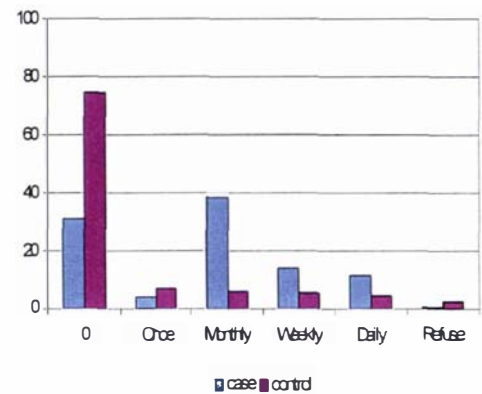


Figure 6-6: Recent verbal abuse between attempted suicide cases and controls (%).

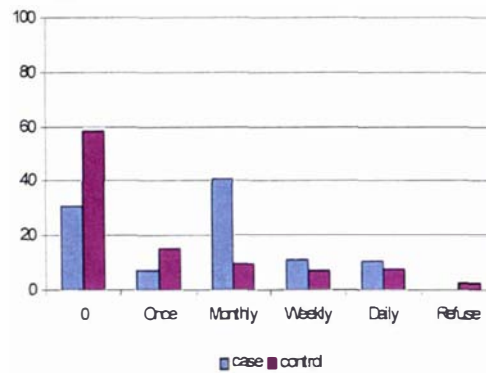
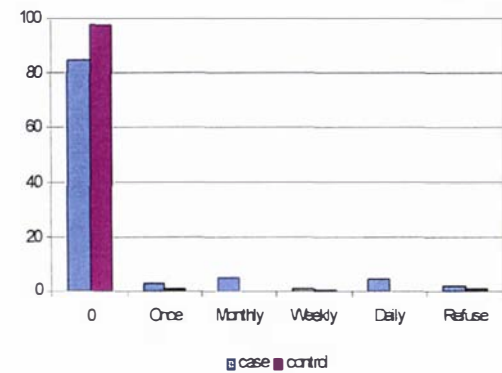


Figure 6-8: Recent sexual abuse between attempted suicide cases and controls (%).



There were 65 cases (31%) and 117 controls (58.5%) who had not been recently verbally abused (Figure 6-6). Of the remaining cases (n=148, 69%) and controls (n=83, 41.5%) who had been abused (OR=3.2, CI 2.1, 4.9; p<0.0001), frequencies of verbal abuse between cases and controls were monthly (n=87, 41%; n=19, 9.5%), weekly (n=24, 11%; n=14, 7%), daily (n=22, 10%; n=15, 7.5%) and once or twice (n=15, 7%; n=30, 15%).

There were 66 cases (31%) and 149 controls (74.5%) who had not been recently emotionally abused (Figure 6-7). Of the remaining cases (n=148, 69%) and controls (n=54, 25.5%) who had been abused (OR=6.5, CI 4.1, 10.3; p<0.0001), frequencies of emotional abuse between cases and controls were (n=82, 39%; n=12, 6%), monthly weekly (n=30, 14%; n=11, 5.5%), daily (n=25, 12%; n=9, 5.5%) and once or twice (n=9, 4%; n=14, 7%).

There were 180 cases (85.5%) and 195 controls (97.5%) who had not been recently sexually abused (Figure 6-8). Of the remaining cases (n=34, 14.5%) and controls (n=8, 2.5%) who had been abused (OR=7.2, CI 2.5, 21.3; p<0.0001), frequencies of sexual abuse between cases and controls were monthly (n=11, 5.2; n=0, 0%), daily (n=10, 5%; n=0, 0%), once or twice (n=6, 3%; n=2, 1%), and weekly (n=2, 1%; n=1, 0.5%).

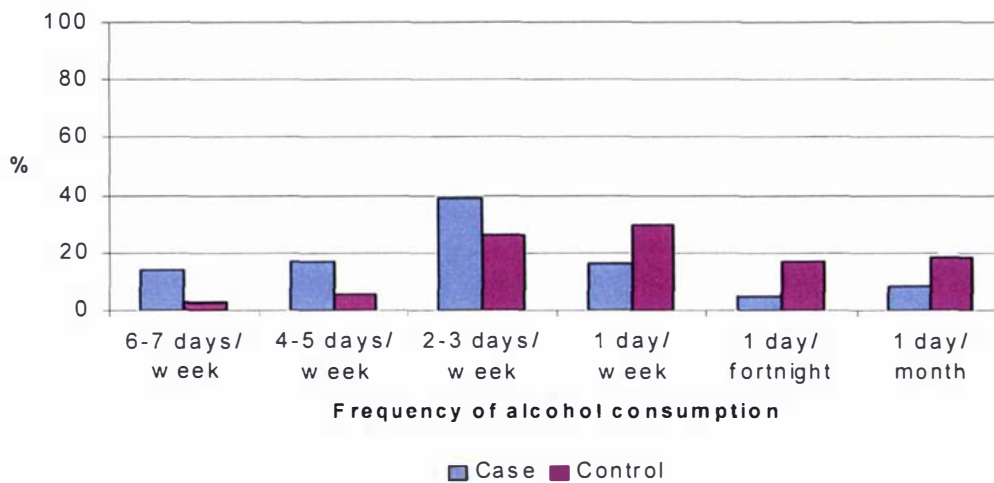
## Substance Use

Alcohol, marijuana and other illicit drugs use is investigated in this section.

### Alcohol

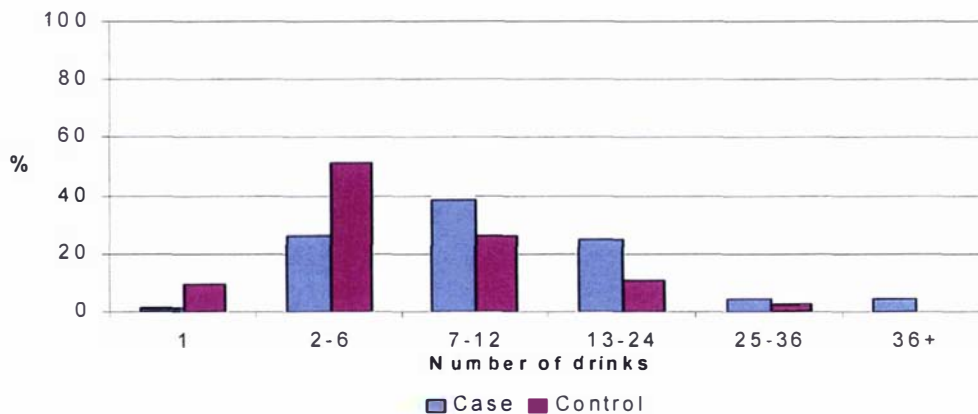
The frequency and quantity of alcohol consumed by cases of attempted suicide and community-based controls is investigated in this section.

Figure 6-9: Alcohol consumption between Māori attempted suicide cases and controls.



There were a total of 175 (82%) cases and 136 (67%) controls who were currently drinking alcohol (OR=2.21, CI 1.37, 3.57;  $p=0.0005$ ). Cases drink on more frequent basis than controls (Figure 6-9). Drinking more than once a week (cases=123, 70%; controls  $n=47$ , 35%) was associated to attempting suicide (OR=4.49, CI 2.87, 7.02;  $p<0.0001$ ).

Figure 6-10: Average daily quantity of alcohol consumed between Māori attempted suicide cases and controls.

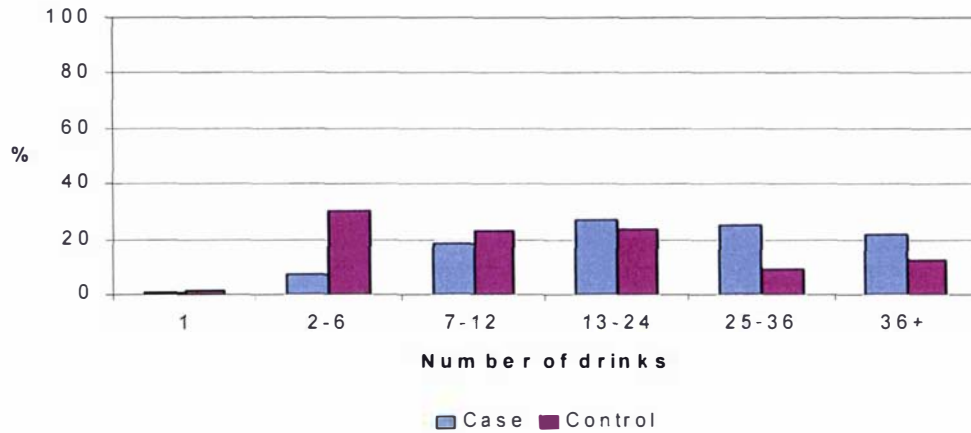


The cases average daily quantity of alcohol consumed was far more than the controls (Figure 6-10). Drinking six drinks (1 drink = 15ml spirits, 300ml beer, 250ml wine) at a sitting (cases:  $n=125$ , 72%; controls  $n=51$ , 39%) was associated to attempting suicide



(OR=4.21, CI 2.72, 6.54;  $p<0.0001$ ). The largest quantity of alcohol consumed by cases and controls was distributed relatively the same (Figure 6-11). Drinking more than six drinks at a sitting (cases:  $n=159$ , 92%; controls  $n=89$ , 68%) was associated to attempting suicide (OR=5.2, CI 2.6, 10.7;  $p<0.0001$ ).

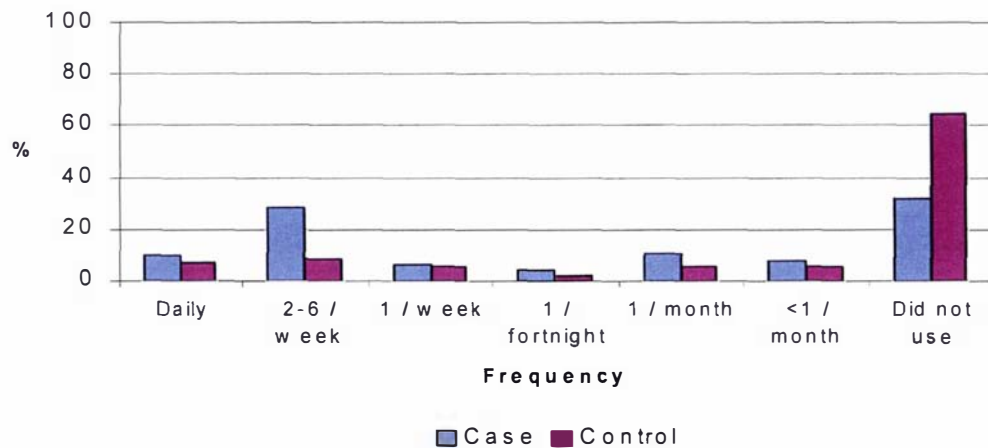
Figure 6-11: Largest daily quantity of alcohol consumed between Māori attempted suicide cases and controls.



### *Marijuana*

There were a total of 146 (68%) cases and 72 (36%) controls who used marijuana in the year before (OR=3.91, CI 2.55, 6.00;  $p<0.0001$ ). Cases used marijuana more than controls on all occasions, monthly ( $n=23$ , 11%;  $n=12$ , 6%), daily ( $n=21$ , 10%;  $n=15$ , 7%), less than once a month ( $n=17$ , 8%;  $n=12$ , 6%), weekly ( $n=14$ , 6.5%;  $n=11$ , 5%), and fortnightly ( $n=9$ , 4%;  $n=4$ , 2%), particularly 2-6 times per week ( $n=61$ , 28.5%;  $n=17$ , 8%; OR=4.36, CI 2.37, 8.12,  $p<0.0001$ ) (Figure 6-12).

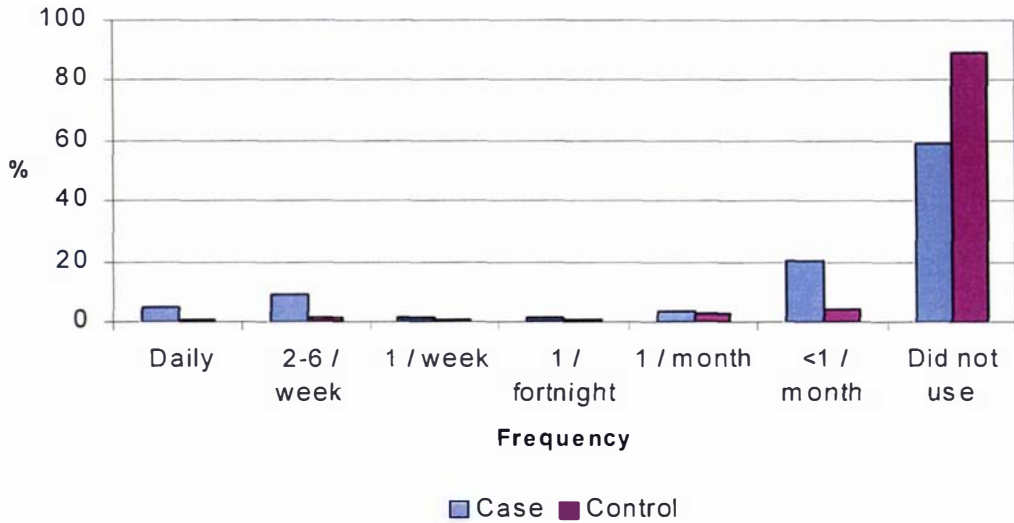
Figure 6-12: Marijuana use between Māori attempted suicide cases and controls.



*Other illicit drugs*

There were a total of 88 (41%) cases and 21 (10%) controls who used other illicit drugs in the year before (OR=6.05, CI 3.47, 10.63;  $p<0.0001$ ).

Figure 6-13: Other illicit drug use between Māori attempted suicide cases and controls.



Cases used other illicit drugs more than controls on more occasions, 2-6 times per week (n=20, 9%; n=3, 1.5%), daily (n=10, 4.7; n=2, 1%), monthly (n=8, 4%; n=5, 2.5%), weekly (n=3, 1.4%; n=1, 0.5%) and fortnightly (n=3, 1.4%; n=1, 0.5%) cases on all occasions used other illicit drugs (Figure 6-13) more than controls, particularly less than once a month (n=43, 20%; n=9, 4%; OR=5.42, CI 2.46, 12.32,  $p<0.0001$ ).

**Health Service Use**

Participants were asked about the frequency they visited various health services and their levels of satisfaction with the service. Results for cases and controls over each of the 11 services are outlined in the following section.

**General practitioner (GP)**

One hundred and eighty nine cases (90.4%) and 184 controls (91.1%) were registered with a general practitioner. The frequency in which cases and control had been to a general practitioner over the last 12 months is outlined in Figure 6-14. Cases attended a general practitioner more frequently than controls in particular five or more times (n=93, 44%; n=37, 18%; OR=3.45, CI 2.15, 5.7;  $p<0.0001$ ). Generally, cases and controls were satisfied with the service they received (OR=0.27, CI 0.14, 0.52;  $p<0.0001$ ) although there was a significant association to attempting suicide by being satisfied (Figure 6-15).

Figure 6-14: Attendance at a general practitioner between Māori attempted suicide cases and controls over the previous 12 months.

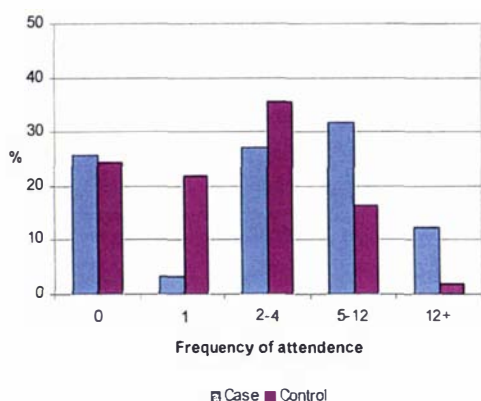
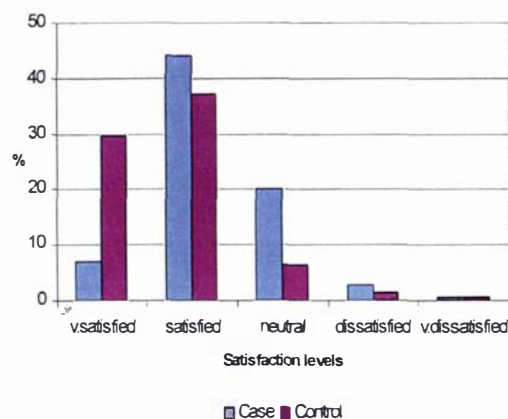


Figure 6-15: Level of satisfaction after attending a general practitioner between Māori attempted suicide cases and controls.



**Medical specialist**

Cases (n=41, 19%) were less likely to have seen a medical specialist than controls (n=56, 28%) in the last year (OR=0.63, CI 0.38, 1.01, p=0.0443) (Figure 6-16). Cases' satisfaction levels were relatively the same as controls with medical specialists, although cases were less satisfied (n=173, 81.2%; n=175, 86.7%) than controls (Figure 6-17).

Figure 6-16: Attendance at a medical specialist between Māori attempted suicide cases and controls over the previous 12 months.

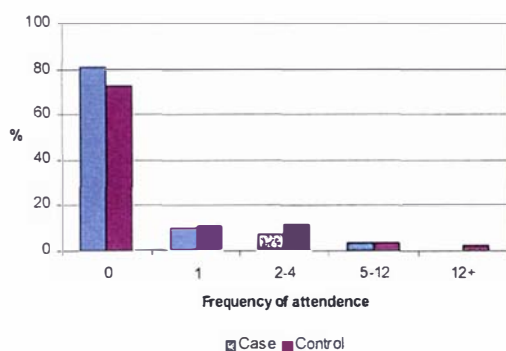


Figure 6-17: Level of satisfaction after attending a medical specialist between Māori attempted suicide cases and controls.

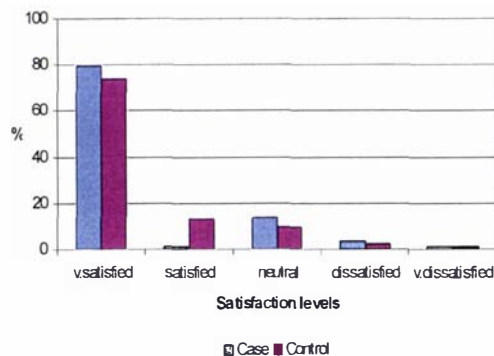


Table 6-3 details the frequency of use of and levels of satisfaction with health services that were attended in the 12 months leading up to the study. Overall few participants had been to any of the listed services. Those who had been to the services went on fewer occasions as the frequency increased. Levels of satisfaction were generally more positive than negative across all of the services.

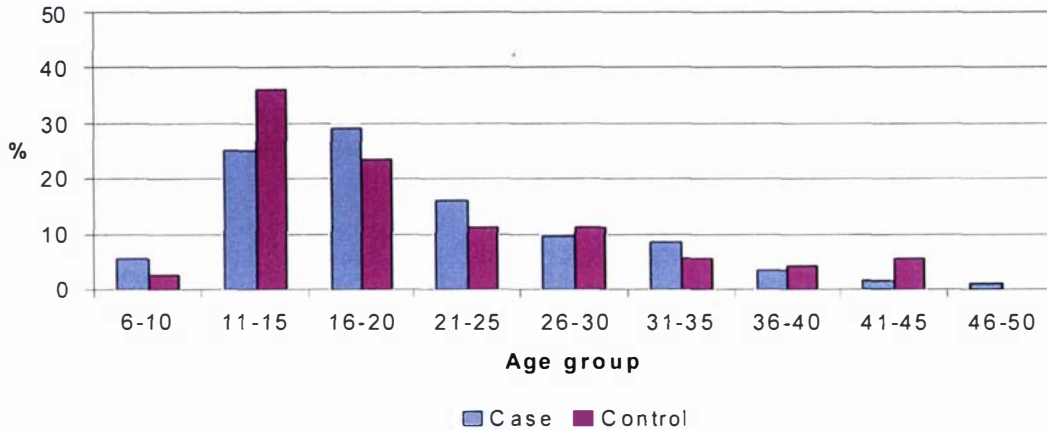
**Suicidality**

Suicidality includes suicidal thoughts, making plans to complete suicide, and suicide attempts. This section also looks at the age when these events happened for the first time.

*Suicidal thoughts*

The number of cases who had thoughts of taking their lives (n=126, 62.4%) was greater than the number of controls (n=74, 37.1%).

Figure 6-18: Age distribution the first time Māori attempted suicide cases and controls thought about taking their lives.



The odds of having suicidal ideation was associated to attempting suicide (OR=24, CI 12.6, 46.5; p<0.0001). The age distribution of cases and controls when they first thought about taking their lives was similar (Figure 6-18), with a mean age of 20 for both groups.

*Suicidal plans*

The number of cases (n=181, 84.6%) who had thoughts of taking their lives was far higher than the number of controls (n=23, 11%). The odds of having suicidal plans was associated to attempting suicide (OR=43, CI 23.4, 79.4; p<0.0001). Cases tended to be older (with a mean age of 23) than controls (18), with some of the age groups (31–35, 36–40 and 46–50) being without control subjects (Figure 6-19).

Figure 6-19: Age distribution the first time Māori attempted suicide cases and controls planned to take their lives.

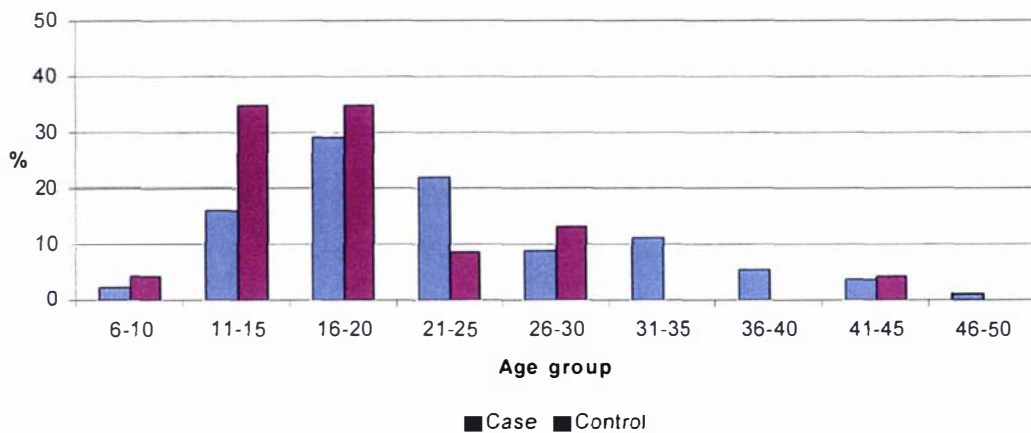




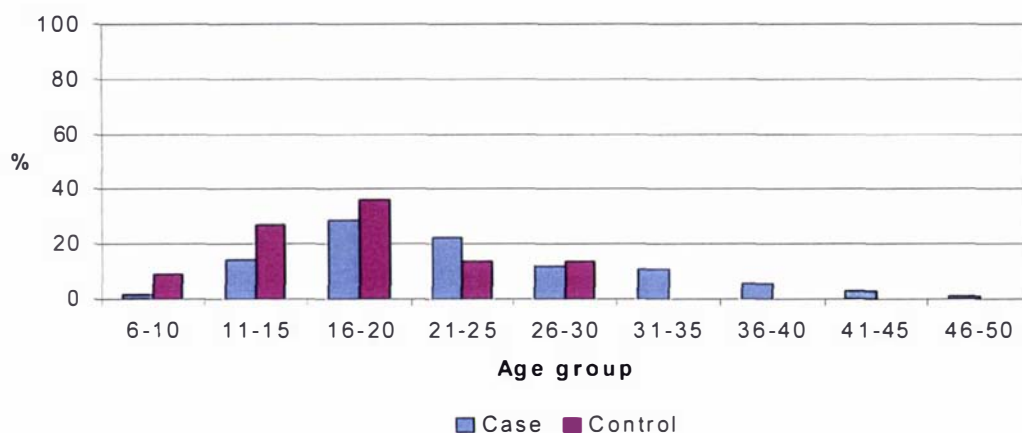
Table 6-3: Frequency of health service used and satisfaction with service between Māori attempted suicide cases and control.

Health interventions	Study population	Frequency (%)					Satisfaction (No.)				
		0	1	2-4	5-12	12+	Very satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied
Naturopath	Case n=211	98.6	0.94	0.47	0	0	1	1	0	0	0
	Control n=202	94.6	1.49	2.48	0.5	1	9	2	0	0	0
Nurse	Case n=211	84.9	4.25	0.94	3.78	2.82	11	17	4	0	0
	Control n=202	70.8	11.4	2.97	7.94	0.5	30	27	1	0	0
Community health centre	Case n=211	88.2	1.42	3.31	4.72	2.35	2	16	6	1	0
	Control n=202	81.7	8.42	5.94	1.49	2.49	16	17	3	1	0
Community health worker	Case n=211	91.0	1.9	1.91	2.38	2.87	3	9	6	3	0
	Control n=202	90.6	3.47	3.96	1.5	0.5	14	4	1	0	0
Māori healer	Case n=212	95.8	2.35	0.94	0.47	0.47	6	2	1	0	0
	Control n=202	95.1	1.98	1.49	1.49	0	8	1	0	0	0
Dental practitioner	Case n=211	88.3	7.04	4.23	0.47	0	6	18	0	1	0
	Control n=202	65.4	21.8	10.9	1.99	0	26	32	6	5	0
Health hui	Case n=211	99.5	0	0.47	0	0	0	1	0	0	0
	Control n=202	94.1	2.97	1.49	0.5	1	5	5	2	0	0
Health seminar	Case n=211	99.5	0	0.47	0	0	0	1	0	0	0
	Control n=202	93.5	2.97	0.5	0.5	0.99	8	4	0	1	0
Prescription	Case n=209	32.4	3.81	25.24	27.14	11.44	11	93	31	5	1
	Control n=201	42.6	14.9	31.19	9.91	1.5	32	70	5	6	0

*Suicidal attempts*

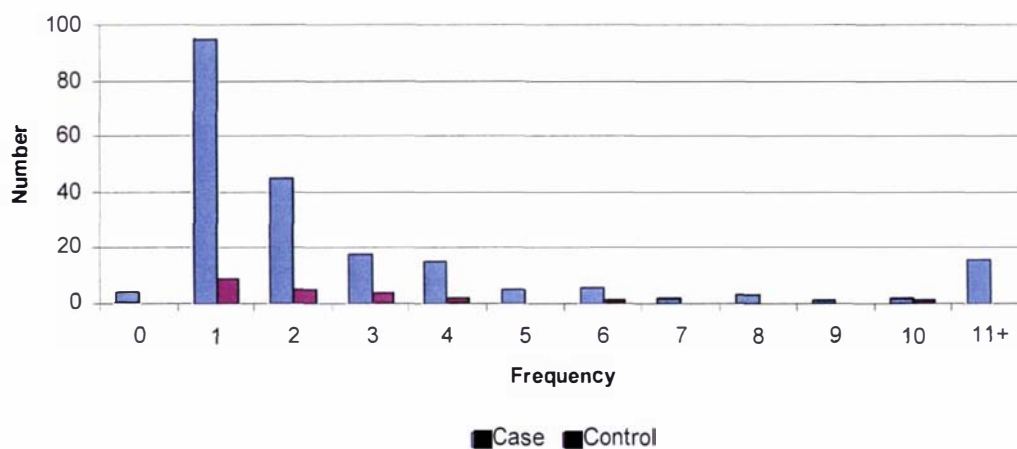
Two hundred and eleven of the 214 cases (98.6%) said they had attempted suicide previously and 22 of the controls (10.8%). The three remaining cases who said they hadn't attempted suicide believed their actions were not suicidal. The mean age of cases ( $X=23$ ) was slightly older than controls ( $X=17$ ) the first time they tried to take their lives (Figure 6-20).

Figure 6-20: Age distribution the first time Māori attempted suicide cases and controls attempted to take their lives.



Those participants who had attempted suicide were asked the number of times, they had done so before: four of the cases (2%) said zero times (Figure 6-21). Most of the cases (n=95, 45%) and controls (n=9, 41%) had attempted suicide only once (index episode), twice (n=45, 21%; n=5, 23%), three times (n=18, 8%; n=4, 18%) and four times (n=15, 7%; n=2, 9%). Sixteen cases (7.5%) had attempted suicide 11 or more times, but none of the controls.

Figure 6-21: Suicide attempts made between Māori attempted suicide cases and controls.



When those who had attempted suicide were asked about their intentions at the time they had first attempted suicide, most of the cases said they had 'made a serious attempt to kill

themselves and it was only luck that they did not succeed' (n=138, 64.5%), followed by 'I tried to kill myself but knew that the method was not foolproof' (n=34, 15.9%) and 'my attempt was a cry for help, I did not intend to die' (n=36, 17%). The controls' responses were distributed differently in that 45.5% said it was both a serious attempt and a cry for help, with the remaining 10% saying the attempt was not full proof (Figure 6-22).

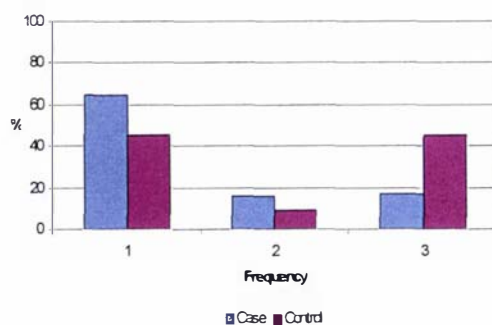
When asked whether the attempt resulted in an injury or poisoning 97.7% of the cases (n=208) and 60% of the controls (n=12) said yes. All except one of the cases (99.5%) and 45% of the controls required medical attention. However, 64% of the cases (n=138) and 15% of the controls (n=3) required overnight hospitalisation.

### *Cases suicidality*

Two further questions were asked of the cases about the circumstances of their suicide attempt. The first was about any substances used before they made the attempt and the second related to the method used to make the attempt.

Most of the cases said they had not taken any substances before the suicide attempt (n=102, 48%). Of those who had taken substances the most common substance was alcohol (n=71, 33%) followed by combinations of substances (n=23, 11%), other illicit drugs (n=10, 4.7%), marijuana (n=7, 3.3%) and solvents (n=1, 0.5%).

Figure 6-22: Suicidal intention between Māori attempted suicide cases and controls who had attempted suicide.



1. Made a serious attempt to kill myself and only luck that I did not succeed.
2. Tried to kill myself but knew the method was not foolproof.
3. My attempt was a cry for help I did not intend to die.

Table 6-4 outlines the methods cases used in the suicide attempts. Two hundred and twelve cases (99%) described the method they had used. Thirteen cases had used two methods, and one case had used three methods. The most frequent method employed initially was poisoning by solids or liquids (n=157, 74%), followed by cutting or piercing (n=38, 18%), hanging, suffocation or strangulation (n=13, 6%) and poisoning by carbon monoxide or vapours (n=4, 2%).

Table 6-4: Methods used by Māori attempted suicide cases to attempt suicide.

Method	1	2	3
Poisoning-solids and liquids	157	2	
Cutting and piercing	38	8	
Hanging, suffocation or strangulation	13	2	
Poisoning – Carbon monoxide or vapours	4	1	
Other			1
Total	212	13	1

## HEALTH INDICATORS

Five main health indicators are discussed in this section. These include the GHQ-28, the HADS, substance use, interpersonal abuse and suicidality. Both the GHQ-28 and HADS are explored by age, gender, income, education, employment, abuse and substances. The remaining health indicators are explored by age and gender.

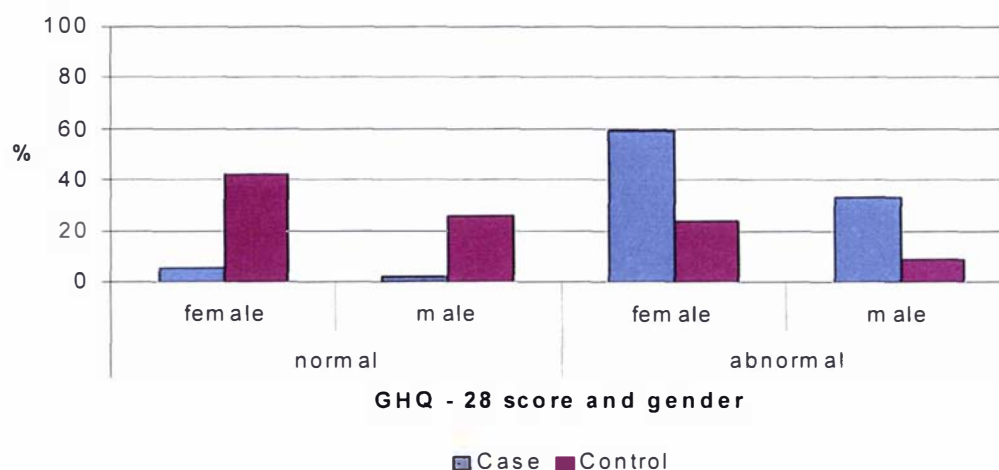
### General Health Questionnaire–28

GHQ-28 scores were considered normal (scores equal to or less than four) or abnormal scores five or more).

#### Gender

Fifty-nine percent of female cases (n=125) and 33.5% of male cases had an abnormal general health status compared with 42% of female controls and 26% of male controls who had a normal status (Figure 6-23). Both females (OR=18.5, CI 8.9, 39.2; p<0.0001) and males (OR=51, CI 15, 193; p<0.0001) with an abnormal general health status were associated to attempting suicide.

Figure 6-23: GHQ-28 between Māori attempted suicide cases and controls by gender.

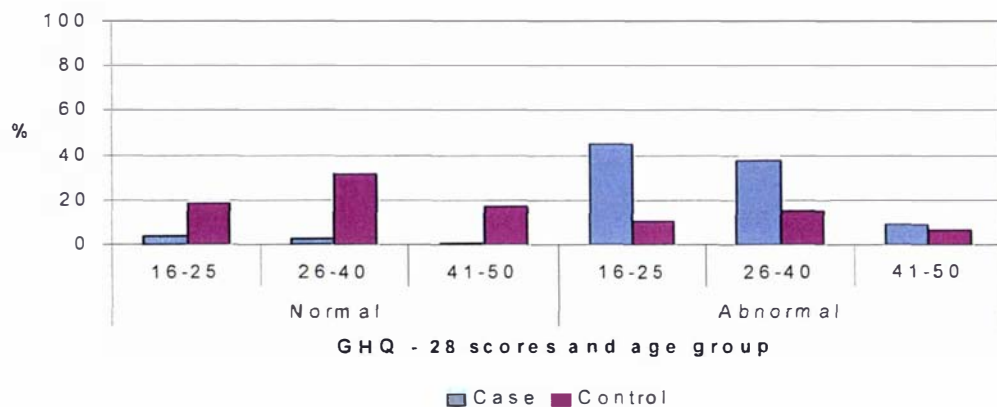




*Age*

The middle age group (aged 26–40, OR=27.9, CI 10, 80;  $p<0.0001$ ) had the greatest odds associated to suicidal behaviour, followed by the eldest (41–50, OR=26.9, CI 5, 195) and then the youngest (16–25, OR=20.9, CI 8, 57;  $p<0.0001$ ). The greatest proportion of abnormal cases was in the youngest age group (45%) followed closely by the middle aged group (38%). The controls, however, had the greatest proportion of normal general health status in the middle age group (32%) followed by the youngest (19%) and oldest (17%) age groups (Figure 6-24).

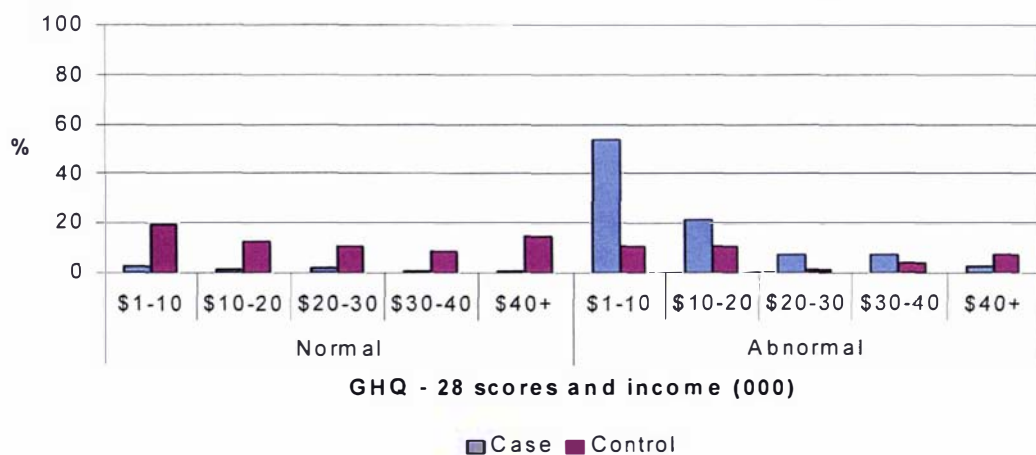
Figure 6-24: GHQ–28 between Māori attempted suicide cases and controls by age group.



*Income*

Income is based on \$10,000 increments (Figure 6-25). Earning less than (OR=27, CI 11.4, 67.9;  $p<0.0001$ ) or more than (OR=15.3, CI 5.2, 47;  $p<0.0001$ ) \$20,000 per year and having an abnormal general health status was associated to attempting suicide, although by slightly less for those earning more than \$20,000 per year.

Figure 6-25: GHQ–28 between Māori attempted suicide cases and controls by income.



Cases were more likely to have abnormal general health status irrespective of income particularly between \$1-10,000 (n=105, 54%) followed by \$10,000-20,000 (n=42, 21%) and both \$20,000-30,000, and \$30,000-40,000 (n=15 and 14 respectively, 7%) (Figure 6-25). The few cases (n=1-5) with normal health status were distributed evenly with income \$1-30,000.

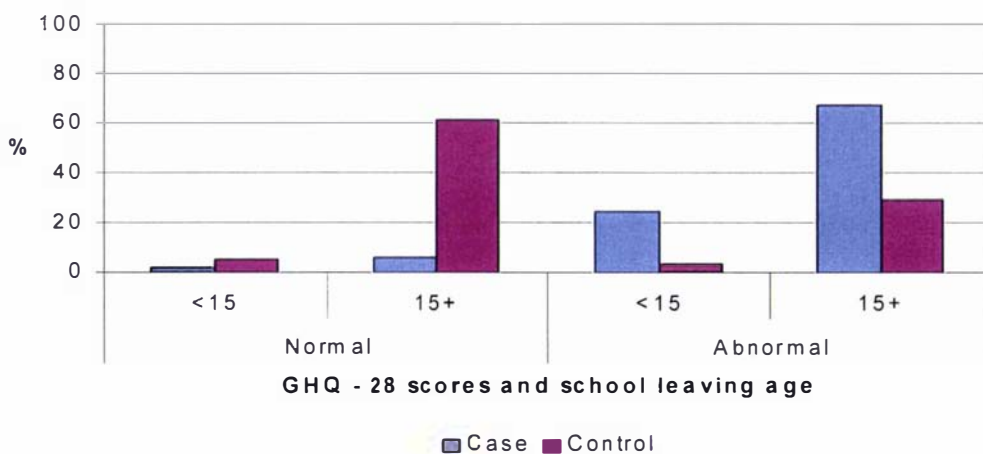
The controls' income distribution was more evenly spread than cases. However, more controls irrespective of income had a normal health status. The greatest number of controls earned \$1-10,000 (n=35, 19%), more than \$40,000 (n=27, 15%) and \$10,000-20,000 (n=23, 13%).

### Education

For the purposes of the education section the item used was the age participants left school (Figure 6-26). Note the officially authorized school leaving age varied over the four decades covered by the study participants.

Leaving school before the age of 15 and having an abnormal health status (cases, 25%; controls 3.6%) was negatively associated to attempting suicide (OR=3.00 CI 1.2, 7.8; p<0.0001). Leaving school after age 15 with an abnormal health status was protectively associated to attempting suicide (OR=0.33, CI 0.13, 0.81; p<0.0001). Having a normal health status irrespective of school leaving age was not associated.

Figure 6-26: GHQ-28 between Māori attempted suicide cases and controls by school leaving age.

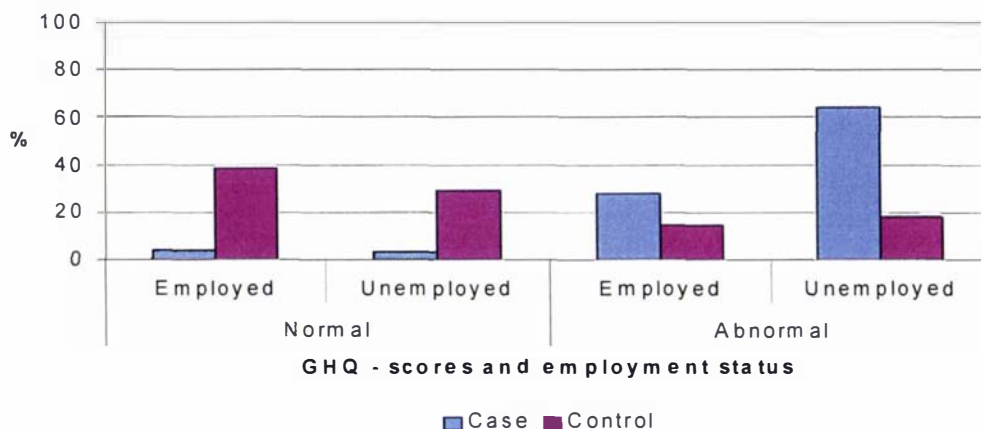


### Employment

Employment is based on whether a participant answered yes or no to being in paid employment at the time of the study (Figure 6-27). Having an abnormal health status and

being in paid employment (cases: n=60, 28%; controls: n=30, 15%) was negatively associated to attempting suicide (OR=2.21, CI 1.32, 3.71) as well as being unemployed (OR=1.9, CI 1.04, 3.5). Being employed or not, with a normal health status was not associated to attempting suicide due to low number of cases with normal health status.

Figure 6-27: GHQ-28 between Māori attempted suicide cases and controls by employment.



Irrespective of being employed (n=60, 28%) or not (n=138, 64%) most cases had an abnormal health status. Whereas controls were more likely to be employed (n=78, 38%) or then unemployed (n=59, 29%) with a normal health status.

### *Interpersonal abuse*

Interpersonal abuse in this section is designated by at least one instance of abuse (physical, verbal, emotional or sexual) either recently (last 12 months) or during childhood.

Figure 6-28: GHQ-28 between Māori attempted suicide cases and controls by recent interpersonal abuse.

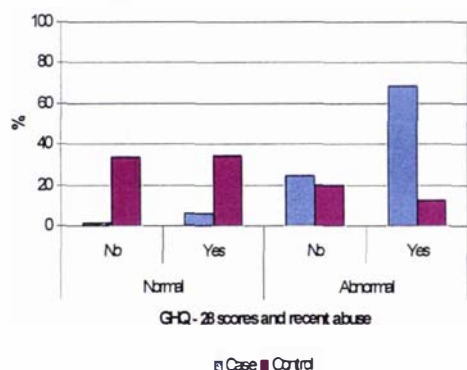
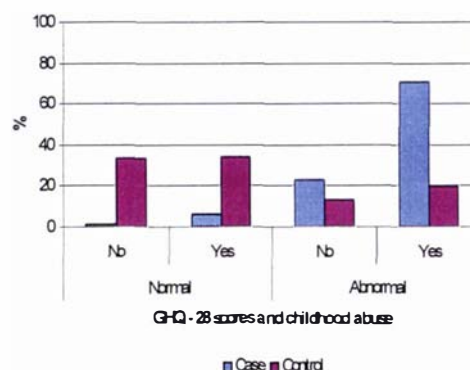


Figure 6-29: GHQ-28 between Māori attempted suicide cases and controls by childhood interpersonal abuse.



Being recently abused (OR=4.5, CI 2.4, 8.5; p<0.0001) or not (OR=0.22, CI 0.12, 0.42; p<0.0001) with an abnormal health status were both associated to attempting suicide. Being abused or not while having a normal health status was not associated to attempting suicide.

The greatest number of cases had a poor health status and had been recently abused (n=146, 69%), followed by no recent abuse (n=40, 24%). Sixty-seven percent of controls had a normal health status, of whom 34% (n=68) had been recently abused and 33.5% (n=67) had not been (Figure 6-28).

Having experienced childhood abuse (OR=2, CI 1.07, 3.8) or not (OR=0.5, CI 0.26, 0.93; p<0.0001) with an abnormal health status was associated to attempting suicide. Being abused or not while having a normal health status was not associated to attempting suicide. The greatest number of cases had a poor health status and had been abused during their childhood (n=149, 70%) than no childhood abuse (n=48, 23%). Sixty-seven percent of controls had a normal health status of whom 34% (n=68) had been abused in childhood and 33% (n=67) had not been (Figure 6-29).

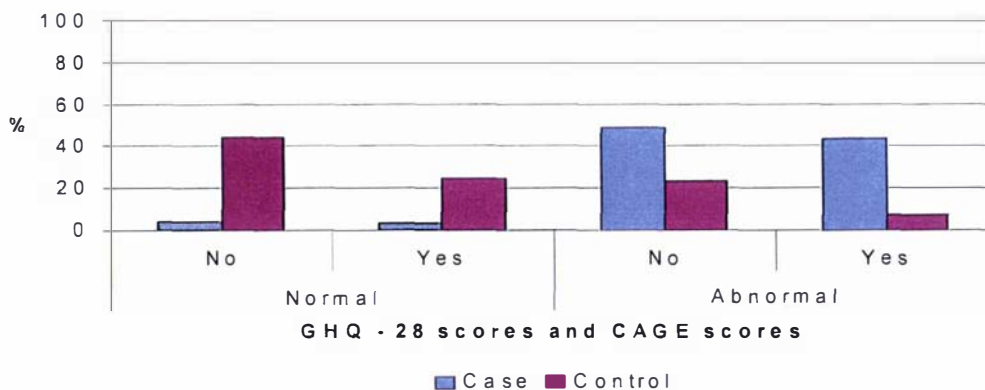
*Substance use*

Substance use (of alcohol, marijuana and other illicit drugs) by general health status is outlined in this section. Having an alcohol problem (OR=2.8, CI 1.2, 6.5) or not (CAGE ≥2; OR=0.36, CI 0.15, 0.83) with an abnormal health status were both associated to attempting suicide. However whether a participant had a normal health status an alcohol problem or not was not associated to attempted suicide.

Alcohol

Cases were most likely to have an abnormal health status without an alcohol problem (n=86; 48%) then with an alcohol problem (n=77, 44%). Controls were more likely to have a normal health status no alcohol problem (n=59, 44%), then with an alcohol problem (n=33, 25%) also with an abnormal health status without an alcohol problem (n=31, 23%) (Figure 6-30).

Figure 6-30: GHQ-28 between Māori attempted suicide cases and controls by CAGE alcohol screening test.

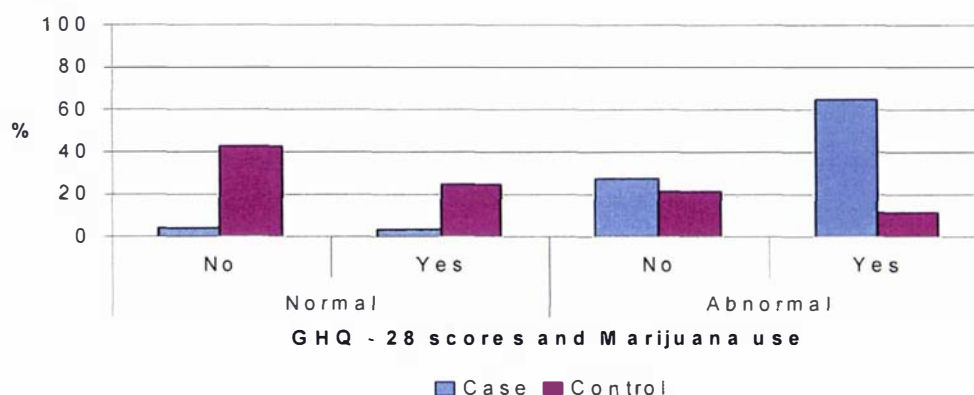




Marijuana

Using marijuana (OR=4.4, CI 2.4, 8.3;  $p<0.0001$ ) or not (OR=0.23, CI 0.12, 0.43;  $p<0.0001$ ) with abnormal health were both associated to attempting suicide. However, whether a participant had used marijuana or not with a normal health status was associated. Most cases ( $n=139$ ; 65%) had an abnormal health status and used marijuana, followed by those who used marijuana ( $n=59$ , 28%). Controls were more likely to have a normal health status and not use marijuana ( $n=87$ , 43%), then use marijuana ( $n=50$ , 25%), and then have an abnormal health status and not use marijuana ( $n=43$ , 21%) (Figure 6-31).

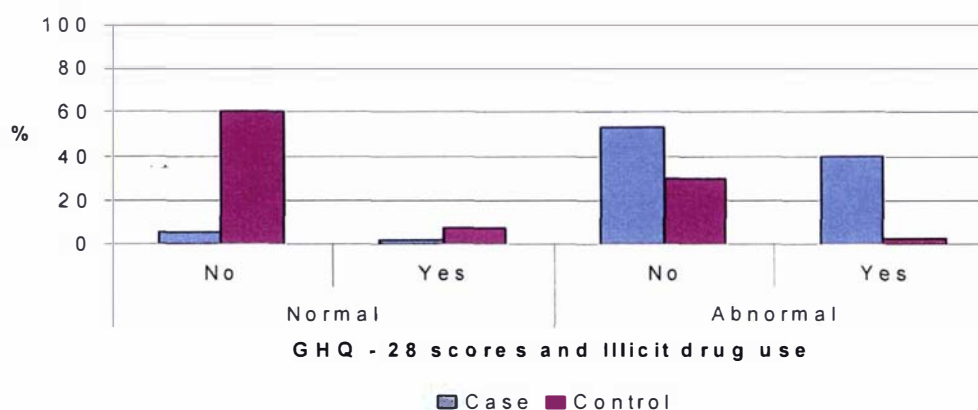
Figure 6-31: GHQ-28 between Māori attempted suicide cases and controls by marijuana consumption.



Other illicit drugs

Using illicit drugs (OR=7.54, CI 3.0, 20.3;  $p<0.0001$ ) or not (OR=0.13, CI 0.05, 0.34;  $p<0.0001$ ) with an abnormal health status was associated to attempting suicide. However, using illicit drugs or not with a normal health status was not associated.

Figure 6-32: GHQ-28 between Māori attempted suicide cases and controls by other illicit drug utilisation.



Cases were more likely to have an abnormal health status and not use illicit drugs ( $n=113$ ; 52%) or use ( $n=85$ , 40%). Controls were more likely to have a normal health status and not

use illicit drugs (n=122, 60%) or have an abnormal health status and use other illicit drugs (n=60, 30%) (Figure 6-32).

## Hospital Anxiety and Depression Scale

### Gender

As the level of anxiety increases the proportion of cases increased and the proportion of controls decreased for both males and females (Figure 6-33). Females (OR=9.6 CI 5.1, 18.3) and males (OR=10.8 CI 4.3, 27.4;  $p<0.0001$ ) with abnormal anxiety levels (HADS score at least 11) were associated to attempting suicide. Females (OR=0.1 CI 0.05, 0.18;  $p<0.0001$ ) and males (OR=0.09 CI 0.04, 0.20;  $p<0.0001$ ) with normal levels of anxiety was also associated.

Figure 6-33: HADS-Anxiety between Māori attempted suicide cases and controls by gender.

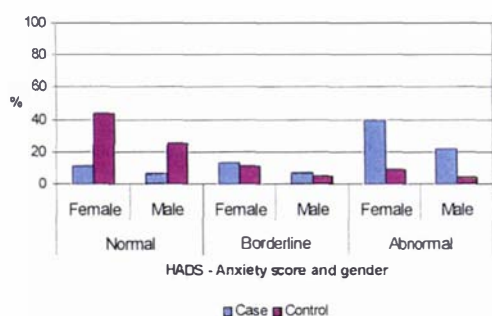
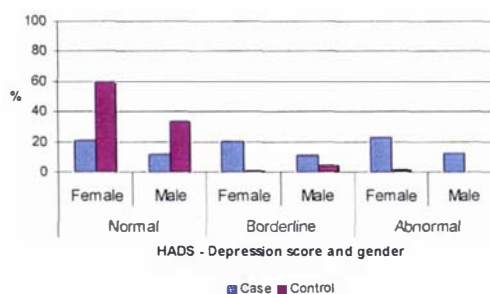


Figure 6-34: HADS-Depression between Māori attempted suicide cases and controls by gender.



The difference between the case and control distributions of depression by gender was more pronounced (Figure 6-34). Female and male cases had the same proportions of normal (n=44, 33%; n=25, 33%), borderline (n=42, 31%; n=23, 31%), and abnormal (n=48, 36%; n=27, 36%) levels of depression. The majority of female and male controls had normal (n=120, 96%; n=68, 89%) levels of depression.

### Age

Females (OR=22.7 CI 6.5, 94.5) and males (OR=undefined due to no controls with abnormal depression) with abnormal levels of depression were associated to attempting suicide. Females (OR=0.2 CI 0.01, 0.06) and males (OR=0.06 CI 0.02, 0.15) with normal levels of depression were also associated to attempting suicide.

As the level of anxiety increases the proportion of cases increases and the proportion of controls decreases for all but the borderline 26–40 year olds. Young (16–25 years) (OR=8.9 CI 3.6, 22.2), middle aged 26–40 (OR=13.3 CI 5.8, 30.5), and third aged 41–50 years (OR=5.9 CI 1.7, 20.9) Māori with abnormal levels of anxiety were all associated to

attempting suicide, particularly the middle aged group. Young (OR=0.09 CI 0.04, 0.22), middle aged (OR=0.12 CI 0.06, 0.24) and third aged (OR=0.05 CI 0.01, 0.21) Māori with normal levels of anxiety were also associated to attempting suicide, particularly the third aged group (Figure 6-35).

Figure 6-35: HADS-Anxiety between Māori attempted suicide cases and controls by age group.

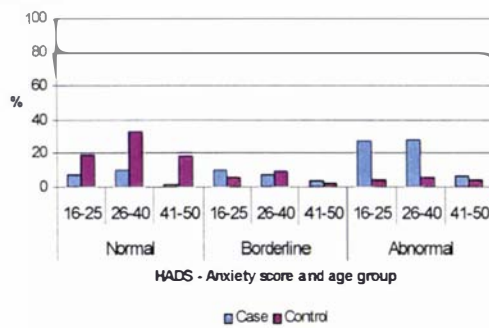
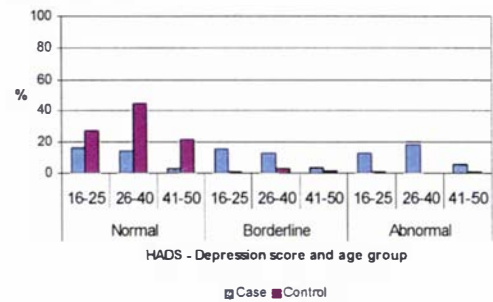


Figure 6-36: HADS-Depression between Māori attempted suicide cases and controls by age group.



As the level of depression increased the proportion of cases increased for the two older age groups and decreased in the youngest age group (Figure 6-36). The percentage of controls decreased for all age groups. Young aged 16–25 years (OR=22.5 CI 3, 458), middle aged (26–40 years) (OR=undefined due to no controls with abnormal levels of depression) and third aged 41–50 years (OR=19.5 CI 3.4, 146.9) Māori with abnormal levels of depression were all associated to attempting suicide. Young (OR=0.03 CI 0.01, 0.12), middle aged (OR=undefined) and third aged (OR=0.04 CI 0.01, 0.17) Māori with normal levels of depression were also associated to attempting suicide.

### Income

Earning less than \$20,000 (OR=3.2, CI 1.5, 6.9) and earning more than \$20,000 (OR=7, CI 2.2, 23) per year with an abnormal level of anxiety were associated to attempting suicide. Having an income over \$20,000 (OR=0.13, CI 0.05, 0.34) or under \$20,000 (OR=0.4, CI 0.23, 0.7) and a normal level of anxiety was also associated to attempting suicide.

The distribution of cases' income was spread across anxiety particularly between \$1 and \$10,000 (n=110, 51%) followed by \$10,000-20,000 (n=45, 21%), and \$20,000-30,000 (n=19, 9%), \$30,000-40,000 (n=15, 7%) and over \$40,000 (n=6, 2.8) (Figure 6-37). Most controls were distributed in the normal level of anxiety with the largest number in the lowest (n=30, 17%) and highest income brackets (n=25, 14%), followed closely by the \$10,000-20,000 (n=24, 13%).

Earning less than \$20,000 (OR=26.5, CI 7.7, 109.5) or earning more than \$20,000 (OR=45, CI 10.9, 216) per year with an abnormal level of depression was associated to attempting

suicide. Irrespective of income having a normal level of depression was not associated to attempting suicide.

Figure 6-37: HADS-Anxiety between Māori attempted suicide cases and controls by income.

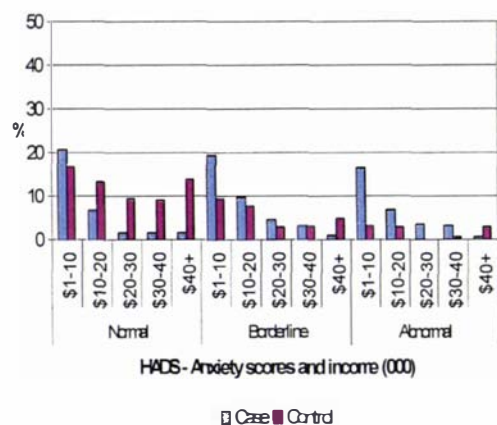
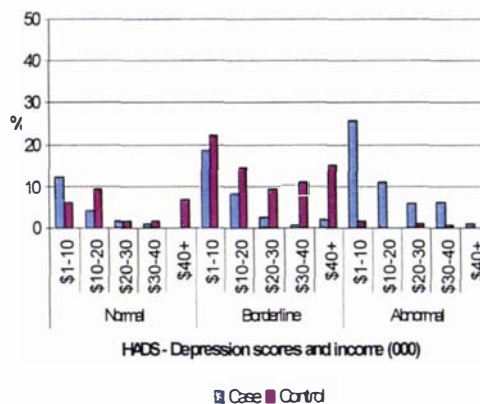


Figure 6-38: HADS-Depression between Māori attempted suicide cases and controls by income.



The distribution of cases' income was spread across the levels of depression, but were mainly in the abnormal range (Figure 6-38). Levels were particularly high between \$1 and \$10,000 (n=110, 51%) followed by \$10,000-20,000 (n=45, 21%) and \$20,000-30,000 (n=19, 9%), \$30,000-40,000 (n=15, 7%) and over \$40,000 (n=6, 2.8). Most controls were distributed in the borderline level of depression with the largest number in the lowest (n=40, 18%) and highest income brackets (n=27, 15%), followed closely by the \$10,000-20,000 bracket (n=26, 14%).

### Education

Leaving school after 15 years of age (OR=2, CI 1.2, 3.5) and having an abnormal level of anxiety, was associated to attempting suicide. Leaving school before 15 years of age (OR=0.24, CI 0.06, 0.91) with a normal level of anxiety was also associated to attempting suicide.

Most of the cases had left school after 15 and had borderline (n=58, 29%), abnormal (n=49, 24%) and normal (n=47, 23.5%) levels of anxiety. Controls had a similar distribution as cases where the majority left school after 15 and had borderline (n=94, 48%), normal (n=51, 26%) and abnormal (n=33, 24.5%) levels of anxiety (Figure 6-39).

Leaving school before 15 years of age (OR=6.5, CI 1.2, 45) or after 15 years of age (OR=30, CI 12, 80) with an abnormal level of depression both were associated to attempting suicide.



Irrespective of school leaving age, having a normal level of depression was not associated.

Most of the cases had left school after 15 and had abnormal (n=79, 38%), borderline (n=46, 22%) and normal (n=29, 14%) levels of depression. The majority of controls left school after 15 and had borderline (n=126, 64%), normal (n=46, 24%) and abnormal (n=6, 3%) levels of depression (Figure 6-40).

Figure 6-39: HADS-Anxiety between Māori attempted suicide cases and controls by school leaving age.

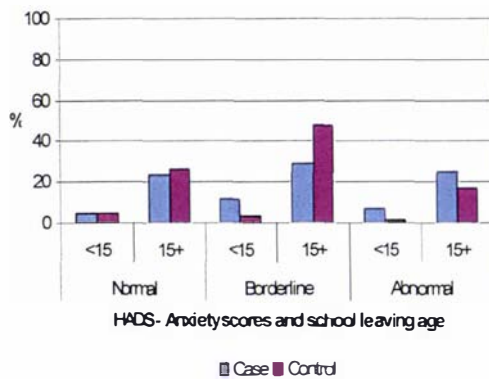
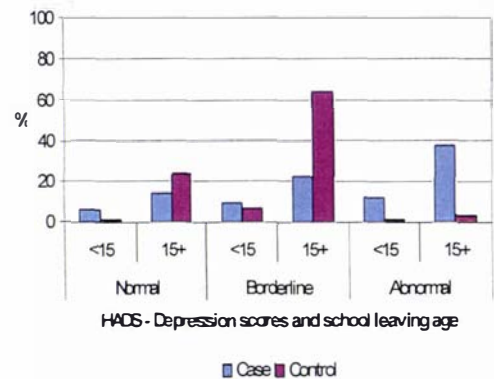


Figure 6-40: HADS-Depression between Māori attempted suicide of cases and controls by school leaving age.



### Employment

Being unemployed with an abnormal level of anxiety was associated to attempting suicide (OR=2.5, CI 1.1, 5.7), whereas being employed with abnormal or normal levels of anxiety, and being unemployed with a normal anxiety level were not associated.

Most of the cases were unemployed with normal (n=53, 25%), borderline (n=48, 22%) then abnormal (n=44, 20%) levels of anxiety. Employed and unemployed controls with borderline (n=56, 28%; n=48, 24%) and normal (n=36, 18%; n=26, 13%) levels of anxiety were most frequent (Figure 6-41).

Most of the cases were unemployed with abnormal (n=64, 30%) and borderline (n=50, 23%) levels of depression, followed by employed with abnormal depression (n=43, 20%). Most frequent were employed and unemployed controls with borderline depression (n=82, 40%; n=63, 31%), followed by unemployed (n=28, 14%) and employed (n=21, 10%) with normal levels of depression (Figure 6-42).

Figure 6-41: HADS-Anxiety between Māori attempted suicide cases and controls by employment.

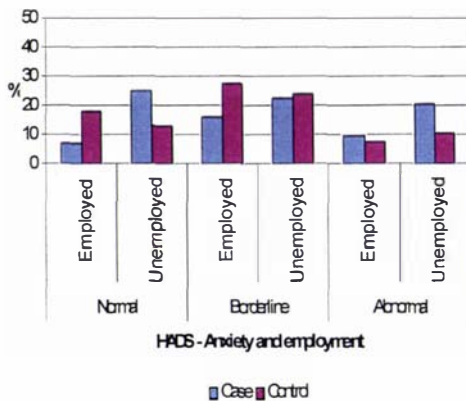
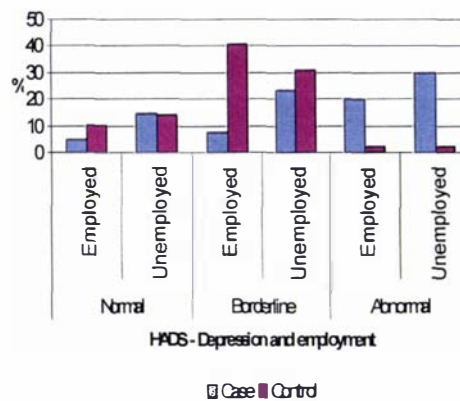


Figure 6-42: HADS-Depression between Māori attempted suicide cases and controls by employment.



*Interpersonal abuse*

Recent abuse

Not being recently abused with an abnormal level of anxiety (OR=5.6, CI 2.4, 13.3), or being recently abused with a normal level of anxiety (OR=2.8, CI 1.4, 5.6) were both associated to attempting suicide.

Figure 6-43: HADS-Anxiety between Māori attempted suicide cases and controls by recent abuse.

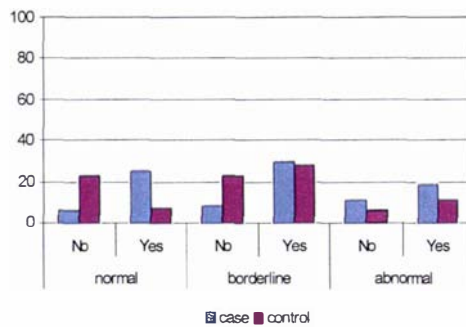
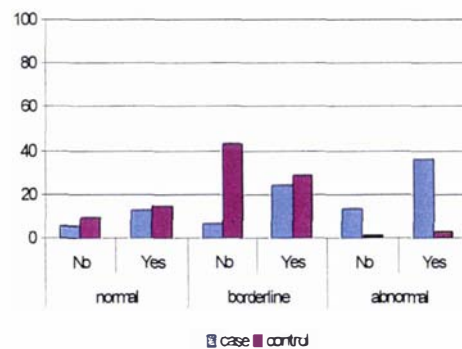


Figure 6-44: HADS-Depression between Māori attempted suicide cases and controls by recent abuse.



Most of the cases who had borderline (n=64, 30%), normal (n=54, 25%) and abnormal (n=40, 19%) levels of anxiety had been recently abused. Most of the controls had either borderline or normal (n=47, 23%) anxiety and had (n=57, 28%) or had not (n=47, 23%) been recently abused (Figure 6-43).

Not being recently abused (OR=59, CI 12, 384) or being recently abused (OR=14, CI 5, 38) with abnormal levels of depression was associated to attempting suicide, and being abused with normal levels of depression was also associated (OR=0.5, CI 0.24, 0.87; p<0.0001).

Most of the cases had been recently abused with abnormal (n=78, 37%) or borderline (n=52, 24%) levels of depression, and not abused with abnormal levels of depression (n=29, 14%). Most of the controls had not been abused (n=87, 43%) or had been abused (n=58, 29%) with borderline levels of depression (Figure 6-44).

#### Childhood abuse

Not being abused during childhood (OR=4.2, CI 1.6, 10; p<0.0001) with an abnormal level of anxiety, and being abused during childhood (OR=2.6, CI 1.4, 4.9; p<0.0001) with a normal level of anxiety was associated to attempting suicide. Not being abused during childhood with a normal level of anxiety was protectively associated to attempting suicide (OR=0.28, CI 0.12, 0.67; p<0.0001).

Most of the cases had been abused during childhood with borderline (n=58, 27%) normal (n=57, 27%), and abnormal (n=46, 22%) levels of anxiety. Most of the controls had been abused during childhood (n=64, 32%), or not abused (n=47, 23%) with normal (n=43, 21%) levels of anxiety (Figure 6-45).

Figure 6-45: HADS-Anxiety between Māori attempted suicide cases and controls by childhood abuse.

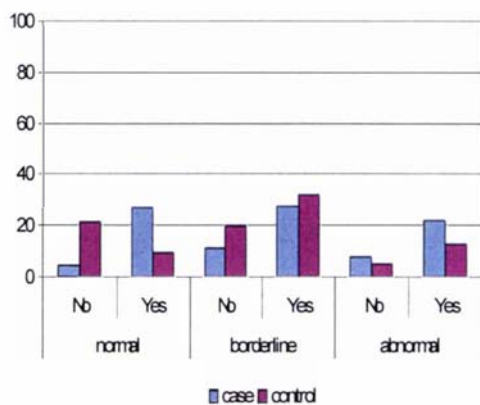
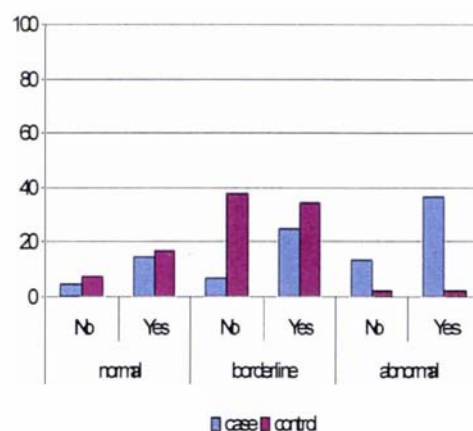


Figure 6-46: HADS-Depression between Māori attempted suicide cases and controls by childhood abuse.



Being abused during childhood (OR=19, CI 7, 57; p<0.0001) or not (OR=27, CI 8, 104; p<0.0001) with an abnormal level of depression was associated to attempting suicide. However, being abused during childhood with normal levels of depression was also associated to attempting suicide (OR=0.5, CI 0.28, 0.95; p<0.0001).

Most of the cases had either been abused during childhood with abnormal (n=78, 37%) and borderline (n=52, 24%) levels of depression or not abused with normal (n=31, 15%) levels of depression. Most of the controls had either not been abused during childhood (n=76, 37%) or been abused (n=69, 25%) with borderline levels of depression (Figure 6-46).

**Substances**

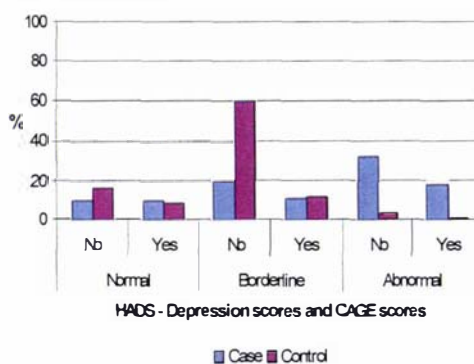
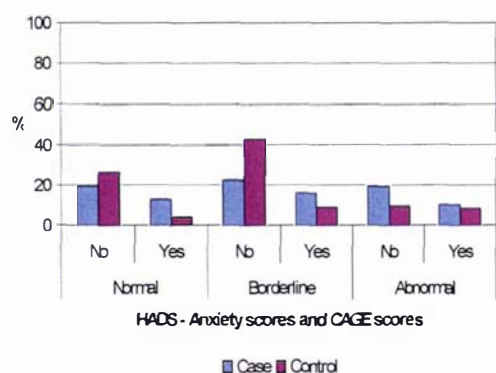
**Alcohol**

Not having an alcohol problem (OR=3.5, CI 1.8, 6.7;  $p<0.0001$ ) with an abnormal level of anxiety (compared to those with borderline and normal anxiety) was associated to attempting suicide. Most of the cases with borderline (n=48, 22%), abnormal (n=42, 20%) and normal (n=41, 19%) levels of anxiety had no alcohol problem. Most of the controls with borderline (n=86, 43%) and normal (n=54, 27%) levels of anxiety had no alcohol issues (Figure 6-47).

Having an alcohol problem (OR=35, CI 5, 725;  $p<0.0001$ ) or not (OR=24, CI 10, 60;  $p<0.0001$ ) with an abnormal level of depression was associated to attempting suicide. Most of the cases with abnormal (n=68, 32%) or borderline (n=42, 20%) levels of depression had no alcohol issue and with normal (n=39, 18%) levels of depression had an alcohol issue. Most of the controls had no alcohol issue with borderline (n=122, 60%) and normal (n=32, 16%) levels of depression (Figure 6-48).

Figure 6-47: HADS-Anxiety between Māori attempted suicide cases and controls by CAGE alcohol problem.

Figure 6-48: HADS-Depression between Māori attempted suicide cases and controls by CAGE alcohol problem.



**Marijuana**

Not using marijuana (OR=3.6, CI 1.7, 7.7;  $p<0.0001$ ) with an abnormal level of anxiety was associated to attempting suicide. Most of the cases had used marijuana with borderline (n=61, 29%), normal (n=46, 22%) and abnormal (n=38, 18%) levels of anxiety. Most of the controls had not used marijuana with borderline (n=65, 32%) and normal (n=47, 23%) levels of anxiety (Figure 6-49).

Not using (OR=25, CI 9, 69;  $p<0.0001$ ) and using (OR=59, CI 8, 1179;  $p<0.0001$ ) marijuana with an abnormal level of depression was associated to attempting suicide. Most of the cases had used marijuana with abnormal (n=66, 31%) and borderline (n=50, 23.5%) levels of



depression. Most of the controls had not used (n=97, 48%) and used (n=48, 24%) marijuana with borderline depression (Figure 6-50).

Figure 6-49: HADS-Anxiety between Māori attempted suicide cases and controls by Marijuana consumption.

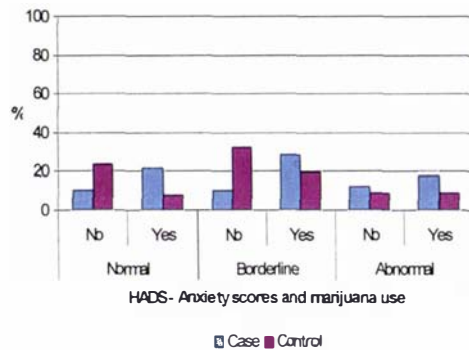
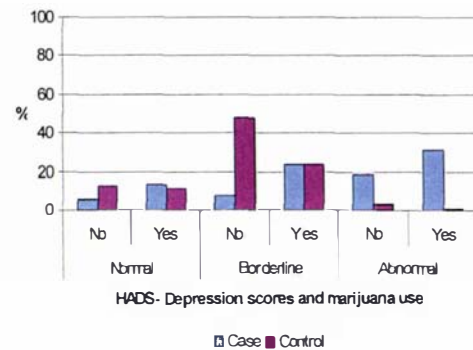


Figure 6-50: HADS-Depression between Māori attempted suicide cases and controls by Marijuana consumption.



Other illicit drugs

Not using illicit drugs (OR=3.6, CI 1.7, 7.7; p<0.0001) with an abnormal level of anxiety was associated to attempting suicide. Most of the cases had not used illicit drugs with borderline (n=45, 21%) normal (n=40, 19%) and abnormal (n=20, 19%) levels of anxiety. Most of the controls had not used other illicit drugs with borderline (n=133, 66%) and normal (n=42, 21%) levels of anxiety (Figure 6-51).

Figure 6-51: HADS-Anxiety between Māori attempted suicide cases and controls by other illicit drug use.

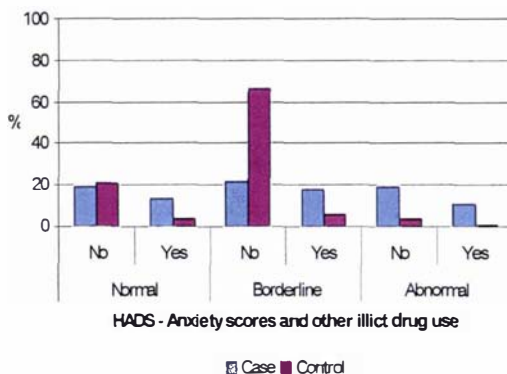
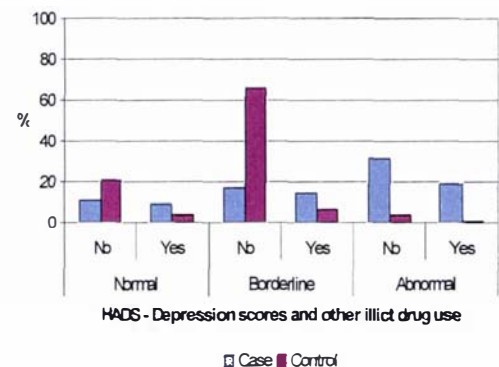


Figure 6-52: HADS-Depression between Māori attempted suicide cases and controls by other illicit drug use.



Using (OR=16, CI 2, 331; p<0.0001) or not using (OR=28, CI 11, 70; p<0.0001) other illicit drugs with an abnormal level of depression was associated to attempting suicide. Most of the cases were abnormally depressed without using (n=66, 31%) and using (n=40, 19%) illicit drugs. Most of the controls had not used drugs (n=133, 66%) with borderline and normal levels of depression (n=42, 21%) (Figure 6-52).

## Substance Use

The three types of substance (alcohol, marijuana, and other illicit drugs) are examined in this section with respect to gender and age.

### Alcohol

Females who had an alcohol problem were associated to attempting suicide (OR=2.7, CI 1.5, 4.9;  $p<0.0001$ ). Being male, irrespective of alcohol use was not associated to attempting suicide. Most of the cases were females (n=108, 52%) and males (n=62, 30%) with an alcohol problem. Most of the controls were also females (n=79, 39%) and males (n=55, 27%) with an alcohol problem (Figure 6-53).

Having an alcohol problem and being aged 26–40 (OR=3.1, CI 1.5, 6.6;  $p<0.0001$ ) was associated to attempting suicide and not having an alcohol problem (OR=0.3, CI 0.15, 0.66) was also associated to attempting suicide. Being in a younger or an older age group with an alcohol problem was not associated to attempting suicide. Cases were more likely to be middle aged (n=77, 37%) or younger (n=72, 35%) with an alcohol problem. Controls were also more likely to be middle aged (n=59, 29%) or younger (n=45, 22%) with an alcohol problem (Figure 6-54).

Figure 6-53: Alcohol use between Māori attempted suicide cases and controls by gender.

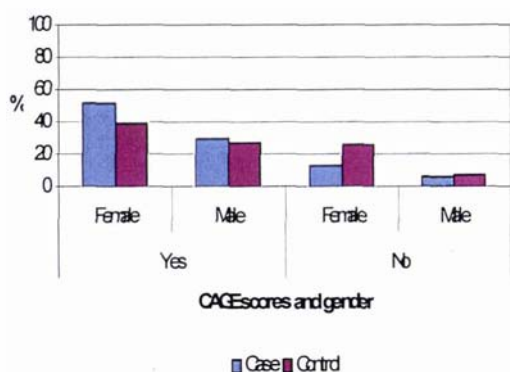
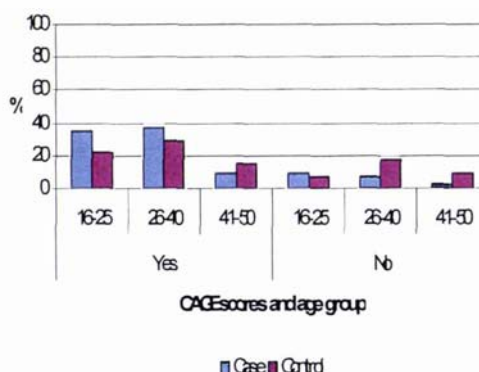


Figure 6-54: Alcohol use between Māori attempted suicide cases and controls by age group.



### Marijuana

Females (OR=3.8, CI 2.2, 6.5;  $p<0.0001$ ) and males (OR=3.7, CI 1.7, 7.9;  $p<0.0001$ ) who used marijuana were associated to attempting suicide. However, females (OR=0.26, CI 0.15, 0.45;  $p<0.0001$ ) and males (OR=0.27, CI 0.13, 0.57;  $p<0.0001$ ) who did not use marijuana were also associated to attempted suicide. Most of the cases were females (n=88, 42%) and

males (n=53, 25%) who used marijuana, whereas most of the controls were females (n=87, 44%) who did not and did (n=44, 22%) use marijuana (Figure 6-55).

Figure 6-55: Marijuana use between Māori attempted suicide cases and controls by gender.

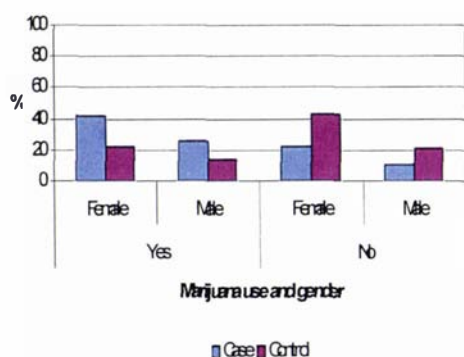
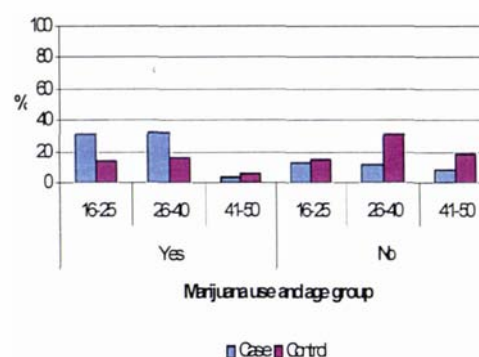


Figure 6-56: Marijuana use between Māori attempted suicide cases and controls by age.



Using marijuana and being both young (OR=2.6, CI 1.2, 5.4) and middle aged (OR=5.5, CI 2.8, 10.9) was associated to attempting suicide and being young (OR=0.4, CI 0.18, 0.81) or middle aged (OR=0.18, CI 0.09, 0.36) and not using marijuana was also associated to attempting suicide. Being in an older age group and either using or not using marijuana was not associated to suicidal behaviour. Cases were more likely to be middle aged (n=68, 33%) or younger (n=65, 31%) using marijuana, whereas controls were more likely to be middle aged (n=62, 41%) or older (n=36, 18%) and not using marijuana (Figure 6-56).

#### *Other illicit drug*

Females (OR=5.5, CI 2.7, 11.8; p<0.0001) and males (OR=6, CI 2.5, 14.7; p<0.0001) who used illicit drugs were associated to attempting suicide however females (OR=0.18, CI 0.09, 0.38; p<0.0001) and males (OR=0.17, CI 0.07, 0.4; p<0.0001) who did not use illicit drugs were also associated to attempting suicide.

Most of the cases were females who did not (n=86, 41%) and did (n=48, 23%) use illicit drugs; whereas most of the controls were females (n=119, 59%) and males (n=60, 30%) who did not use illicit drugs (Figure 6-57).

Using illicit drugs and being either young (OR=7, CI 2.6, 20; p<0.0001) or middle aged (OR=7.5, CI 3.3, 17.5; p<0.0001) was associated to attempting suicide, and being young (OR=0.24, CI 0.1, 0.56; p<0.0001) or middle aged (OR=0.13, CI 0.06, 0.31; p<0.0001) and not using illicit drugs was not associated to attempting suicide.

Figure 6-57: Other illicit drug use between Māori attempted suicide cases and controls by gender.

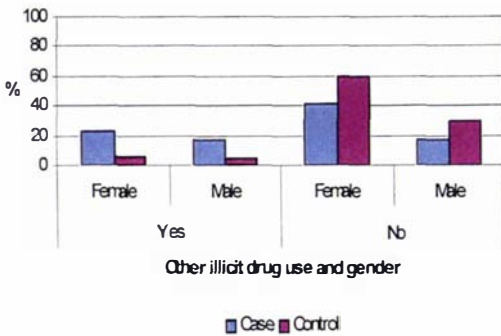
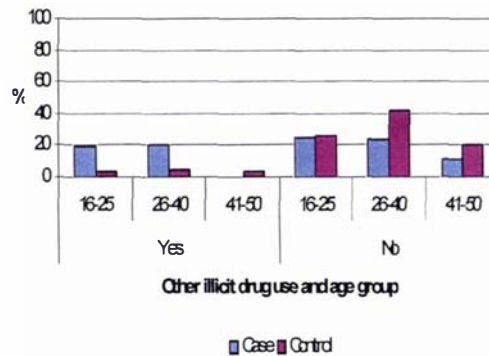


Figure 6-58: Other illicit drug consumption between Māori attempted suicide cases and controls by age group.



Being in an older age group irrespective of using illicit drugs was not associated to attempting suicide. Cases were more likely to be young (n=51, 24.5%) or middle aged (n=49, 24%) and not using illicit drugs; whereas controls were more likely to be middle aged (n=85, 42%) or younger (n=52, 26%) and not using other illicit drugs (Figure 6-58).

## Interpersonal Abuse

### Childhood abuse

Females (OR=3.3, CI 1.8, 6.2; p<0.0001) and males (OR=2.5, CI 1.2, 5.3; p<0.0001) who experienced childhood abuse were associated to attempting suicide however females (OR=0.3, CI 0.16, 0.55; p<0.0001) and males (OR=0.4, CI 0.19, 0.83; p<0.0001) who had not been abused were also associated to attempted suicide. Most of the cases were females (n=104, 52%) and males (n=46, 23%) who had been abused during childhood, whereas most of the controls were females who had (n=67, 36%) and had not (n=52, 28%) been abused (Figure 6-59).

Figure 6-59: Childhood abuse between Māori attempted suicide cases and controls by gender.

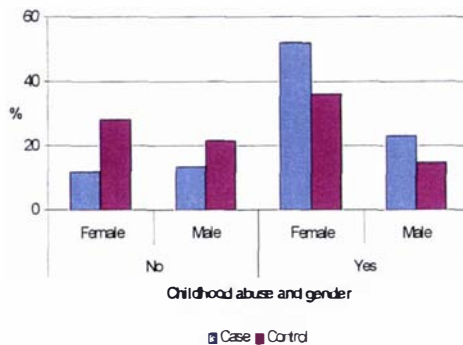
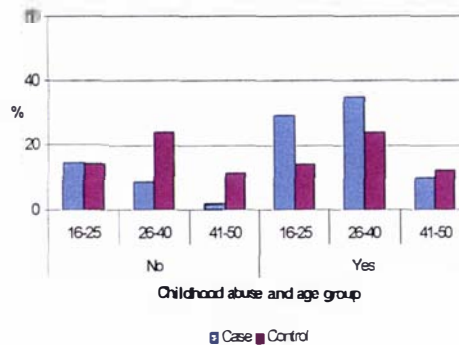


Figure 6-60: Childhood abuse between Māori attempted suicide cases and controls by age group.





Being abused during childhood and being middle aged (OR=3.9, CI 1.9, 8;  $p<0.0001$ ) or older (OR=4.6, CI 1.2, 18.9;  $p<0.0001$ ) was associated to attempting suicide and being middle aged (OR=0.25, CI 0.12, 0.52;  $p<0.0001$ ) or older (OR=0.22, CI 0.05, 0.84;  $p<0.0001$ ) and not abused was not associated. Being in the youngest age group, whether abused or not, was not associated to attempting suicide. Cases were more likely to be middle aged (n=71, 35%) or younger (n=59, 29%) who had abused during childhood; whereas controls were more likely to be middle aged and not abused (n=45, 24%) and abused (n=45, 24%) (Figure 6-60).

*Recent abuse*

Females (OR=4.7, CI 2.6, 8.6;  $p<0.0001$ ) and males (OR=2.2, CI 1.03, 4.5;  $p<0.0001$ ) who were exposed to recent abuse were associated to attempting suicide. However, females (OR=0.21, CI 0.12, 0.39;  $p<0.0001$ ) or males (OR=0.46, CI 0.22, 0.97;  $p<0.0001$ ) without being abused were also associated to attempted suicide. Most cases were females who had (n=105, 52%) and had not (n=42, 21%) been abused recently; whereas most controls were females who had not (n=65, 34%) and had (n=58, 31%) abused recently (Figure 6-61).

Figure 6-61: Recent abuse between Māori attempted suicide cases and controls by gender.

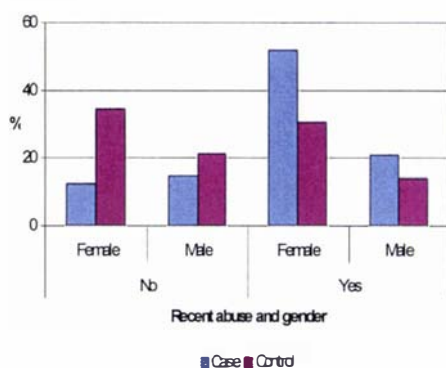
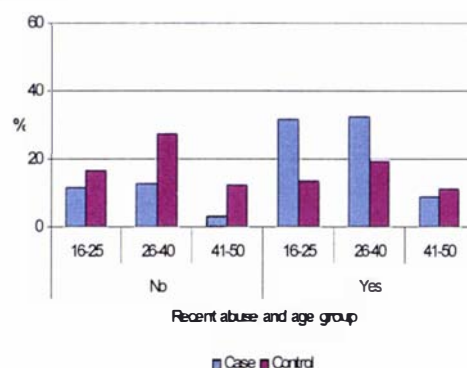


Figure 6-62: Recent abuse between Māori attempted suicide cases and controls by age group.



Being recently abused and young (OR=3.5, CI 1.6, 7.5;  $p<0.0001$ ) or middle aged (OR=3.5, CI 1.8, 7;  $p<0.0001$ ) was associated to attempting suicide, and being young (OR=0.29, CI 0.13, 0.63;  $p<0.0001$ ) or middle aged (OR=0.28, CI 0.14, 0.55;  $p<0.0001$ ) and not recently abused was also associated. Being in an older age group, whether abused or not, was not associated to attempting suicide. Cases were more likely to be recently abused and middle aged (n=65, 32%) or young (n=64, 31%), whereas controls were more likely to be middle aged and not abused (n=51, 27%) or abused (n=36, 19%) (Figure 6-62).

## Suicidality

Suicidal behaviour includes thoughts, plans and attempts. The percentage of both cases and controls who had ever had suicidal thoughts, plans and attempts is outlined in Table 6-5. Ninety-three percent of both female (n=128) and male (n=70) cases and 41% of female (n=54) and 30% of male (n=21) controls had previously thought about taking their own lives.

Eighty percent of female cases compared with 93% of male cases had made plans to take their lives. Twenty-three female (17%) and one male (1.4%) control had planned to take their lives. One hundred and thirty-two female cases (95%) and 73 male cases (97%) said they had attempted suicide. The seven remaining cases, five females and two males gave the following reasons for their selection into the Māori attempted suicide case control study, including:

*I wanted to get a buzz.*

*I took too much of my meds*

*Took extra pills to have deep sleep family took to hospital when I woke up*

*Swallowed 20 synflex new it wouldn't kill me wanted attention from boyfriend*

*Just wanted to go to hospital I was feeling ill*

*Drank too much and forgot*

*Couldn't take abuse anymore*

Twenty-one (16%) female and one male control (1.4%) had previously attempted suicide.

Table 6-5: Suicidality between Māori attempted suicide cases and controls by gender.

Suicidality		Female (n=137 cases; n=131 controls)		Male (n=75 cases; n=70 controls)	
		Number	%	Number	%
Thoughts	Case	128	93	70	93
	Control	54	41	21	30
Plans	Case	110	80	70	93
	Control	23	17	1	1.4
Attempts	Case	132	95	73	97
	Control	21	16	1	1.4

Cases of attempted suicide who denied they had thoughts about taking their lives were more likely to be young (n=9, 9%) than in their middle (n=3, 5%) or third (n=2, 5%) age. Controls who had thought about taking their lives were more likely to be middle aged (n=38, 40%), older (n=17, 36%) then younger (n=20, 34%). Cases who denied they had ever planned to take their lives were more likely to be younger (n=19, 18%) followed by middle (n=9, 14%) and then older (n=4, 9%) in age. Controls who had made plans were middle aged (n=12, 13%), young (n=7, 12%) then older (n=5, 11%). Cases who denied

attempting suicide were older (n=2, 5%), middle aged (n=2, 3%) then young (n=3, 3%). Controls who denied attempting suicide were middle aged (n=14, 15%), young (n=6, 10%) and old (n=2, 4%). Of the controls who had attempted suicide all had thought about taking their own lives and 17 (80%) had planned to do so; the remainder had made no plans before their attempt.

## HEALTH MODEL

Table 6-6: Model of health status and Māori attempted suicide.

Other variables in model	Age + gender	Age + gender + income + employment + age left school	Age + gender + alcohol + marijuana + other illicit drugs	Age + gender + abuse in last 12 months
GHQ total OR (95%CI)	X <sup>2</sup> <sub>1</sub> =69.79 p <0.0001 1.28 (1.21, 1.36)	X <sup>2</sup> <sub>1</sub> =69.21 p <0.0001 1.28 (1.21, 1.36)	X <sup>2</sup> <sub>1</sub> =61.05 p <0.0001 1.28 (1.20, 1.36)	X <sup>2</sup> <sub>1</sub> =67.66 p <0.0001 1.28 (1.20, 1.35)
HADS-A OR (95%CI)	X <sup>2</sup> <sub>1</sub> =77.84 p <0.0001 1.36 (1.27, 1.46)	X <sup>2</sup> <sub>1</sub> =58.58 p <0.0001 1.35 (1.25, 1.45)	X <sup>2</sup> <sub>1</sub> =69.35 p <0.0001 1.34 (1.25, 1.43)	X <sup>2</sup> <sub>1</sub> =61.57 p <0.0001 1.33 (1.24, 1.43)
HADS-D OR (95%CI)	X <sup>2</sup> <sub>1</sub> =74.42 p <0.0001 1.54 (1.39, 1.69)	X <sup>2</sup> <sub>1</sub> = 66.53 p <0.0001 1.55 (1.40, 1.72)	X <sup>2</sup> <sub>1</sub> = 62.93 p <0.0001 1.51 (1.36, 1.67)	X <sup>2</sup> <sub>1</sub> = 64.13 p <0.0001 1.51 (1.36, 1.67)

When the GHQ-28 and HADS takes into account age, gender, socio-economic factors, substance use and recent abuse there is little or no change to general health status, anxiety and depression with respect to attempting suicide.

## SUMMARY

An overall poor general health status indicated by both the GHQ-28 and HADS after adjustment for age and gender, was associated to attempting suicide. Recent and childhood abuse were infrequent but nonetheless appeared to be associated to attempting suicide. Substance use on a frequent basis was associated to attempting suicide. Health service use was relatively low between both the cases and controls and did not appear to be an indicator of association to attempting suicide.

Those cases and controls who had suicidal thoughts had the same mean age (20 years); whereas cases who had planned and attempted suicide were slightly older than controls. The majority of those who had attempted suicide had done so only once previously. Cases tended to have a greater intention to want to kill themselves compared with controls whose

motivation was less specific, sometimes serious attempts but often a cry for help. The usual method used by cases was poisoning by solids and liquids, followed by cutting and piercing.

The GHQ-28 with respect to gender, age, income, education, employment, interpersonal abuse and substance use was explored extensively. Having a poor general health status was negatively associated to attempting suicide when related with: being male, leaving school before age 15, being unemployed, being recently abused or abused during childhood, and having a substance abuse problem. In contrast, having a poor GHQ-28 score, leaving school after age 15 and being in paid employment was positively associated to attempting suicide.

High HADS scores for anxiety was associated to attempting suicide irrespective of gender, age, income, leaving school older than 15 years, being employed, being abused recently or not being abused during childhood, and not using substances. High HADS scores for depression also was associated to attempting suicide particularly for females, the young (16–24 years) and the old (40–50 years). However, this was irrespective of income, education, employment, recent or childhood abuse, and substance use.

Substance use included assessment of alcohol, marijuana and other illicit drug use. Having an alcohol problem defined by the CAGE was associated to attempting suicide, particularly with females and the middle aged. Using marijuana and other illicit drugs irrespective of gender and being under the age of 40 was associated to attempting suicide.

Recent abuse was negatively associated to attempting suicide in both males and females under the age of 40. Childhood abuse was negatively associated to attempting suicide for both genders over the age of 25.

Forty-one percent of female and 30% of male controls had thoughts of taking their own lives. Seventeen percent of females and 1.4% of male controls had planned to take their own lives, and 16% of female and 1.4% of male controls had attempted suicide previously. Seven cases denied attempting suicide and gave varying reasons for their hospitalisation including medication mistakes, getting high, forgetting, and escaping. These cases were generally older.



## CHAPTER 7

# KAINAMU WHAKAMOMORI–WHAKANGAHAU OHAOHA: SOCIO-ECONOMIC INDICATORS OF MĀORI ATTEMPTED SUICIDE

Ngā Peke Whakangahau Ohaoha-Socio-economic Strands	Ngā Rau Whakangahau Ohaoha-Socio-economic Threads
Broad Approach	Introduction
Socio-economic Descriptors	Demographic factors Age Gender Sexual orientation Living environment Marital status Education Employment Income New Zealand Deprivation Index NZDep2001 Māori attempted suicide
Socio-economic Indicators	Demographics factors Education Employment Income
Socio-economic Status Model	Multivariate analysis

## INTRODUCTION

This chapter is divided into three sections. The first is a descriptive account of demographic and socio-economic factors associated to the cases and controls of the study, including education, employment, income and the New Zealand Deprivation Index. The second section examines the relationship between demographic and socio-economic factors. The last section models socio-economic factors with respect to age, gender, substances and recent abuse.

## SOCIO-ECONOMIC DESCRIPTORS

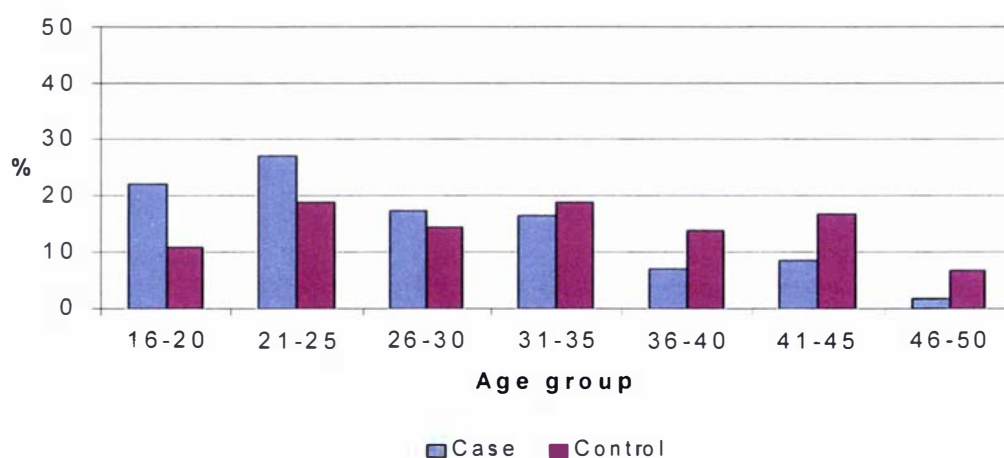
The following section discusses demographic and socio-economic factors in relation to the Māori attempted suicide study.

### Demographic Factors

#### *Gender*

A total of 137 female cases (64%), 133 female controls (65.5%), 75 male cases (35%) and 70 male controls (34.5%) participated in the study. Two case participants identified as transgender male to female sex changed Māori. These two transgender people were not included in any of the gender analyses.

Figure 7-1: Māori attempted suicide cases and controls by age group.



#### *Age*

The distribution of cases across the seven age groups from 16 to 50 tended to be slightly skewed toward the younger age groups whereas the controls were more evenly distributed across all age groups (Figure 7-1). The mean age of the cases (mean=27.9, sd 26.8-29) was

slightly younger than the controls (mean=32.3, sd 31-33.5). However, there is no statistically significant difference between the cases and controls with respect to age and attempted suicide (OR=5.8,  $\chi^2=11.48$ ;  $p=0.0679$ ).

*Sexual orientation*

Participants were asked about their sexual orientation (Table 7-1). Ninety-two percent of the cases and controls identified as heterosexual. The remaining cases and controls were attracted to the same sex (5.6% cf 2%), both sexes (2% cf 3%), neither sex (0% cf 2%) or were not sure (0.5% cf 0.5%).

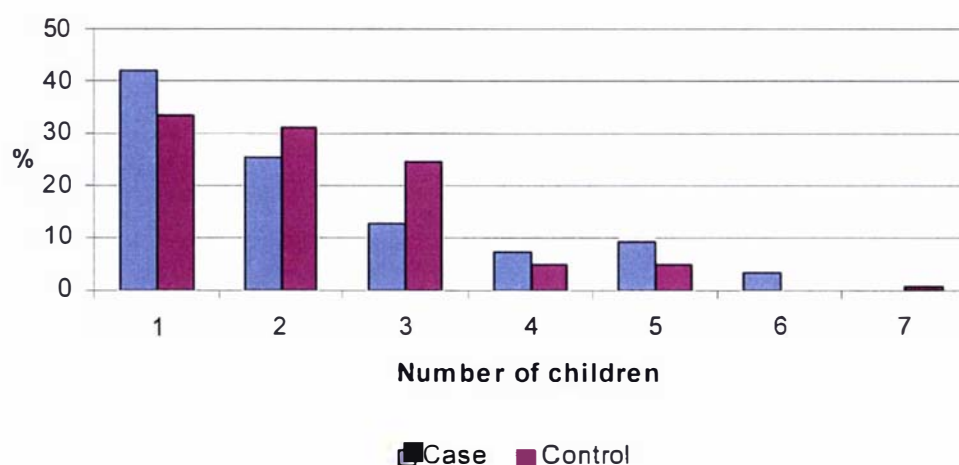
Table 7-1: Sexual orientation between Māori attempted suicide cases and controls.

Sexual orientation	Case		Control		Odds ratio (OR)	Confidence Interval (CI, 95%)
	No.	%	No.	%		
Opposite	196	92	186	92	0.41	0.15, 1.07
Same	12	6	4	2	2.96	0.87, 11.06
Both	4	2	6	3	0.63	0.15, 2.54
Neither	0	0	4	2		
Not sure	1	0	1	1		
Refuse	0	0	1	1		

*Living environment*

A total of 39 cases (18%) and 20 controls (10%) lived alone (OR=2, CI 1.1, 3.8,  $p=0.0143$ ). As Table 5-10 indicated living with someone was associated to attempting suicide (OR=0.49, CI 0.26, 0.90;  $p=0.0143$ ).

Figure 7-2: Māori attempted suicide cases and controls by the number of children living with them.

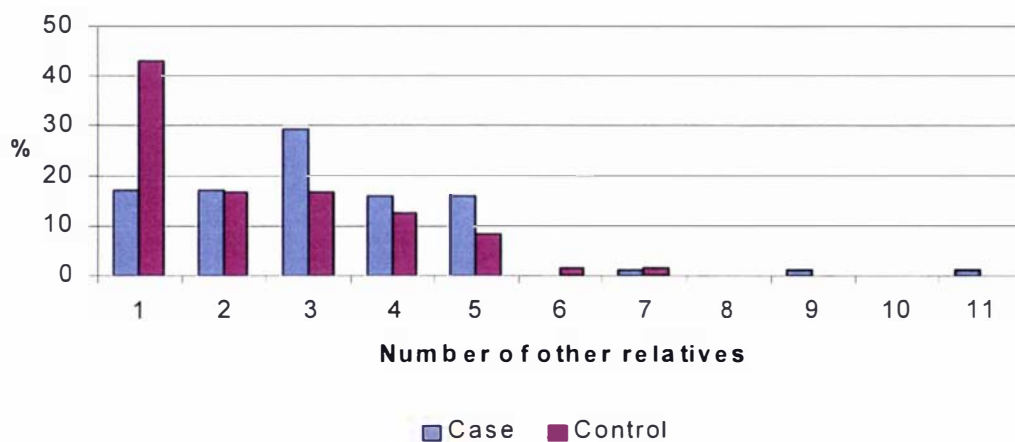


Participants were also asked with whom they lived. Seventy-one cases (33%) and 115 controls (57%) said they lived with their partner, wife or husband (OR=0.38, CI 0.25, 0.58). Fifty-five cases (26%) and 123 controls (61%) said they lived with children (OR=0.22, CI 0.15, 0.35;  $p<0.0001$ ). The number of children with who cases and controls lived is illustrated in Figure 7-2. Being a solo parent irrespective of gender was not, however, statistically associated to attempting suicide (OR=1.98, CI 0.96, 4.08,  $p=0.0435$ ).

Cases ( $n=75$ , 35%) and controls ( $n=72$ , 35.5%), who lived with other relatives including grandchildren were not associated to attempted suicide (OR=0.98, CI 0.64, 1.5). Controls were more likely to have at least one other relative living with them than cases (OR=0.28, CI 0.12, 0.63;  $p<0.0001$ ). Living with two relatives was also associated to attempting suicide (OR=0.36, CI 0.17, 0.74;  $p<0.0001$ ). If participants lived with any more relatives there was no significant relationship with attempting suicide.

The number of cases ( $n=55$ , 26%) and controls ( $n=40$ , 20%) who lived with people other than their whānau (family) was not associated to attempting suicide (Figure 7-3).

Figure 7-3: Māori attempted suicide cases and controls by the number of other relatives (including grandchildren) living with them.



### *Partner status*

The number of non-partnered cases and control compared with partnered was significantly different (OR=4.77, CI 3, 7.5). Being non-partnered was associated to attempting suicide. Partnership was based on the number of participants who were married (OR=0.16, CI 0.10, 0.28) or single (OR=6.1, CI 3.6, 10.4). However, being divorced (OR=0.48, CI 0.12, 1.82), separated (OR=0.46, CI 0.19, 1.10), or widowed (OR=1.17, CI 0.08, 33) were not associated to attempting suicide.

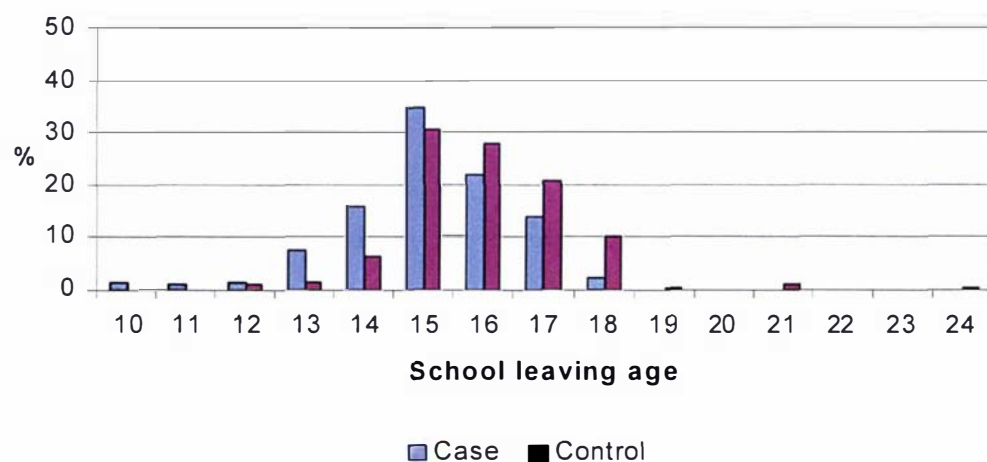


## Education

Education in New Zealand is based on a three-tiered system where primary school covers years 1 to 8 (about 5-13 years of age) and secondary school includes years 9 to 13 (about 12–18 years of age). Tertiary education includes wananga (Māori educational environments), polytechnics, private training establishments and universities. At the time of the study qualifications were received during year 11 (school certificate), year 12 (sixth form certificate) and year 13 (bursary). In year 11 students sat five or six nationally graded papers, in year 12 they sat six papers that are internally assessed, and in year 13 they sat up to five nationally graded papers. For the purposes of this study education is marked by the years attending rather than by qualification gained.

Participants were asked how old they were when they left school. The youngest participants were 10-years-old and the oldest was 24-years-old. Cases (n=57, 26%) were more likely (OR=3.73, CI 2.04, 6.88; p<0.0001) to have left school before the age of 15 than controls (n=18, 9%). Therefore, leaving school before age 15 was associated to attempting suicide. Leaving school after age 15 (OR=0.27, CI 0.15, 0.49; p<0.0001), 16 (OR=0.4, CI 0.26, 0.61; p<0.0001), or 17 (OR=0.38, CI 0.23, 0.62; p<0.0001) was also associated to attempting suicide (Figure 7-4).

Figure 7-4: Age Māori attempted suicide cases and controls left school.



There were 12 cases (6%) and two controls (1%) whose highest completed education was primary school. The majority of both cases (n=183, 89%) and controls (n=164, 84%) left school during their secondary education. Fewer cases (n=11, 5%) than controls (n=29, 14%) had participated in tertiary education including polytechnic or university institutions (OR=0.33, CI 0.15, 0.70; p<0.0016).

Four cases did not go to secondary school, one case left in each of Years 3, 5 and 8, two left in year 6, and three left in Year 7 during their primary education. Only two controls left school during primary school and that was in the last year, Year 8.

The first two years of secondary education (Year 9 and 10) are non-qualification years and 58 cases (32%) and 35 controls (21%) left school during that time (OR=1.7, CI 1.02, 2.86;  $p<0.0155$ ), and was associated to attempting suicide. Year 11 is the first year of qualification examinations and 72 cases (39%) and 50 controls (30%) left school without gaining a qualification (OR=1.55, CI 0.99, 2.43;  $p=0.0431$ ). Nine cases (5%) and 24 controls (14.6%) left school with school certificate (OR=0.33, CI 0.14, 0.76;  $p<0.0040$ ). A further 21 cases and 22 controls left school in Year 12 without sixth form certificate (OR=0.90, CI 0.46, 1.76;  $p=0.7310$ ). Three cases and controls left school with sixth form certificate. There were nine cases (5%) and 19 controls (12%) who left school during Year 13 (OR=0.43, CI 0.17, 1.02;  $p=0.0356$ ), not associated to attempting suicide. Three cases (1.6%) and seven controls (4.3%) left with the highest secondary school qualification (bursary, year 12).

There were four cases (36%) and nine controls (31%) who had been to a polytechnic institution (OR=1.3, CI 0.23, 6.8), and seven cases (64%) and 20 controls (69%) who had been to university (OR=0.8, CI 0.15, 4.29). Of those currently attending educational institutions there were slightly fewer cases ( $n=20$ , 9.3%) than controls ( $n=34$ , 17.8%).

Figure 7-5: Number of primary schools attended between Māori attempted suicide cases and control.

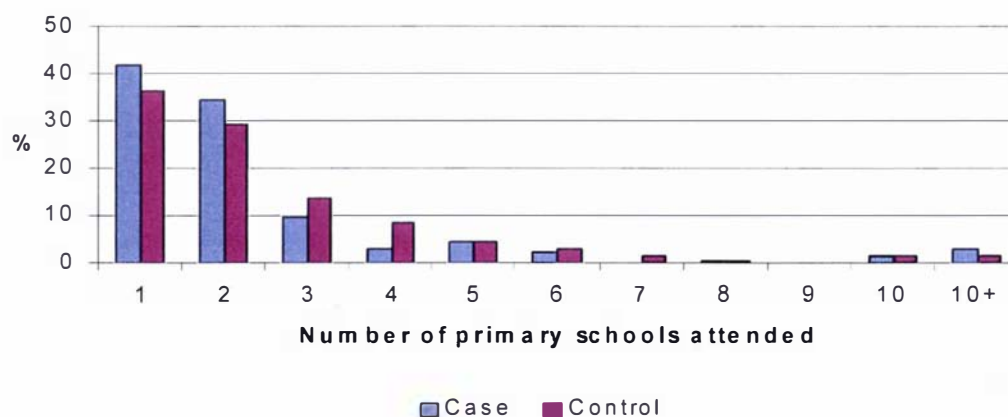


Figure 7-5 demonstrates the distribution of cases and controls by the number of primary schools attended. The majority of cases ( $n=161$ , 76%) and controls ( $n=132$ , 65%) had attended one or two primary schools (OR=1.7, CI 1.09, 2.69;  $p=0.022$ ) and was associated to attempting suicide. In contrast attending more than two primary schools was positively associated (OR=0.59, CI 0.37, 0.92;  $p=0.022$ ).

Figure 7-6: Number of secondary schools attended between Māori attempted suicide cases and control.

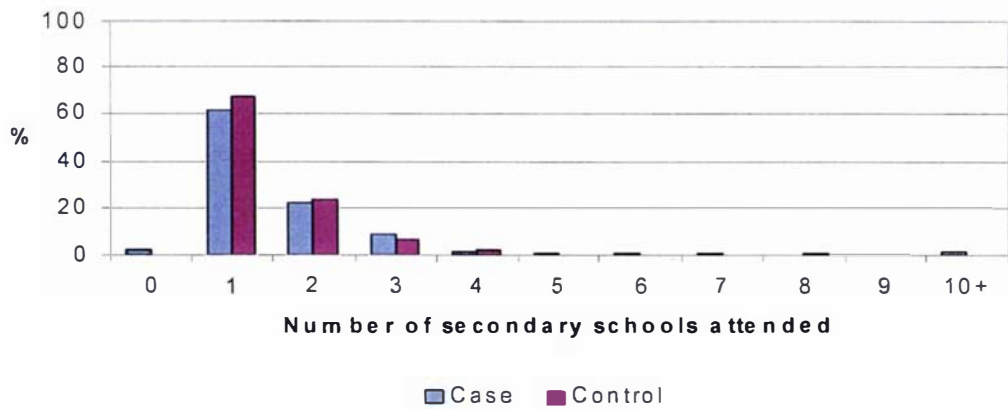
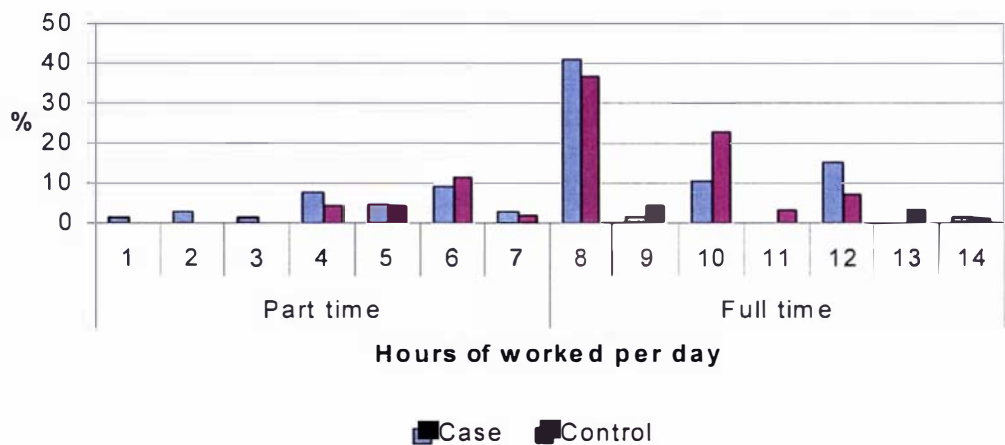


Figure 7-6 demonstrates the distribution of cases and controls by the number of secondary schools attended. The majority of both cases (n=130, 62%) and controls (n=135, 67.5%) had attended only one secondary school (OR=0.78, CI 0.51, 1.2; p=0.2493). Attending more than one secondary school was unrelated to attempting suicide (OR=1.28, CI 0.83, 1.96; p=0.2493).

### Employment

Sixty-nine (32%) cases and 109 controls (54%) said they were in paid employment at the time of the study (OR=0.41, CI 0.27, 0.62; p<0.0001) associated to attempting suicide. The greatest number of cases (n=46, 70%) and controls (n=75, 78%) were employed full time (OR=0.64, CI 0.3, 1.4; p>0.1). However, employment status was not a predictor of attempting suicide. Figure 7-7 demonstrates the distribution of hours worked per day by cases and controls.

Figure 7-7: Māori attempted suicide cases and controls in part-time and full-time employment.

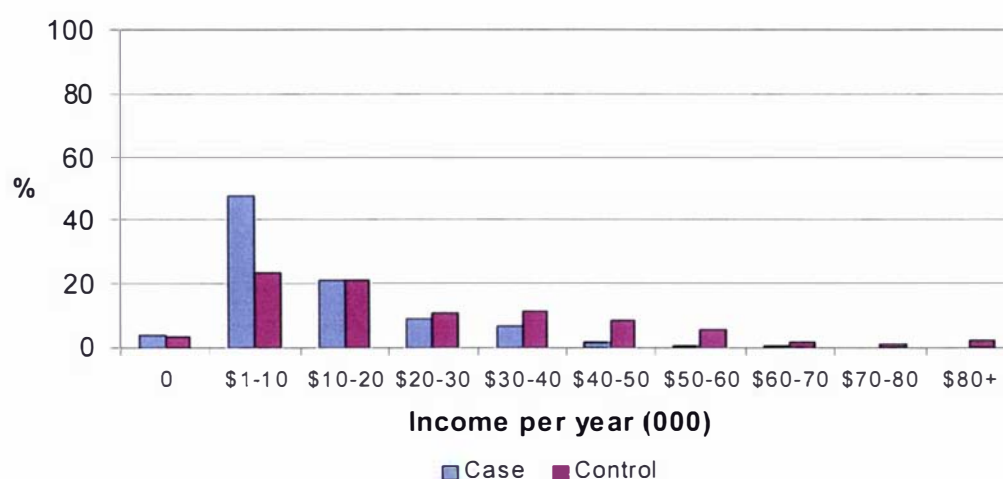


## Income

Participants were asked how much they had earned over the previous 12 months demonstrated in Figure 7-8.

The same number of cases (n=8, 3.8%) and controls (n=7, 3.5%) had not earned an income in the previous year. Most of the cases (n=102, 48%) and controls (n=47, 23%) earned between \$1 and \$10,000 (OR=3.02, CI 1.94, 4.72; p<0.0001), which associated to attempting suicide. Similar proportion of cases and controls earned \$10,000-20,000 (n=45, 21% cf n=43, 21%), \$20,000-30,000 (n=19, 9% cf n=22, 11%), and \$30,000-40,000 (n=15, 7% cf n=23, 11%).

Figure 7-8: Māori attempted suicide cases and control by income level.



Divergence occurred between cases and controls who earned over \$40,000 (n=6, 3% cf n=40, 20%). Participants who earned over \$40,000 were negatively associated to attempting suicide (OR=0.12, CI 0.04, 0.3; p<0.0001).

## New Zealand Deprivation Index (NZDep01)

The New Zealand Deprivation Index (NZDep01) combines nine census variables from the 2001 New Zealand Census, which reflect aspects of material and social deprivation via a statistical technique called principal component analysis. These are calculated at a meshblock level (statistical units defined by Statistics New Zealand containing a median of 90 people), and can be aggregated to larger units. The score is scaled to give a New Zealand average of 1,000, with a standard deviation of 100 index points. Deciles (tenths of the population) are used to differentiate levels of deprivation where decile 1 represents least deprived areas and decile 10 most deprived areas. The variables are, in order of importance in the index:

- communication: people with no access to a telephone
- income: people aged 18–59 receiving a means tested benefit



*Kainamu Whakamomori–Whakangahau Ohaoha: Socio-economic Indicators of Māori Attempted Suicide*

- employment: people aged 18–59 unemployed
- income: people in households with equivalised income below a threshold
- transport: people with no access to a car
- support: people aged <60yrs living in a single parent family
- education: people aged 18–59 without any qualifications
- housing: people not living in own home
- living space: people in households with equivalised, occupancy above a threshold.

There is ongoing debate about the selection of the variables, and the methods of aggregation in the deprivation index. The NZDep96 and NZDep2001 used the average characteristics of an area to classify individuals. Many individuals were misclassified – they may live in an area apparently wealthier than their individual standing would support, or they live an area where their individual characteristics would suggest they have a higher socio-economic status. Notwithstanding this potential for misclassification, when working with large populations, the area classifications can provide a powerful proxy for individual socio-economic status.

Decile groups 9 and 10 (the 20% of New Zealand people living in the most deprived areas) Counties Manukau has 117,000 people, that is 34% of the Counties Manukau population live in areas classified as very deprived. For all district health boards this is the highest absolute number, and the second highest proportion after Northland.

Table 7-2: New Zealand Deprivation Index, percentage within each locality, 1996.

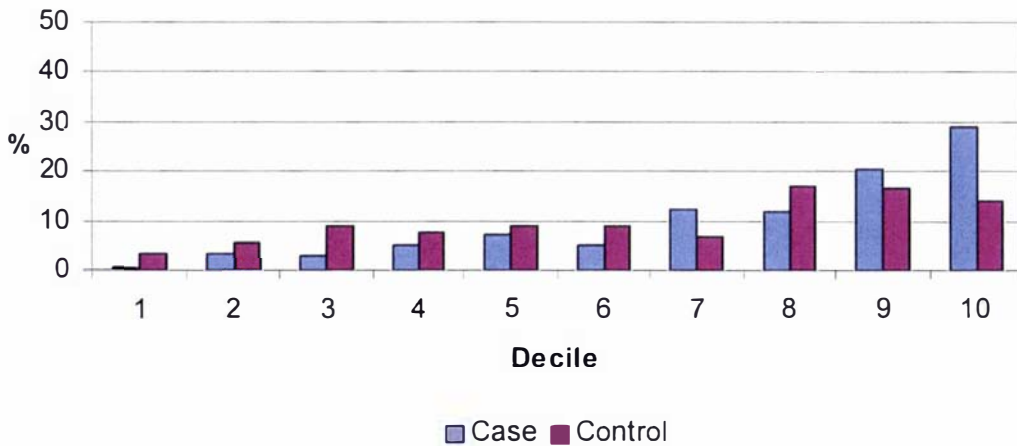
Locality	New Zealand Deprivation Index Deciles* (% in each decile)					
	1-2	3-4	5-6	7-8	9	10
Northland	7	13	18	25	15	21
North Shore/Rodney	35	34	21	9	1	1
West Auckland	21	2	23	27	7	2
Central Auckland	25	19	19	18	9	10
Counties Manukau	22	15	13	17	13	21
Waikato	17	18	19	22	13	12
Bay of Plenty	13	16	19	21	14	15
Tairāwhiti / Hawke's Bay	12	16	19	22	14	18
Taranaki	12	23	24	22	12	7
Wanganui / Manawātū	13	19	23	22	14	10
Wellington	30	19	17	17	7	9
Nelson/Marlborough	19	21	27	26	6	2
Canterbury/West Coast	24	23	22	19	8	4
Otago / Southland	20	24	2	21	9	5
All New Zealand	20	20	20	20	10	10

\*Deciles are 10% groupings at the total New Zealand level, with the same cut-off points used for each area. For this table groups are combined in pairs apart from deciles 9 and 10 (most deprived areas).

Counties Manukau also has a slightly larger proportion of people living in least deprived areas (Deciles 1-2: 22%), so has more than its equitable share of both rich and poor people. A more marked contrast appears when Counties Manukau is compared with Waitemata DHB region, (includes North Shore/Rodney) which has the lowest number of people living in deciles 9 and 10 areas in the country (2%), followed closely by West Auckland (9%) (Jackson et al. 2001).

The majority of both cases (n=104, 50%) and controls (n=63, 41%) within the study resided in deciles 9 and 10 (OR=2.2, CI 1.5, 3.4; p=0.0002), then deciles 7 and 8 (OR=1.01, CI 0.63, 1.63; p>0.001), deciles 5 and 6 (OR=0.66, CI 0.37, 1.18; p>0.001), deciles 3 and 4 (OR=0.44, CI 0.23, 0.85; p<0.0001) and deciles 1 and 2 (OR=0.41, CI 0.16, 1.02; p>0.001). Living in deciles 9 and 10 was negatively associated to attempting suicide. If participants resided in a decile 3 or 4 participants were positively associated to attempting suicide (Figure 7-9).

Figure 7-9: New Zealand Deprivation Index 2001 between Māori attempted suicide cases and controls.



## SOCIO-ECONOMIC INDICATORS

The following section discusses demographic factors, education, income and employment with respect to gender and age.

### Demographic Factors

The two demographics factors discussed in this section are marital status and sexual orientation with respect to gender and age.

Female cases were younger (16–25 years, n=71, 33.5%) than middle aged (n=51, 24%) or third aged (n=15, 7%); whereas controls were middle aged (n=64, 31%), followed by both the young (n=36, 18%) and third aged (n=33, 16%). There was no association between age and gender to Māori attempted suicide (Figure 7-10).

Male cases were middle aged (n=35, 16%), followed by the young (n=33, 15.5%) and then the older (n=7, 3%) age groups. Similarly, the male controls were middle aged (n=31, 15%), followed by the young (n=24, 12%) and then the older (n=15, 7%) age group.

Figure 7-10: Gender by age between Māori attempted suicide case and controls.

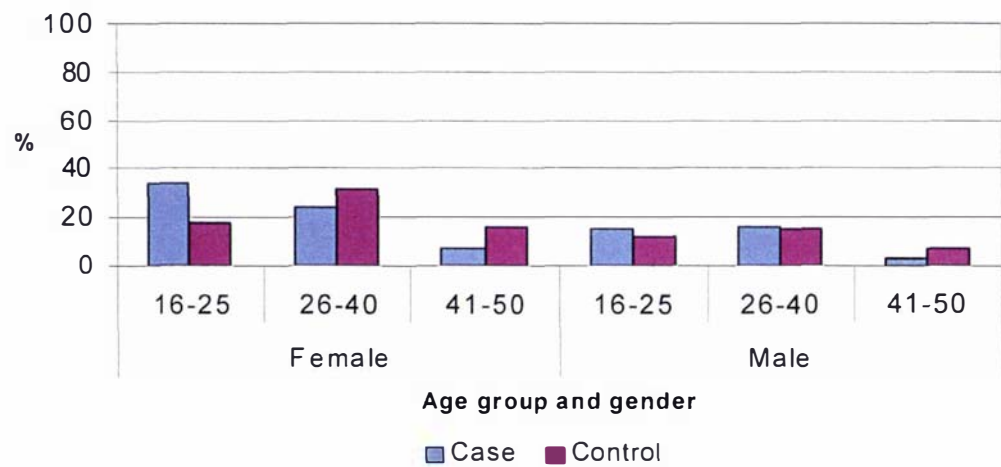
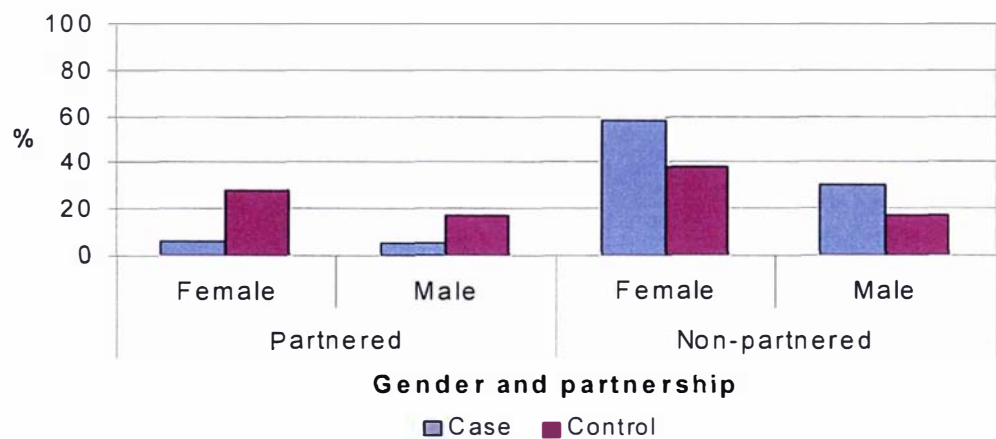


Figure 7-11 shows unpartnered (single, divorced, separated or widowed) female, cases (n=123, 58%) and controls (n=77, 38%) were the most common. Being an unpartnered female was associated to attempting suicide (OR=6.9, CI 3.4, 14.2; p<0.0001).

Figure 7-11: Partnership by gender between Māori attempted suicide case or controls.

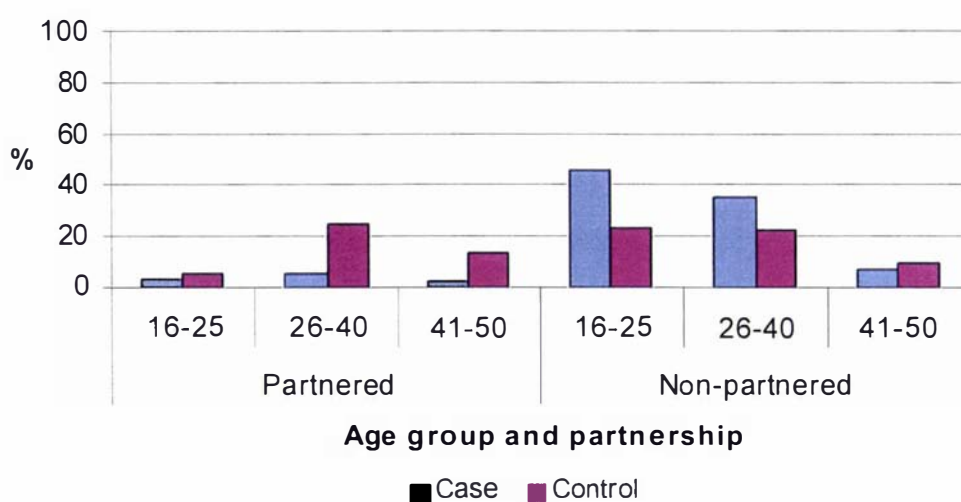


Unpartnered (single, divorced, separated or widowed) male, cases (n=63, 30%) and controls (n=35, 17%) were also the most common. Being an unpartnered male also was associated to

attempting suicide (OR=5.1, CI 2.2, 12; p<0.0001). Therefore, being female (OR=0.15, CI 0.07, 0.30; p<0.0001) or male (OR=0.2, CI 0.08, 0.45; p<0.0001) with a partner was negatively associated to attempting suicide.

Young unpartnered cases (n=98, 46%) and controls (n=47, 23%) were the most common and was associated to attempting suicide (OR=3.6, CI 1.2, 10.9; p<0.0001 Figure 7-12). Middle aged cases (n=75, 35%) and controls (n=45, 22%) who were unpartnered followed in frequency and was also associated to attempting suicide (OR=6.9, CI 3.2, 15.5; p<0.0001).

Figure 7-12: Partnership by age group between Māori attempted suicide case or controls.

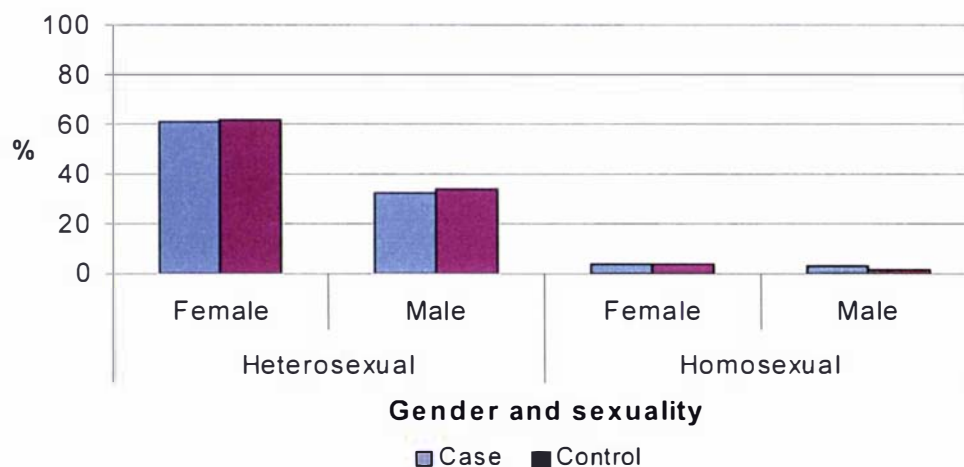


Finally the older cases (n=15, 7%) and controls (n=20, 10%) who were unpartnered were not associated to attempting suicide (OR=0.69, CI 0.32, 1.46; p<0.2954). Therefore, being partnered and any age (young (OR=0.28, CI 0.09, 0.83), middle aged (OR=0.14, CI 0.06, 0.32) or older (OR=0.29, CI 0.08, 0.97)) was associated to attempted suicide.

Female cases (n=128, 60%) and controls (n=121, 61%) whose sexual orientation was for the opposite sex (OR=0.93, CI 0.29, 2.91; p>0.1) were not associated to attempting suicide (Figure 7-13). Being a male heterosexual case (n=68, 32%) or control (n=66, 33.5%) was also not associated to attempting suicide (OR=0.5, CI 0.1, 2.45; p>0.1). Also being homosexual female (OR=1.08, CI 0.34, 3.43; p>0.1) or male (OR=1.94, CI 0.41, 10.28; p>0.1) was not associated to attempted suicide, however there were only small numbers.

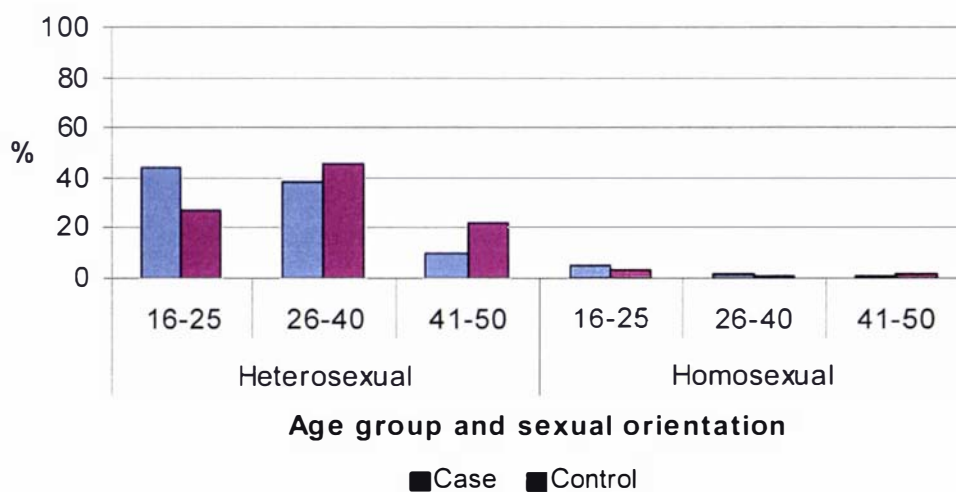


Figure 7-13: Sexual orientation by gender between Māori attempted suicide cases and controls.



Being a young heterosexual case (n=94, 44%) or control (n=53, 26%), being a middle aged heterosexual case (n=82, 38%) or control (n=90, 45%), or being an older heterosexual case (n=20, 9%) or control (n=44, 22%) were all not associated to attempted suicide. Therefore, being any age and homosexual was also not associated to attempting suicide (Figure 7-14).

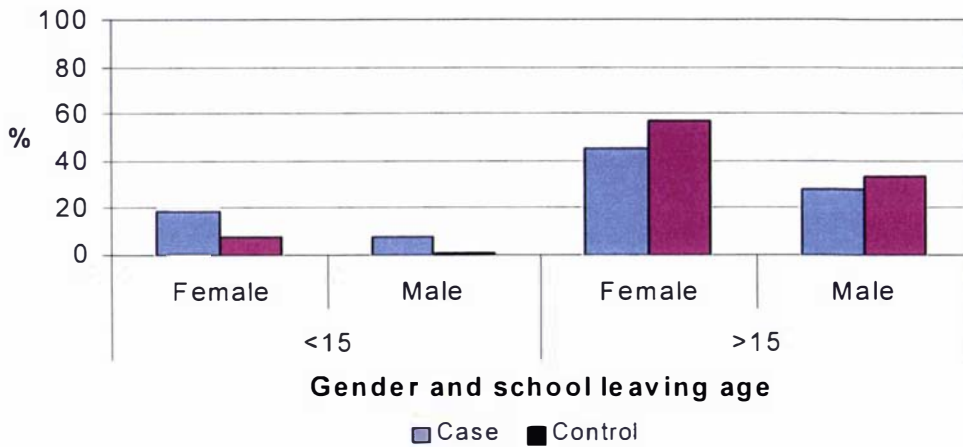
Figure 7-14: Sexual orientation by age group between Māori attempted suicide cases and controls.



## Education

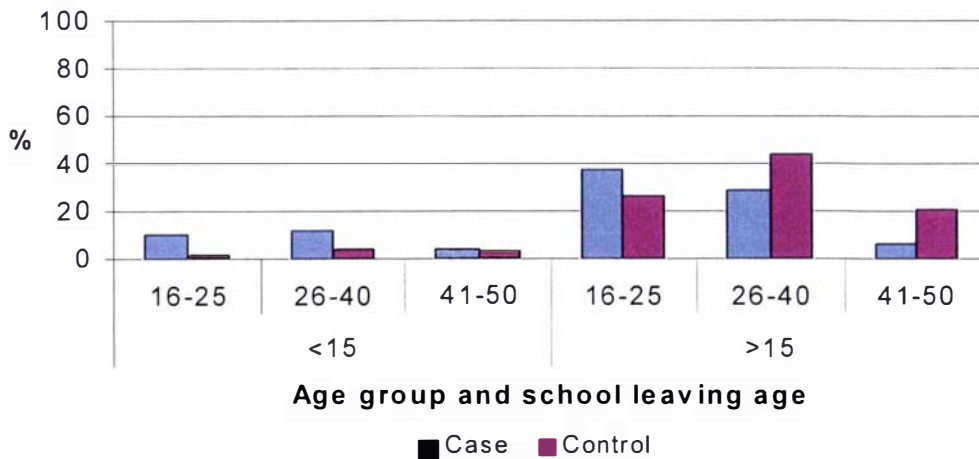
Female (OR=0.34, CI 0.17, 0.68; p=0.02) cases (n=95, 46%) and controls (n=113, 57%) and male (OR=0.11, CI 0.02, 0.52; p=0.02) cases (n=58, 28%) and controls (n=66, 33%) who left school after the age of 15 were associated to attempting suicide. Being female (OR=2.9, CI 1.46, 5.81; p<0.01) or male (OR=9.1, CI 1.88, 60; p<0.01) and leaving school before the age of 15 associated to attempting suicide (Figure 7-15).

Figure 7-15: School leaving age by gender between Māori attempted suicide cases and controls.



Young cases (n=79, 38%) and controls (n=52, 26%) who left school after 15 years (OR=0.21, CI 0.05, 0.78; p<0.01) were the most common associated to attempting suicide (Figure 7-16).

Figure 7-16: School leaving age by age group between Māori attempted suicide cases and controls.



Middle aged cases (n=61, 29%) and controls (n=86, 43%) who left school after 15 years followed in frequency was associated to attempting suicide (OR=0.22, CI 0.08, 0.55; p<0.0001). Lastly, the oldest cases (n=14, 7%) and controls (n=41, 21%) who left school after 15 years were not associated to attempting suicide (OR=0.3, CI 0.08, 1.13; p>0.01). Therefore, leaving school before 15 years and being young (OR=4.8, CI 1.3, 21.4; p<0.01) or middle aged (OR=4.6, CI 1.8, 11.9; p<0.01) was associated to attempting suicide.

## Employment

Unemployed male (OR=5.4, CI 2.5, 11.7; p<0.001) cases (n=50, 23%) compared to controls (n=19, 9%) were associated to attempting suicide (Figure 7-17). Being an employed male

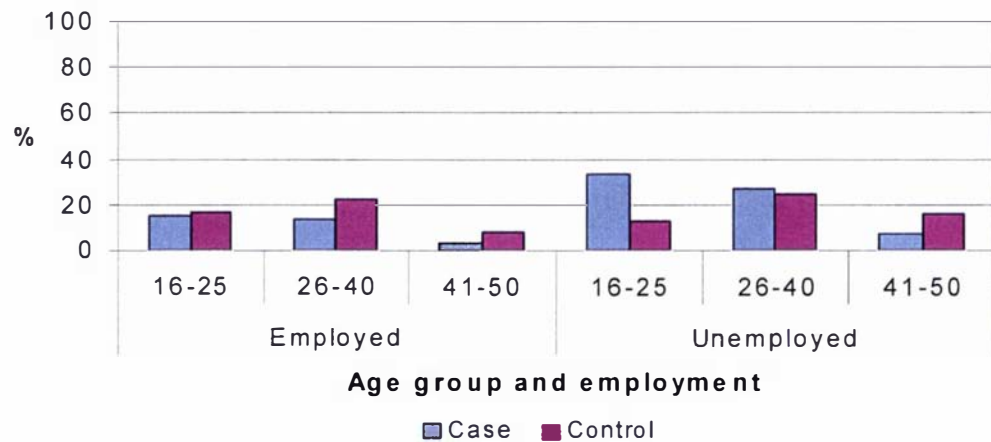
was positively associated (OR=0.19, CI 0.09, 0.4;  $p<0.0001$ ). Female cases and controls employment status was not associated to attempting suicide.

Figure 7-17: Employment status by gender between Māori attempted suicide cases and controls.



Young cases ( $n=72$ , 33%) and controls ( $n=26$ , 12%) who were unemployed (OR=2.85, CI 1.41, 5.81;  $p<0.001$ ) were the most common and associated to attempting suicide (Figure 7-18). Being middle aged (OR=1.8, CI 0.95, 3.44;  $p>0.01$ ) cases ( $n=58$ , 27%) and controls ( $n=50$ , 24%) or the older cases ( $n=15$ , 7%) and controls ( $n=32$ , 15%) who were unemployed were not associated to attempting suicide (OR=1.07, CI 0.32, 3.62;  $p>0.01$ ).

Figure 7-18: Employment status by age group between Māori attempted suicide cases and controls.



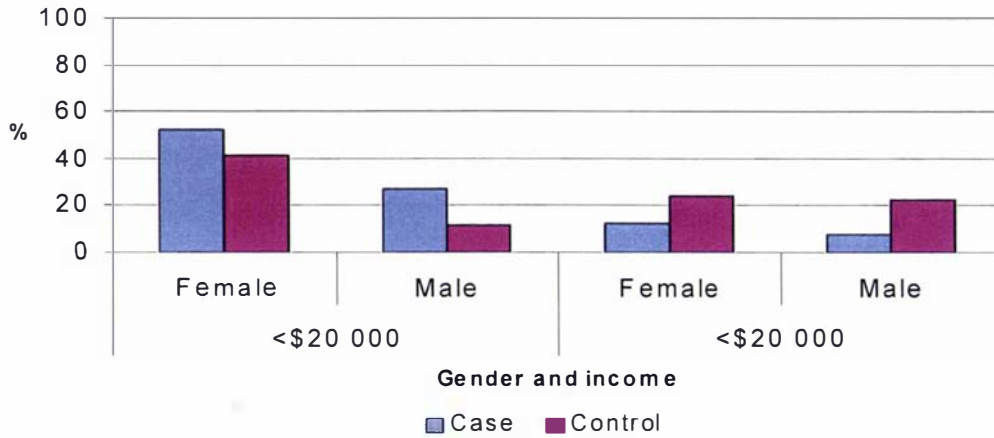
Therefore, being employed and young (OR=2.9, CI 1.4, 5.8;  $p<0.001$ ) was associated to attempting suicide.

### Income

Being either female (OR=2.4, CI 1.3, 4.4;  $p<0.001$ ) cases ( $n=101$ , 52%) and controls ( $n=75$ , 41%) or male (OR=6.6, CI 2.85, 15.44;  $p<0.001$ ) cases ( $n=53$ , 27%) and controls ( $n=22$ , 12%) who earned less than \$20,000 in the previous year was associated to attempting suicide

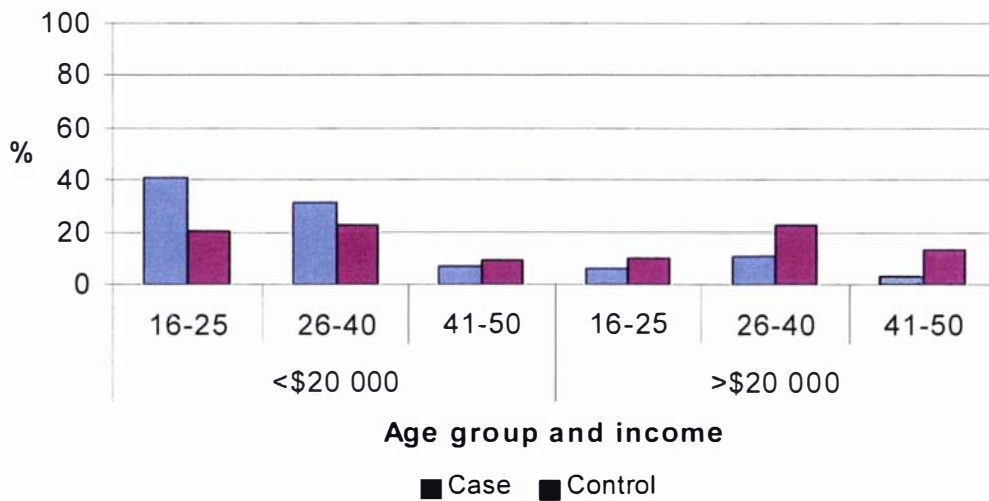
(Figure 7-19). Being female (OR=0.4, CI 0.23, 0.78;  $p<0.001$ ) or male (OR=0.15, CI 0.06, 0.35;  $p<0.001$ ) and having earned more than \$20,000 was associated to attempting suicide.

Figure 7-19: Income level by gender between Māori attempted suicide cases and controls.



Young cases (n=80, 41%) and controls (n=37, 20%) who earned less than \$20,000 in the previous year (OR=3.2, CI 1.32, 7.66;  $p<0.001$ ) were the most common and was associated to attempting suicide (Figure 7-20).

Figure 7-20: Income by age group between Māori attempted suicide cases and controls.



Middle aged cases (n=61, 31%) and controls (n=42, 23%) who earned less than \$20,000 in the previous year followed and was associated to attempting suicide (OR=2.9, CI 1.44, 5.91;  $p<0.001$ ). Lastly the older cases (n=14, 7%) and controls (n=17, 24%) who earned less than \$20,000 were not associated to attempted suicide (OR=3.3, CI 0.93, 12.14;  $p>0.01$ ). Therefore, earning more than \$20,000 and being young (OR=0.32, CI 0.13, 0.76) or middle aged (OR=0.34, CI 0.17, 0.7;  $p<0.001$ ) was associated to attempting suicide.



Table 7-3: Mode of socio-economic status (education, employment and income) between Māori attempted suicide cases and controls.

Indicators	Adjusted Odds ratio (95% CI)	Chi squares; P value	Socio-economic status model	
			OR (95% CI);	X <sup>2</sup> ; P value
Left school >15 years	0.61 (0.5, 0.8)	X <sup>2</sup> <sub>1</sub> = 21.8; p<0.0001	0.62 (0.5, 0.8)	X <sup>2</sup> <sub>1</sub> = 12.5; p=0.0004
Employed	0.5 (0.3, 0.8)	X <sup>2</sup> <sub>1</sub> = 9.99; p=0.002	1.2 (0.5, 2.5)	X <sup>2</sup> <sub>1</sub> = 0.15; p=0.7
Income				
0-10,000	15.3 (4.7, 53.7)	X <sup>2</sup> <sub>3</sub> = 21.2; p=0.0001	13.9 (3.2, 60.9)	X <sup>2</sup> <sub>3</sub> = 13.0; p=0.004
10,001-20,000	10.2 (3.2, 32.2)		7.48 (1.9, 29.5)	
20,001-40,000	5.15 (1.6, 16.9)		4.87 (1.4, 17.6)	
40,0001+	1		1	

Table 7-3 displays the relationship between socio-economic factors such as education, employment, income and Māori attempted suicide. As indicated earlier being employed was positively associated to attempting suicide. However, when leaving school and income are accounted for, employment is no longer associated to attempted suicide. Receiving an education beyond 15 years of age is positively associated and remains after employment and income are accounted for. As income increases the association to attempted suicide weakens but remains associated until more than \$40,000 per year is earned. When education and employment are accounted for within income the association weakens slightly.

## SOCIO ECONOMIC STATUS MODEL

Table 7-4 shows the relationship socio-economic factors have when age, gender, substances use and abuse are accounted for. Leaving school before the age of 15 irrespective if age, gender, substance use and abuse was associated to attempted suicide. When age, gender and abuse were accounted for in the school-leaving age the association weakened but remained (OR=2.4, CI 1.4, 4.0; p<0.0007). A similar pattern was observed with substance use (OR=2.0, CI 1.2, 3.4; p<0.009).

Being employed was negatively associated to attempting suicide even after age and gender (OR=0.5, CI 0.3, 0.8; p=0.003), substances use (OR=0.5, CI 0.3, 0.9; p=0.01) and abuse (OR=0.5, CI 0.3, 0.8; p=0.003) were accounted for. Earning less than \$20,000 per year was negatively associated to attempting suicide, particularly when age and gender (OR=2.9, CI 1.7, 4.8; p<0.0001), substance use (OR=2.9, CI 1.7, 4.9; p<0.0001) and abuse (OR=2.7, CI 1.6, 4.6; p<0.0001) were incorporated.

Table 7-4: Model of socio-economic status ( age, gender, substance use and any interpersonal abuse received in the previous 12 months) between Māori attempted suicide cases and controls.

Other variables in model		Crude OR (CI)	Age + gender	Age + gender + alcohol + marijuana + drugs	Age + gender + abuse in last 12 months
Age left school			$X^2_1=11.8$ $p=0.0007$	$X^2_1=6.9$ $p=0.009$	$X^2_1=10.98$ $p=0.001$
	<15 years	3.7 (2, 6.9)	2.4 (1.4, 3.8)	2.0 (1.2, 3.4)	2.4 (1.4, 4.0)
	≥15 years	1	1	1	1
Employment			$X^2_1=8.8$ $p=0.003$	$X^2_1=6.4$ $p=0.01$	$X^2_1=8.9$ $p=0.003$
	Yes	0.4 (0.3, 0.6)	0.5 (0.3, 0.8)	0.5 (0.3, 0.9)	0.5 (0.3, 0.8)
	No	1	1	1	1
Income			$X^2_1=16.4$ $p=0.0001$	$X^2_1=14.9$ $p=0.0001$	$X^2_1=13.1$ $p=0.0003$
	<\$20,000	1.2 (0.8, 1.8)	2.9 (1.7, 4.8)	2.9 (1.7, 4.9)	2.7 (1.6, 4.6)
	≥\$20 000	1	1	1	1

## SUMMARY

More female than male cases attempted suicide during the study. The number of community-based controls, female and male, were the same as the cases. Cases were slightly younger than controls but not significantly. Sexual orientation was not associated to attempted suicide in this study.

Living alone, living in decile 9 or 10 area, being unpartnered (single, separated, divorced or widowed), leaving school before 15 years of age, having no formal school qualifications, earning less than \$10,000 in the previous year, and being unemployed were negatively associated to Māori attempting suicide.

Living with someone (children, other relatives, or spouse), living in decile 3 or 4 area, leaving school after 15 years of age, receiving tertiary education, having a formal school qualification, attending more than two primary schools, earning more than \$40,000 in the previous year, and being employed was positively associated to Māori attempting suicide.

The deprivation index applies to areas, not people, and is thus useful in including the contextual as well as compositional variables affecting socio-economic status. The area index is also used as a proxy for individual socio-economic status when individual level data on income, education and occupation are not available. Caution must be exercised when using

the index in this way – heterogeneity within meshblocks, and certainly within census area units mean that any socio-economic gradient present will be underestimated. The scores derived by the NZDep96-01 process are relative not absolute – they are rankings rather than exact measures (Jackson et al. 2001).

Sexual orientation with respect to gender and age was not associated to attempting suicide.

Female participants were more likely to be younger, middle aged and then older; whereas male participants were more likely to be middle aged, younger, then older. Irrespective of gender, being partnered, leaving school after 15 years of age, and earning more than \$20,000 in the previous year was negatively associated to attempting suicide. The reverse of those factors was positively associated. Being employed is positively associated only for males, and is not associated with females and attempting suicide.

Being partnered irrespective of age was negatively associated to attempting suicide. Being young, a school leaver over 15 years of age, having an income more than \$20,000 in the previous year and being employed all negatively associated to attempting suicide. The reverse of these factors were all negatively associated to attempted suicide. A middle-aged participant was negatively associated to attempting suicide if they left school after 15 years and earned over \$20,000 in the previous year. Being a school leaver under 15 years of age and earning less than \$20,000 was associated to attempting suicide. If the participants were older (over 40 years), only having a partner was negatively associated and not having a partner positively associated to attempted suicide; whereas the other factors of school leaving age, income and employment were not associated to attempting suicide.

Socio-economic status modelling with respect to school leaving age, employment and income revealed that when these are incorporated, the school leaving age and income remain indicators of attempting suicide.

When socio-economic factors of school leaving age, employment and income were modelled with age, gender, substance use and abuse, all were found to be factors that influenced attempting suicide for Māori.





## CHAPTER 8

# KAINAMU WHAKAMOMORI – TE AO MĀORI CULTURE AND MĀORI ATTEMPTED SUICIDE

Ngā Peke Te Ao Māori – Cultural Strands	Ngā Rau Te Ao Māori – Cultural Threads
Broad Approach	Introduction
Cultural Descriptors	Identity W akapapa Iwi Hapū Waka Marae W ānau Tikanga W enua Organisations Kai Te reo Māori Ability, utilisation, importance
Cultural Identity	Gender Age Socio-economic factors Health factors Substance utilisation Interpersonal abuse
Cultural Status Model	Multivariate analysis

### INTRODUCTION

This chapter examines cultural indicators and identity in relation to suicidal behaviour in Māori. It is divided into four main sections: the first describes the differences between cases and controls with respect to identity, whakapapa, tikanga, whenua, organisations, traditional kai preparation and te reo Māori. The second section models culture with respect to secure, positive, notional and compromised identities. Cultural identity is then measured against

individual indicators including gender, age, socio-economic factors, health factors, substance abuse and interpersonal abuse. An aggregate of gender, age, socio-economic factors, health factors, substance abuse and interpersonal abuse is modelled against cultural identity in the third section. Finally, a summary highlights the main findings.

## CULTURAL INDICATORS

Seven cultural indicators were initially used to compare cases and controls.

### Identity

Self identification of cases and controls is presented in Table 8-1. Cases identified as sole Māori (n=127, 59%), then Māori/Pākehā (n=54, 25%). Community-based controls on the other hand were more widely distributed between sole Māori (n=75, 37%), Māori/Pākehā (n=56, 28%), New Zealander (n=25, 12%) and Kiwi (n=24, 12%).

Table 8-1: Ethnic self-identification between Māori attempted suicide cases and controls.

Self-identification	Cases		Controls		OR	CI	P value
	Number	(%)	Number	(%)			
Sole Māori	127	59.3	75	36.9	<b>2.49</b>	1.65, 3.77	<0.0001
Māori/Pākehā	54	25.2	56	27.6	<b>0.89</b>	0.56, 1.40	0.5863
Part Māori	6	2.8	11	5.4	<b>0.50</b>	0.16, 1.51	0.1776
Part Pākehā	3	1.4	2	1.0	<b>1.43</b>	0.19, 12.34	0.6963
Kiwi	12	5.6	24	11.8	<b>0.44</b>	0.20, 0.96	0.0241
New Zealander	3	1.4	25	12.3	<b>0.11</b>	0.03, 0.38	<0.0001
Polynesian	1	0.5	2	1	<b>0.47</b>	0.02, 6.67	0.5321
Other	8	3.7	8	3.9	<b>0.95</b>	0.32, 2.83	0.9144

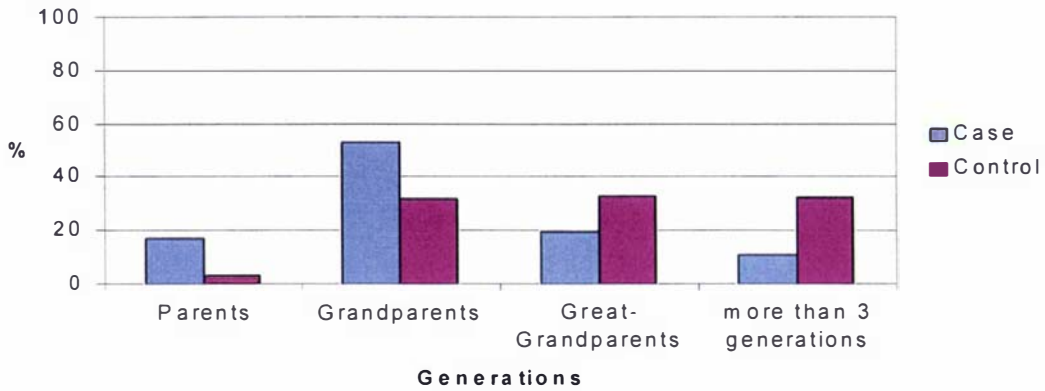
There was no difference between cases and controls who identified as Māori/Pākehā (OR=0.89, CI 0.56, 1.40; p=0.5863) however, more controls identified as New Zealander (OR=0.11, CI 0.03, 0.38 p<0.0001) and Kiwi (OR=0.44, CI 0.20,0.96; p=0.0241). Other ethnic identities included Māori together with Cook Islander, French, Samoan, Polynesian and Chinese.

### Whakapapa (Genealogy)

In demonstrating knowledge of genealogy, cases listed their genealogy to grandparents (n=113, 53.1%), while controls were evenly distributed from grandparents (n=64, 31.5%), three generations (n=67, 33%) and more than three generations (n=66, 32.5%). The possibility of suicidal behaviour was negatively associated for respondents who named only

one generation, their parents (OR=6.68,  $p<0.0001$ ), and grandparents (OR=4.78,  $p<0.0001$ ). However, being able to refer to higher levels of ancestry, great grandparents (OR=0.48,  $p=0.001$ ) and beyond (OR=0.25,  $p<0.0001$ ) was positively associated to attempted suicide.

Figure 8-1: Generations of Māori ancestry between Māori attempted suicide cases and controls.



*Iwi (tribe)*

As already noted in Table 5-3 more controls than cases responded positively to being able to name their iwi (OR=0.35, CI 0.18, 0.67;  $p<0.0001$ ).

Figure 8-2: Iwi map of Aotearoa/New Zealand.

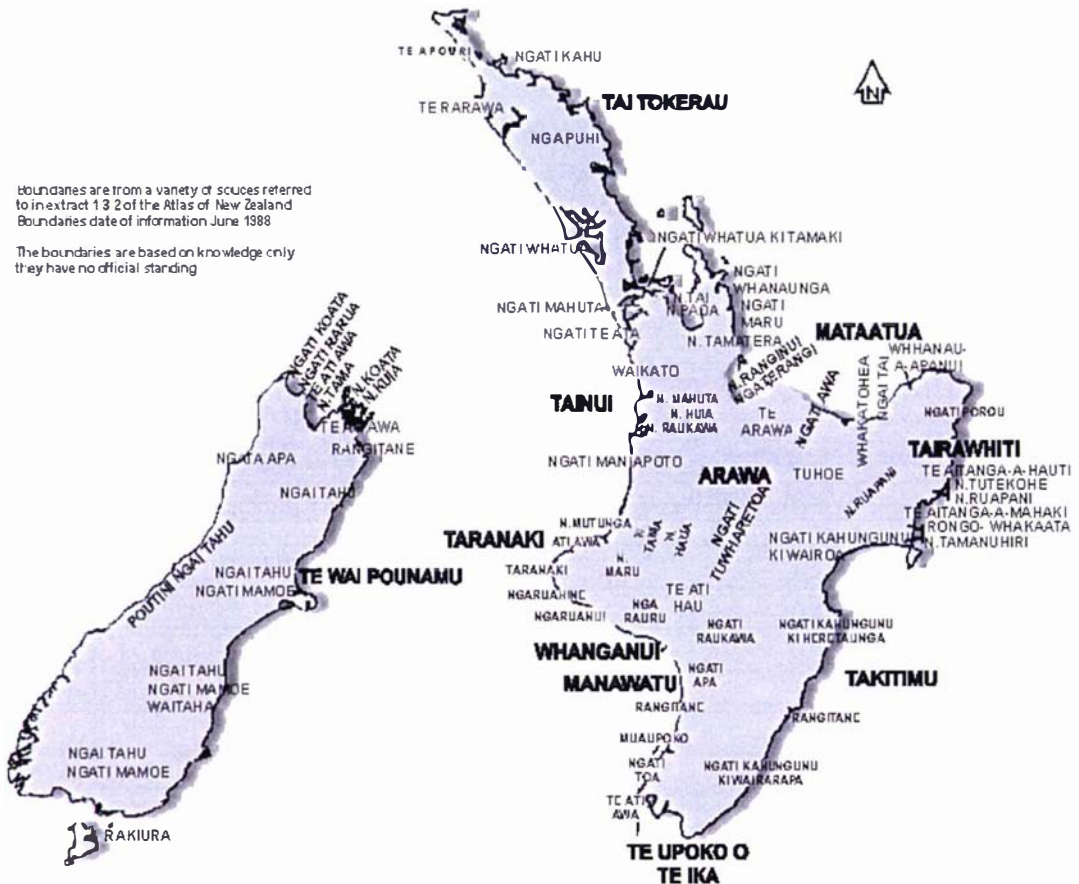


Table 8-2: Specified iwi (tribe) between Māori attempted suicide cases and controls.

Iwi (tribe)	Cases		Control	
	Number	(%)	Number	(%)
Don't know	45	21.03	17	8.37
Can't remember	5	2.33	3	1.48
Multiple iwi	44	20.56	39	19.21
Atanui a paparangi	0	0.00	1	0.49
Kai Tahu/Ngai Tahu	0	0.00	4	1.97
Nga Puhi	66	30.84	49	24.14
Ngai te Rangi	2	0.93	2	0.99
Ngai Tuhoe	0	0.00	6	2.96
Ngāti Awa	0	0.00	2	0.99
Ngāti Haua	0	0.00	2	0.99
Ngāti Hine	1	0.47	0	0.00
Ngāti Kahu	2	0.93	3	1.48
Ngāti Kahungunu	5	2.33	6	2.96
Ngāti Kauhaunuinui	0	0.00	1	0.49
Ngāti Kuia	0	0.00	1	0.49
Ngāti Kuro	0	0.00	1	0.49
Ngāti Maniapoto	2	0.93	4	1.97
Ngāti Maru	0	0.00	3	1.48
Ngāti Porou	6	2.80	9	4.43
Ngāti Rangi	0	0.00	1	0.49
Ngāti Raukawa	0	0.00	1	0.49
Ngāti Ruanui	1	0.47	0	0.00
Ngāti Tai	1	0.47	0	0.00
Ngāti Toa	2	0.93	1	0.49
Ngāti Whakaue	1	0.47	0	0.00
Ngāti Whatua	5	2.33	4	1.97
Rereahu	1	0.47	0	0.00
Tainui	18	8.41	19	9.36
Te Aitangi a Mahaki	0	0.00	1	0.49
Te Arawa	3	1.40	8	3.94
Te Atiawa	1	0.47	3	1.48
Te Aupouri	1	0.47	1	0.49
Te Rarawa	0	0.00	4	1.97
Te Whānau Apanui	0	0.00	1	0.49
Tuwharetoa	2	0.93	3	1.48
Whakatohea	0	0.00	2	0.99
Other	0	0.00	1	0.49
<b>Total</b>	<b>214</b>	<b>99.97</b>	<b>203</b>	<b>100</b>

The iwi represented in the Māori attempted suicide case control study are from various parts of Aotearoa/New Zealand (Figure 8-2). Although the study setting was Auckland region,



most participants were Ngā Puhī originally from Northland, followed by Tainui (South Auckland and Waikato). Only a small proportion of cases and controls were from the other tangata whenua (people of the land) tribe – Ngāti Whatua (Central, North and West Auckland). Significantly more cases than controls were unable to name their iwi (OR=2.79,  $p=0.0002$ ) (Table 8-2). Thirty-four iwi were listed among the study population. One hundred and sixty-nine cases (79%) could name their iwi compared with 186 controls (91.6%). The predominant iwi in both the case and control populations were Nga Puhī (31.8% cf 24.1%), and Tainui (8.41% cf 9.36%). About one fifth of cases and controls who identified multiple iwi ( $n=44$ , 20.6% cf  $n=39$ , 19.2%). About half of those cases and controls stated Nga Puhī and at least one other iwi (45% cf 51%).

#### *Hapū (sub-tribe)*

Due to the numerous sub-tribes within each iwi, analysis revealed only a small number of participants in each of the hapū (Table 8-2). Fewer cases ( $n=48$ , 22.4%) than controls ( $n=89$ , 43.8%) named their hapū, indicating the potential positive nature of having knowledge of hapū affiliation (OR=0.37, CI 0.24, 0.58;  $p<0.0001$ ). The 137 participants who named their hapū listed 103 different hapū.

#### *Waka (ancestral canoe)*

Of the 45 cases and 92 controls (OR=0.32, CI 0.20, 0.50;  $p<0.0001$ ) who named their waka (Table 8-3); cases identified Ngatokimatawhariua (Northland  $n=10$ , 22%), Tainui (Waikato  $n=8$ , 17.8%) and multiple waka ( $n=8$ , 17.8%). Of the controls Tainui ( $n=22$ , 24%), Ngatokimatawhariua ( $n=14$ , 15%) and Takitimu (East Coast North and South Island,  $n=12$ , 13%) were the three main waka given.

Table 8-3: Specified waka (canoe) between Māori attempted suicide cases and controls.

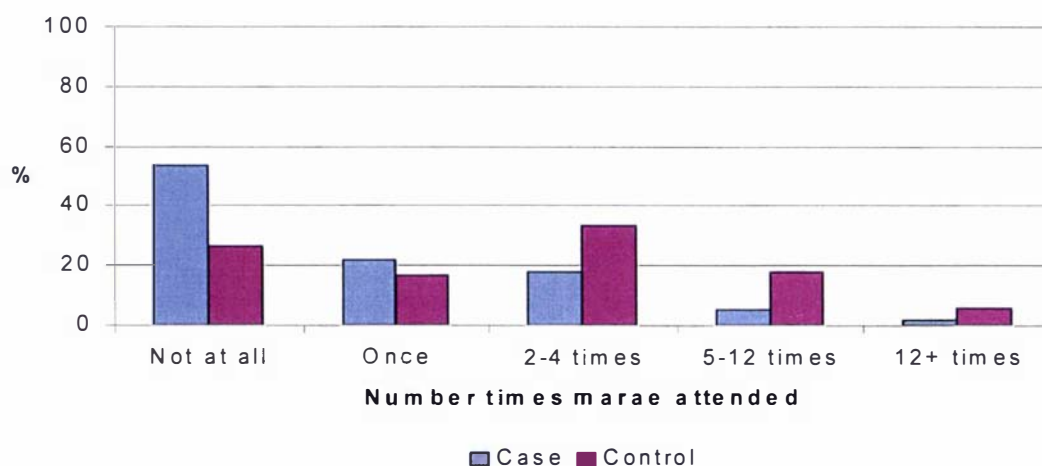
Waka	Case		Control	
	Number	(%)	Number	(%)
Don't know	169	78.97	111	54.68
Can't remember	2	0.93	10	4.93
Multiple waka	8	3.74	7	3.45
Aotea (Taranaki)	1	0.47	0	0.00
Horouta (East Coast)	2	0.92	2	0.99
Kurahaupō (Taranaki)	3	1.40	1	0.49
Mahuhu (Northland)	0	0.00	1	0.49
Mamari (Northland)	3	1.40	2	0.99
Mataatua (Northland and Bay of Plenty)	3	1.40	10	4.93
Ngatokimatawhariua (Northland)	10	4.67	14	6.90
Taihake	0	0.00	1	0.49

Tainui (Waikato)	8	3.74	22	10.84
Takitimu (East Coast and South Island)	2	0.92	12	5.91
Arawa (Bay of Plenty)	2	0.92	9	4.43
Te Paepae ki Rarotonga (Rarotonga)	0	0.00	1	0.49
Tokomaru (Taranaki)	1	0.47	0	0.00
Total	214	100	203	100

*Marae (village common)*

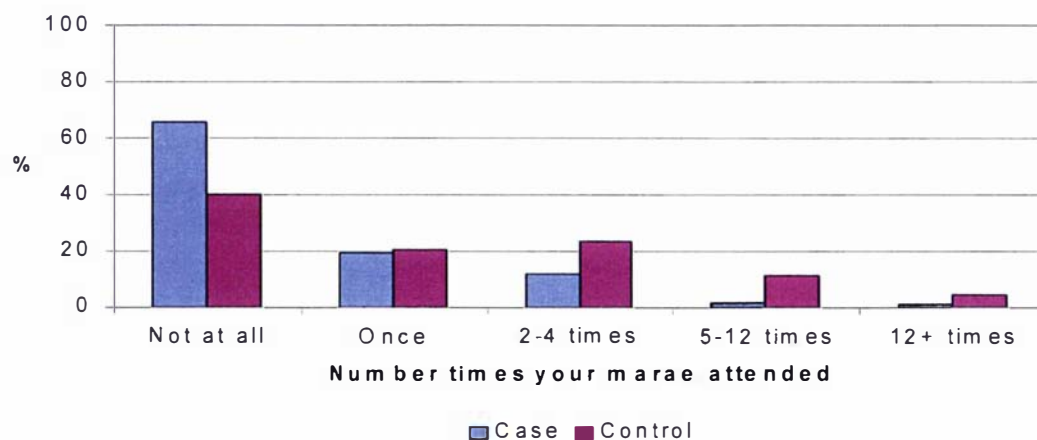
The proportion of cases progressively decreased as the frequency of marae attendance increased. Controls were more likely than cases to have gone to a marae twice or more in the previous 12 months (Figure 8-3).

Figure 8-3: Māori attempted suicide cases and controls who went to a marae in the last 12 months.



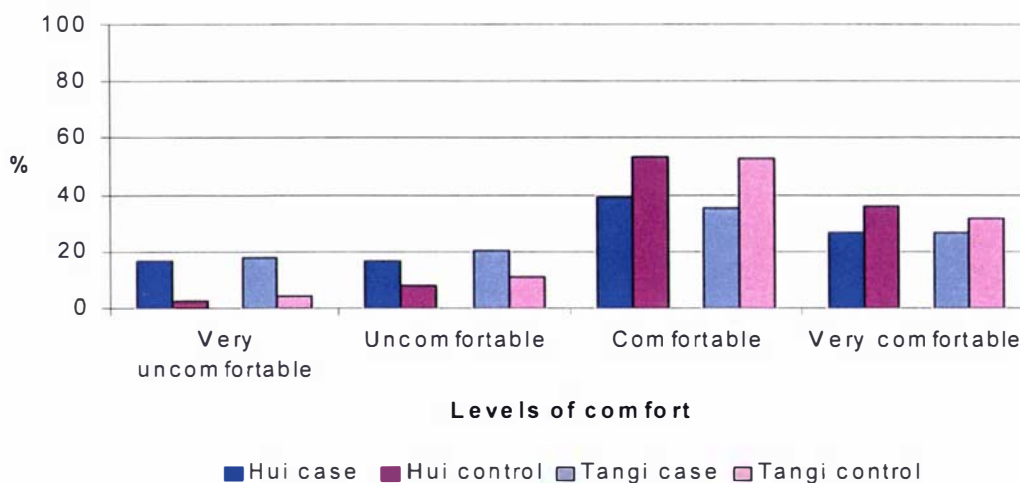
It was noted in Table 5-3 that Māori who said they had their own marae were positively associated to attempted suicide. There were 174 marae specified by the 243 participants. Of the 211 Māori who submitted specific marae 30 (33%) cases and six (5%) controls were unable to remember the name of their marae.

Figure 8-4: Māori attempted suicide cases and controls who went to their marae in the last 12 months.



More cases (n=108, 65%) than controls (n=68, 40%) had not been to their marae over the previous year (OR=2.02; CI 1.34, 3.07; p=0.0005). There was an inverse relationship for cases and the frequency with which they attended their marae (Figure 8-4). Controls went to their marae more frequently than cases.

Figure 8-5: Māori attempted suicide cases and controls level of comfort attending hui and tangihanga (%).

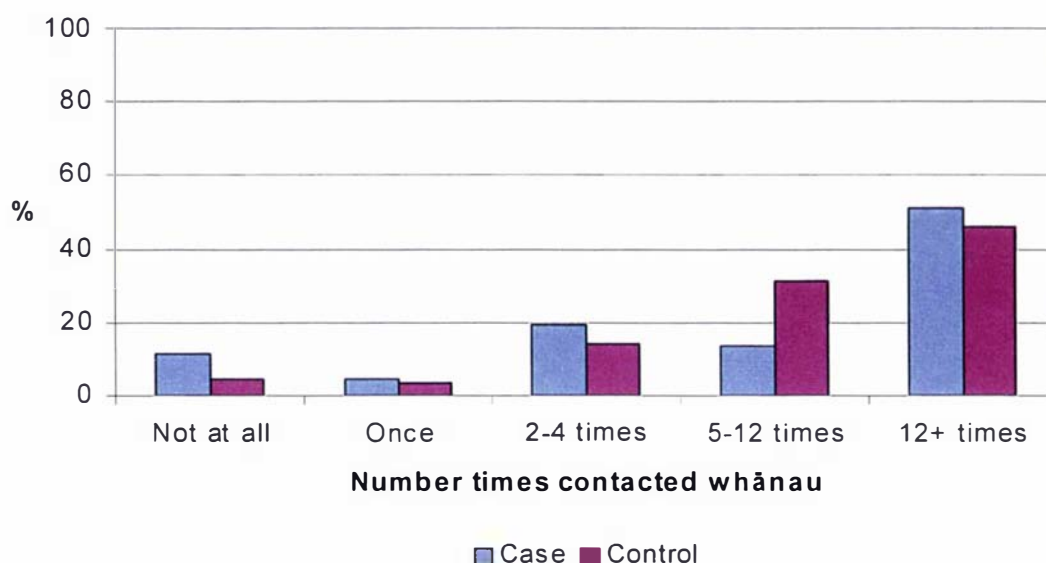


Both cases and controls felt comfortable (Figure 8-5) when attending hui (gatherings) or tangihanga (funeral rites). However, more cases felt uncomfortable attending hui (n=72, 33.6%) and tangihanga (n=81, 38%) than controls (n=21, 10.5% and n=30, 15.3%). Feeling uncomfortable at hui (OR=4.39, CI 2.5, 7.77; p<0.0001) and tangihanga (OR=3.51, CI 2.13, 5.82; p<0.0001) was associated to attempting suicide. The reverse occurred when participants were asked about feeling comfortable at hui (OR=0.22 CI 0.12, 0.38; p<0.0001) or tangihanga (OR=0.28 CI 0.17, 0.47; p<0.0001).

#### *Whānau (family)*

Several questions were directed towards the study population about levels of whānau involvement including contact, visiting, links, support, expectations and participation. All the participants answered the questions about whānau. Few cases (n=24, 11%) or controls (n=9, 4%) had *not* contacted their whānau over the previous year which was negatively associated to attempting suicide (OR=2.72 CI 1.17, 6.50; p=0.01). The greatest number of cases (n=110, 51%) and controls (n=94, 46%) had contacted whānau more than 12 times throughout the year (Figure 8-6).

Figure 8-6: Māori attempted suicide cases and controls who had made contact with their whānau over the previous 12 months (%).



Twenty-four percent of both cases (n=52) and controls (n=49) had not stayed with their whānau over the previous year. Controls (n=85, 40%) and cases (n=42, 21%) stayed with whānau more than 12 times (Figure 8-7). There was no difference between cases and controls who stayed with their whānau only once (OR=1.6 CI 0.70, 3.73; p=0.23), whereas more controls stayed with their whānau 2-12 times (OR=0.38 CI 0.25, 0.59; p<0.0001).

Figure 8-7: Māori attempted suicide cases and controls who stayed with whānau over the previous 12 months.

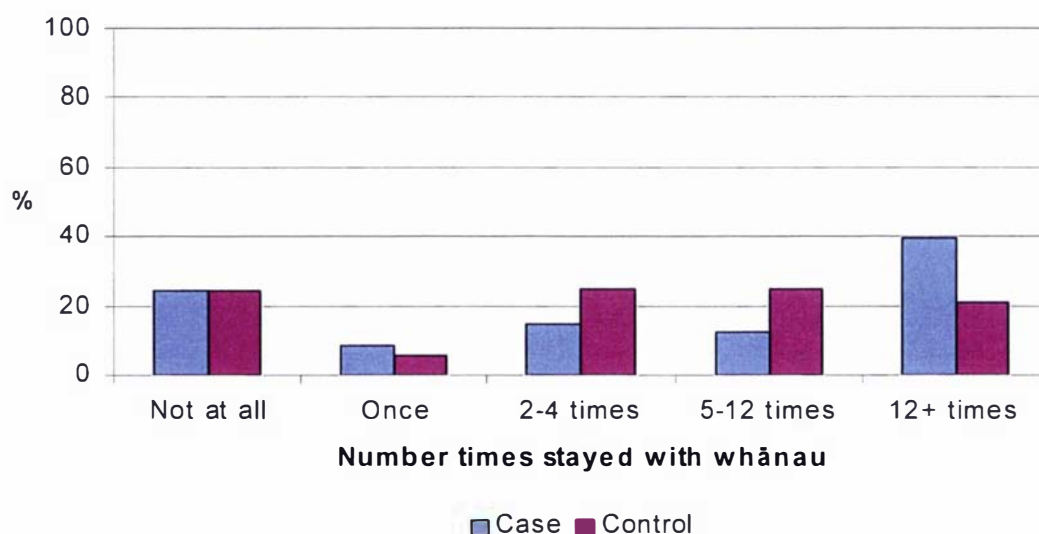
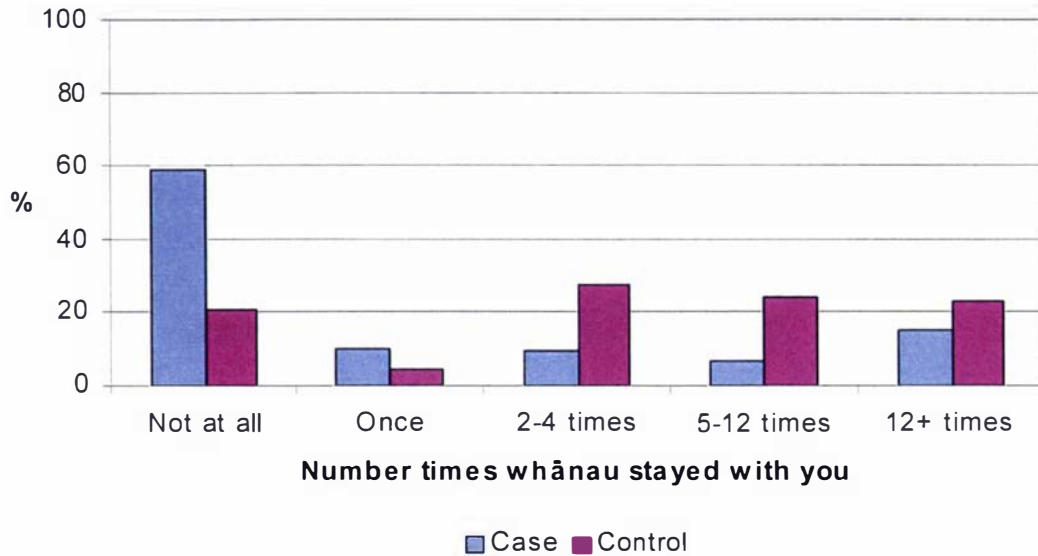


Figure 8-8 shows the difference between cases (n=87, 41%) and controls (n=160, 79%) who had whānau stay with them over the previous year (OR=0.1 CI 0.06, 0.17; p<0.0001). Controls were more likely to have family stay more frequently than cases. Fifty-nine percent



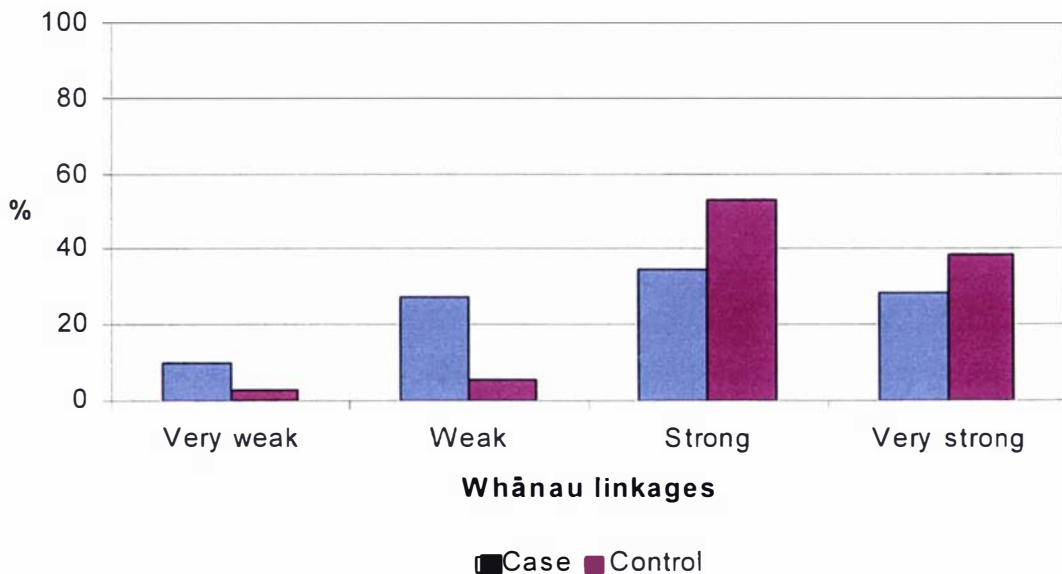
of cases had not had a whānau member stay compared with just over 21% of controls (OR=5.39 CI 3.42, 8.52; p<0.0001).

Figure 8-8: Māori attempted suicide cases and controls who had whānau stay with them over the previous 12 months.



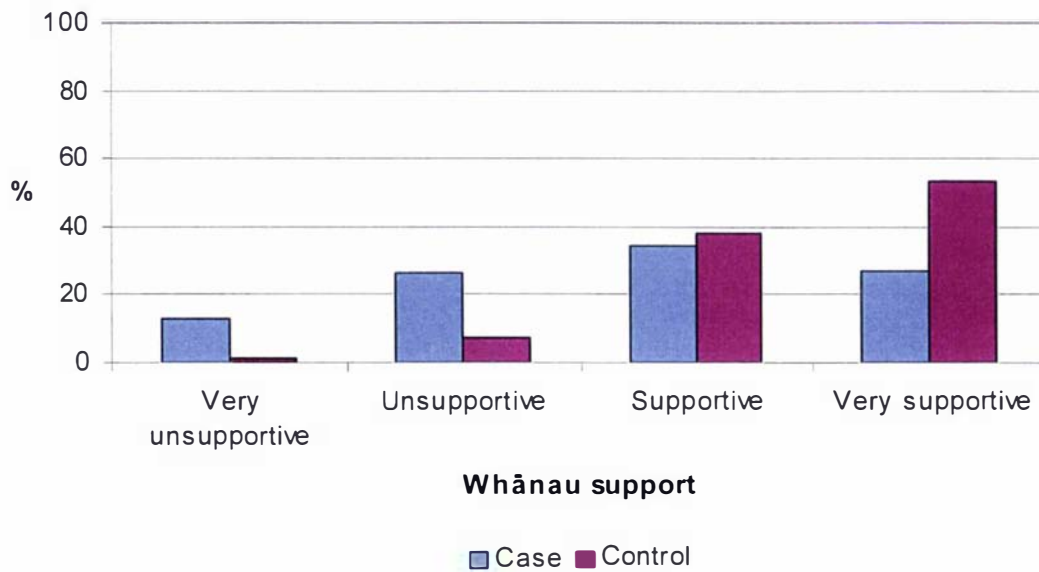
The number of cases steadily increased from very weak, weak to strong in their perception of whānau links and then dropped slightly for very strong links with whānau (Figure 8-9). Fewer controls perceived their whānau links with whānau as weak (5%) or very weak (3%) compared with cases (27% and 10%, respectively).

Figure 8-9: Whānau links between Māori attempted suicide cases and controls.



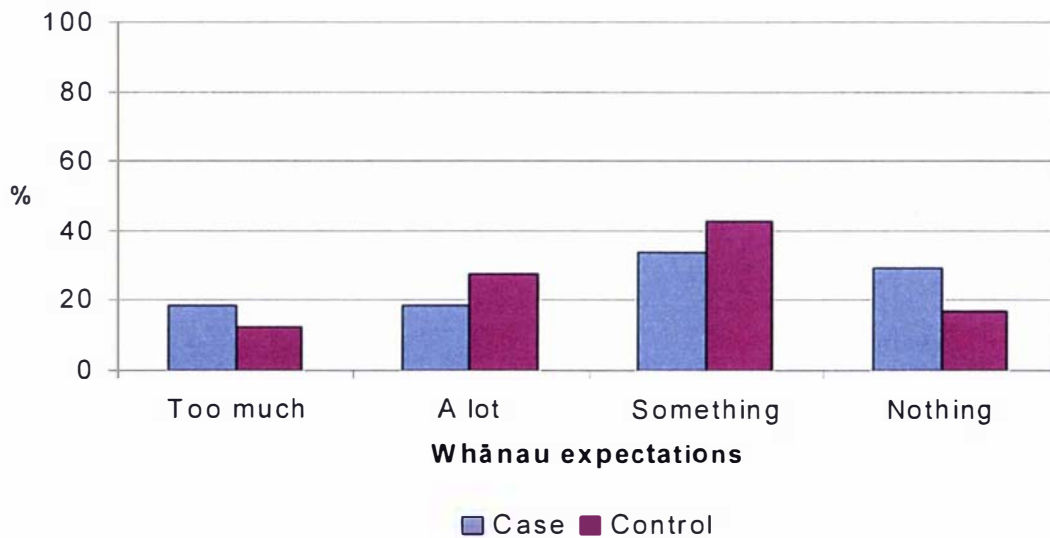
A greater proportion of cases (39%) believed whānau were unsupportive compared with controls (8%) and vice versa for supportive whānau (Figure 8-10).

Figure 8-10: Whānau support between Māori attempted suicide cases and controls.



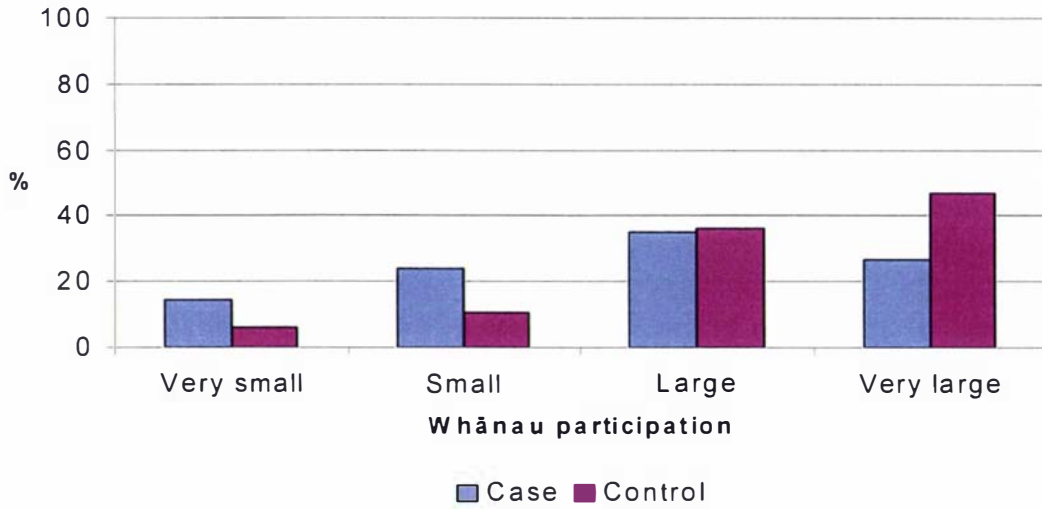
Cases and controls perceived whānau expectations from two negative and positive possible responses. Cases were more likely than controls on both occasions to reply *too much* (19% cf 13% respectively) or *nothing* (29% cf 17% respectively). Controls were more likely to respond positively about what whānau expected of them (Figure 8-11).

Figure 8-11: Whānau expectations between Māori attempted suicide cases and controls.



More cases than controls had little participation with their whānau; more controls had more involvement with whānau (Figure 8-12).

Figure 8-12: Amount of whānau participation between Māori attempted suicide cases and controls.

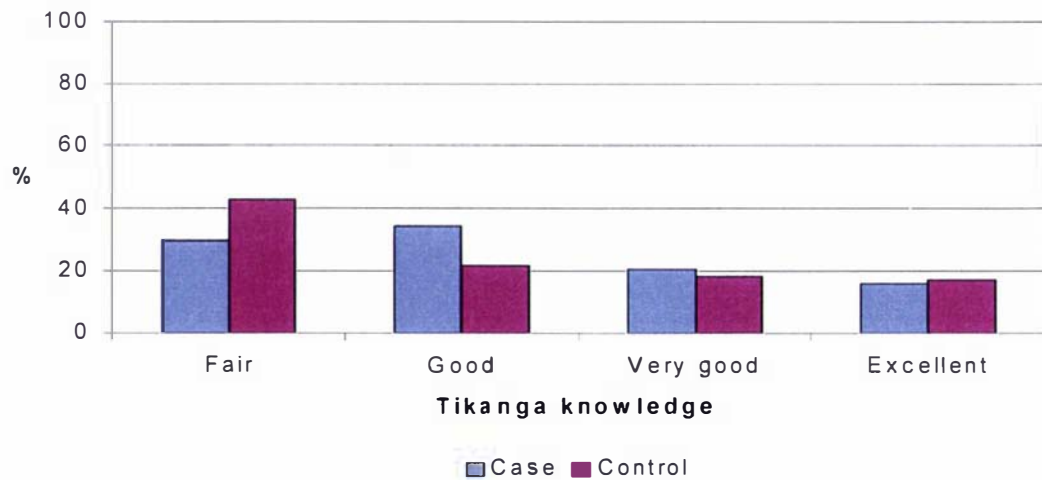


### Tikanga (Customary Protocols)

The proportion of cases (29%) who rated their knowledge of tikanga as fair was less than the proportion of controls (43%). In contrast to controls, cases generally believed their knowledge of tikanga was adequate (Figure 8-13).

Cases of attempted suicide believed their knowledge of tikanga was good (34% cf 22%) or very good (18% cf 20%) compared with controls. Controls considered their level of comprehension in tikanga was only fair (43% cf 29% cases).

Figure 8-13: Frequency of levels of knowledge of tikanga (protocols) between Māori attempted suicide cases and controls.



### Whenua (Customary Land)

As shown in Table 5-5 attachment to whenua (land) was considered to be positively associated to attempting suicide. Receiving an income from Māori land was also positive (cases 1.4%; controls 11%). The three cases who had received an income from Māori land

were all dissatisfied with the result compared with controls (n=22), who reported higher levels of satisfaction. The same was found when asked about level of satisfaction for Māori who had received benefit from whenua.

## **Organisations**

As already mentioned in Table 5-17 and Table 5-18 only a few Māori participated in Māori organisations especially among cases (Table 8-4).

Only three Māori (one case and two controls) had received any money from Māori fisheries and they were generally neutral toward the dividend, and only three controls believed they received any benefit from fisheries. Three cases were satisfied with the money they received from forestry and were satisfied with the interaction, whereas eight controls received money and three were satisfied while five were neutral to dissatisfied.

Only four controls had received an income from geothermal activities and they were neutral and very dissatisfied. Contact with iwi authorities, trust boards or a Waitangi Tribunal organisation was generally dissatisfactory or neutral for three of the four cases. The controls were generally satisfied (55%), neutral (25%) or dissatisfied (20%) about their relationship with the organisations.

Only one satisfied case contacted Te Puni Kōkiri (Ministry of Māori Development), compared to 14 controls. Most of the controls were satisfied (9/14), neutral (4/14) and only one was very dissatisfied. Both cases who had interacted with the Māori Land Court were neutral and satisfied. The corresponding 23 controls were mostly satisfied (16). However, seven were neutral or dissatisfied. A total of 10 study participants had interacted with the Māori Women's Welfare League over the last 12 months. Five found the relationship satisfactory, the rest were neutral. Ten cases and 16 controls had been in contact with the Māori Wardens association in the last year. Controls were generally more satisfied with the interaction than cases. Only two satisfied controls had had contact with the Māori Congress, and New Zealand Māori Council.

Generally Māori were satisfied with their contact with marae committee. More controls (n=34) than cases (n=5) had been interacting with marae committees. Twenty-five controls were satisfied while two were dissatisfied and seven were neutral about their relationship with marae committees. Only one very satisfied case had been in contact with the Māori Church compared with 25 controls; more controls (92%) were satisfied than felt neutral (8%). None of the participants in the study had been in contact with the Māori District Council.



Table 8-4: Satisfaction level with Māori organisations between Māori attempted suicide cases and controls.

Organisation	Study Group	Levels of Satisfaction				
		Very dis-satisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied
Fisheries (money)	Case			1		
	Control			1	1	
Fisheries (benefit)	Case					
	Control				1	2
Forestry (money)	Case				3	
	Control	2		3	1	2
Geothermal (money)	Case					
	Control			2		2
Iwi Authority, Trust Board, Waitangi Tribunal	Case		1	2		1
	Control	2	2	5	6	5
Te Puni Kōkiri*	Case				1	
	Control	1		4	5	4
Māori Land Court	Case			1	1	
	Control		2	5	9	7
Māori Women's Welfare League	Case			2	2	
	Control			3		3
Māori Wardens	Case	1	1	3	2	3
	Control			1	5	10
Māori Congress	Case					
	Control				1	1
NZ Māori Council	Case					
	Control				2	1
Marae committee	Case			2	2	1
	Control	1	1	7	15	10
Māori Church	Case					1
	Control			2	13	10
Māori District Council	Case					
	Control					

\* Ministry of Māori Development

### **Kai (Customary Food Preparation)**

The frequency with which the study participants gathered or prepared traditional food is shown in Table 8-5. More control participants had gathered shellfish (54%) in the last 12 months than not (46%). Cases were unlikely to have gathered traditional foods in the previous year (75%); controls were more likely to do so more frequently than cases.

Fewer cases and controls gathered kina (sea eggs, 18% cf 35%); of these, controls went more frequently than cases. Nineteen percent of cases and 30% of controls picked puha; and the controls gathered puha more frequently than cases. Trends in making rewena (bread) were

similar to the gathering of traditional foods. Fewer Māori made bread and if they did controls made it more frequently. Lastly, kanga pirau (preservation of corn) was not the most popular activity and only seven cases and eight controls had done so over the last year. The maximum frequency (two to five times) of preserving corn was by three cases and four controls.

Table 8-5: Kai (food) gathering and preparation between Māori attempted suicide cases and controls.

Kai preparation	Study Group	Frequency of Contact				
		None	Once	2-5	6-11	12+
Gathered shellfish	Case	76.17	7.01	10.28	6.07	0.47
	Control	45.32	9.36	25.12	12.81	7.39
Gathered kina (sea eggs)	Case	81.78	4.21	8.41	5.14	0.47
	Control	65.02	6.40	17.24	6.90	4.43
Picked puha	Case	81.31	3.74	9.35	5.14	0.47
	Control	69.95	3.45	14.29	10.84	1.48
Made rewena (bread)	Case	83.18	4.67	7.94	2.80	1.40
	Control	70.94	4.43	12.32	7.88	3.94
Preserved kanga pirau	Case	96.73	1.87	1.40	0.00	0.00
	Control	95.57	1.97	1.97	0.00	0.00

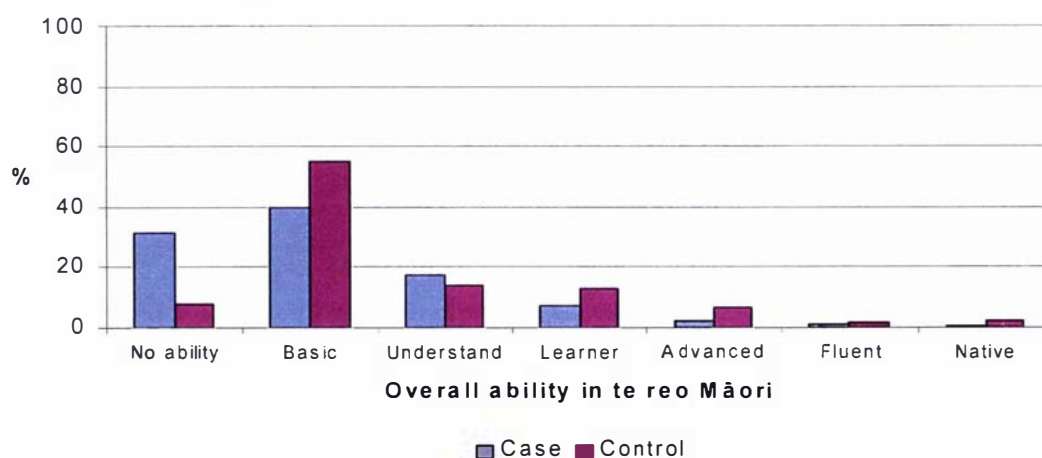
## Te Reo Māori

There were several questions about te reo Māori (Māori language), including ability, use, levels of importance, reading, writing, listening and watching.

### Ability

Figure 8-14 demonstrates the proportion of participants who assessed their overall language ability relative to age along a continuum from no ability to a native speaker.

Figure 8-14: Overall ability with te reo Māori between Māori attempted suicide cases and controls.

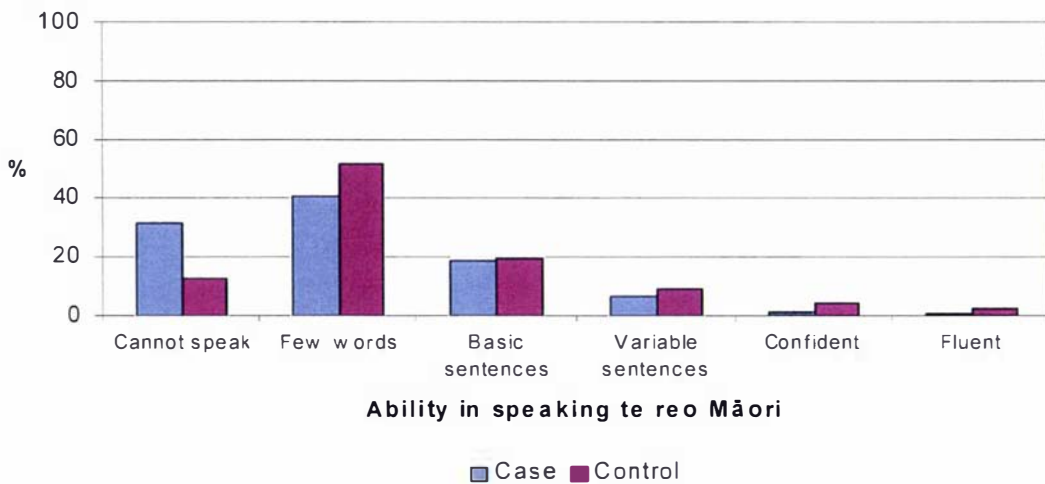


The majority of both cases (40%) and controls (55%) had only a basic *overall ability* in te reo Māori. Cases and controls had, no ability (31%), a good understanding (17%), were learners

with a basic knowledge (7%), an advanced knowledge (2%), were fluent (1%), or were native speakers (0.5%). Controls have a higher level of ability from learning (13%), advanced (7%), fluent (1%) and native (2%).

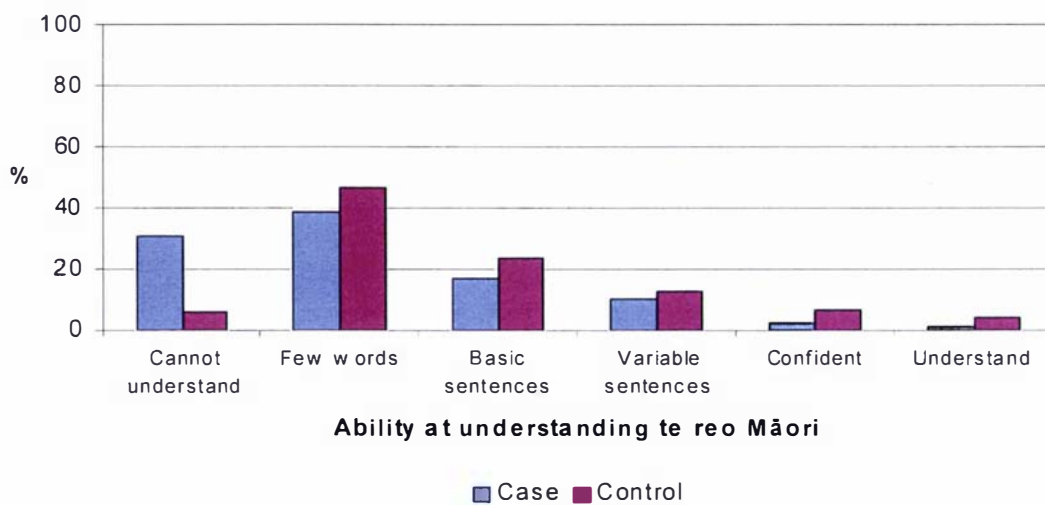
Ability to *speak* te reo Māori (Figure 8-15) showed a similar pattern with cases (40%) and controls (52%) being able to say one or two words in te reo Māori. Cases (31%) were more likely to have no ability to speak te reo Māori compared with controls (13%). Controls experienced higher levels of ability than the cases.

Figure 8-15: Ability at speaking te reo Māori between Māori attempted suicide cases and controls.



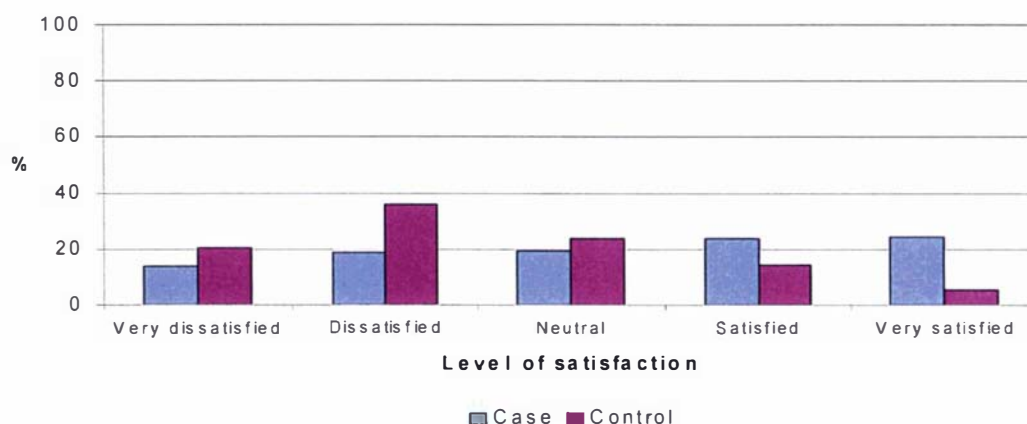
When asked about levels of *understanding* cases (30%) had higher levels of little or no understanding of te reo Māori compared with cases (6%). Controls had a higher level of language competence than cases (Figure 8-16).

Figure 8-16: Ability at understanding te reo Māori between Māori attempted suicide cases and controls.



One question asked whether participants were satisfied with their level of te reo Māori competence (Figure 8-17). Controls were generally more dissatisfied with their levels of language competence than cases.

Figure 8-17: Satisfaction with levels of te reo Māori between Māori attempted suicide cases and controls.



*Use*

Several situations were listed as opportunities to speak Māori and participants were asked to indicate the frequency with which they used te reo Māori in those situations. Table 8-6 indicates the level of language use at a marae. On a marae cases (53%) were more likely than controls (31%) not to use te reo Māori at all; whereas controls had an increased level of use from hardly (20% cf 19%), to sometimes (30% cf 14%) or often (10% cf 3%) on marae.

Table 8-6: Frequency te reo Māori was used as main language of communication in different situations between Māori attempted suicide cases and controls.

Situation		Frequency of use (%)				
		N/A	never	hardly ever	some-times	often
Marae	Case	10.75	52.80	18.69	14.49	3.27
	Control	9.36	30.54	20.20	30.05	9.85
Home	Case	4.67	66.82	15.42	11.68	1.40
	Control	9.36	41.87	16.26	26.60	5.91
Work	Case	19.63	66.36	6.07	6.07	1.87
	Control	19.70	48.28	12.81	14.29	4.93
Children	Case	5.61	64.49	13.08	13.55	3.27
	Control	8.37	28.08	18.23	36.45	8.87
Kaumātua	Case	5.14	58.41	21.03	11.21	4.21
	Control	10.34	35.47	14.29	26.60	13.30
Whānau	Case	4.67	61.21	17.76	14.95	1.40
	Control	6.40	32.02	20.69	33.50	7.39
Educational institutions	Case	24.62	69.23	1.54	3.08	1.54
	Control	35.64	34.16	8.91	12.38	8.91

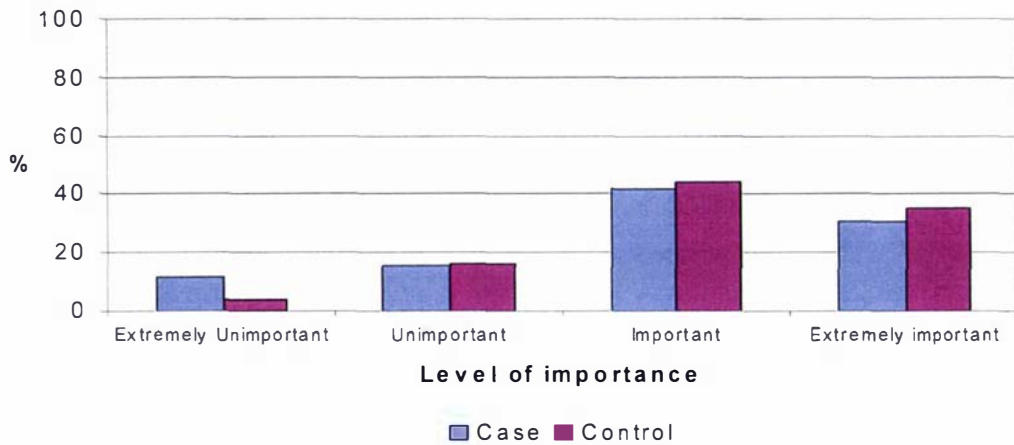


Similar patterns of frequency of te reo Māori use were seen at home, at work, around children, around whānau, and at educational institutions; the only slightly different te reo Māori situation was with kaumātua. Cases in this situation used te reo Māori slightly more frequently in the hardly ever category than controls.

*Importance*

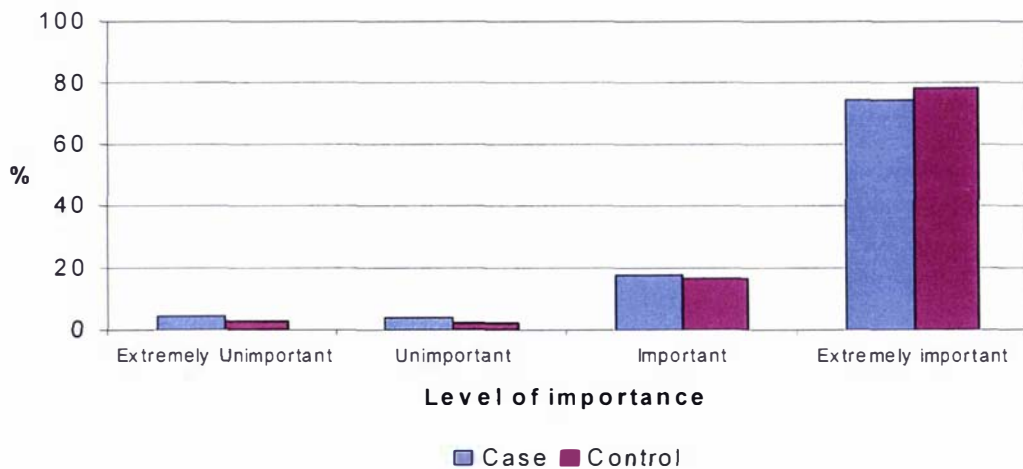
When participants were asked how important it was to be able to speak or understand te reo Māori, controls said they believed it was important. In contrast cases believed speaking and understanding te reo Māori was extremely unimportant (Figure 8-18).

Figure 8-18: Importance at speaking and understanding te reo Māori between Māori attempted suicide cases and controls.



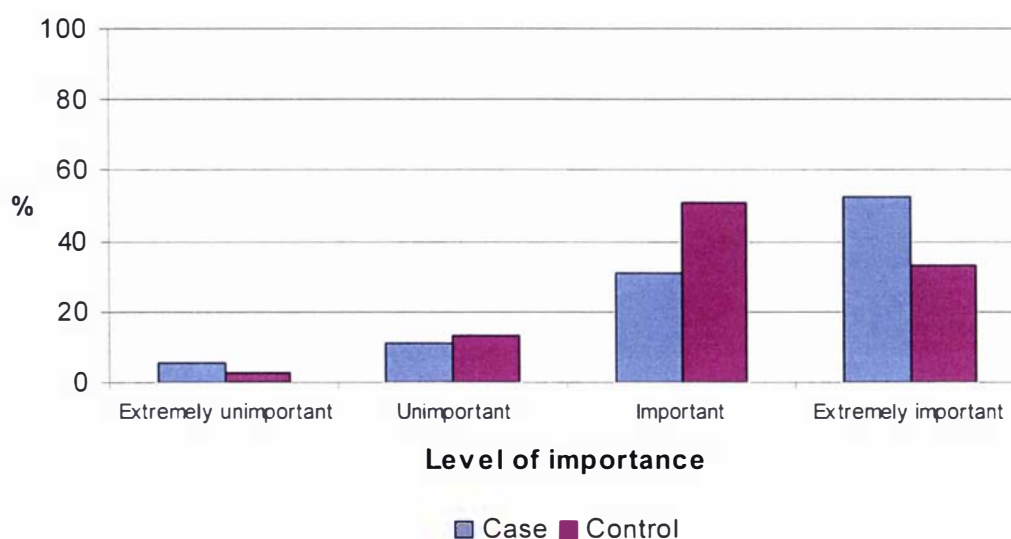
General questions were asked about the importance of using te reo Māori on various occasions, for example at Māori ceremonies, at public or civil ceremonies and in public institutions (libraries and banks).

Figure 8-19: Importance of te reo Māori during Māori ceremonies between Māori attempted suicide cases and controls.



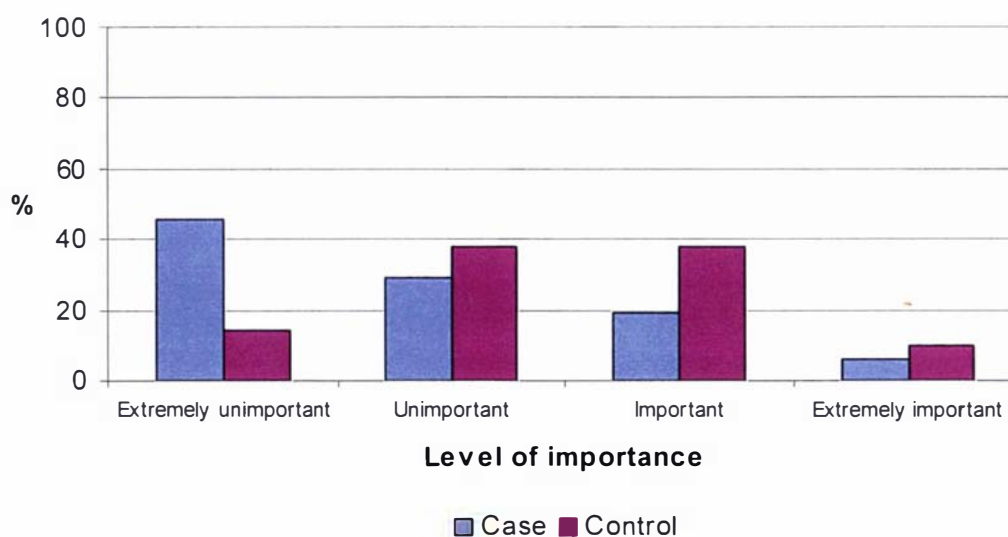
Overall the participants believed te reo Māori was extremely important in Māori ceremonies (Figure 8-19). However, there was slightly less importance given to public ceremonies (Figure 8-20). There was very little difference between cases' and controls' levels of importance of te reo Māori use in Māori ceremonies. In public and civil ceremonies more controls than cases believed using te reo Māori was important (n=66, 31%; cf n=101, 51%) but not extremely important (n=112, 52%; cf n=66, 33%).

Figure 8-20: Importance of te reo Māori utilisation during public or civil ceremonies between Māori attempted suicide cases and controls.



More cases believed using te reo Māori in public institutions was extremely unimportant (OR=5.28, CI 3.18-8.80,  $p < 0.0001$ ). The proportion of cases decreased as the importance increased (Figure 8-21).

Figure 8-21: Importance of te reo Māori utilisation in public institutions between Māori attempted suicide cases and controls.



Reading, writing, watching and listening

Table 8-7 demonstrates the frequency of te reo Māori use (reading, writing, watching and listening) across various media. Cases and controls who read te reo Māori in children’s books (n=24, 11.3%; cf n=86, 42.2%), work material (n=14, 6.6%; cf n=48, 23.6%), and bulletins (n=27, 12.7%; cf n=71, 35%), varied significantly. More cases than controls had not read or written in te reo Māori. Fewer cases than controls had written in te reo Māori in Māori courses (n=7, 3.3%; cf n=30, 14.8%), in other courses (n=4, 1.8%; cf n=16, 7.9%), to their friends (n=17, 8%; cf n=40, 19.7%) and/or at work (n=10, 4.7%; cf n=30, 14.8%).

Table 8-7: Frequency of te reo Māori utilisation between Māori attempted suicide cases and controls.

Te Reo Māori Use		Study Group	Frequency of use (%)				
			N/A	never	hardly ever	some-times	often
Reading	Children’s books	Case	22.64	66.04	2.83	7.55	0.94
		Control	13.79	43.84	16.26	19.21	6.90
	Work material	Case	25.00	68.40	1.89	3.30	1.42
		Control	22.17	54.19	10.34	8.87	4.43
	Bulletins	Case	7.08	80.19	6.13	5.66	0.94
		Control	13.79	51.23	12.32	17.73	4.93
Writing	Māori courses	Case	33.80	62.91	0.94	1.88	0.47
		Control	35.96	49.26	8.87	3.45	2.46
	Other courses	Case	32.55	65.57	0.94	0.47	0.47
		Control	34.98	57.14	4.93	2.46	0.49
	With friends	Case	5.16	86.85	3.29	4.23	0.47
		Control	15.27	65.02	7.39	9.36	2.96
	Work	Case	17.84	77.46	1.41	2.35	0.94
		Control	24.63	60.59	3.94	7.39	3.45
Watching or listening	Te Karere	Case	3.74	35.98	25.23	27.10	7.94
		Control	2.96	19.70	16.26	42.86	18.23
	Waka Huia	Case	3.76	41.78	24.88	24.88	4.69
		Control	3.45	31.53	10.84	39.41	14.78
	Māori language T.V.	Case	3.27	39.72	22.90	25.23	8.88
		Control	3.47	21.78	11.39	41.09	22.28
	Māori radio	Case	4.67	52.34	8.41	17.29	17.29
		Control	8.87	45.81	6.90	18.23	20.20

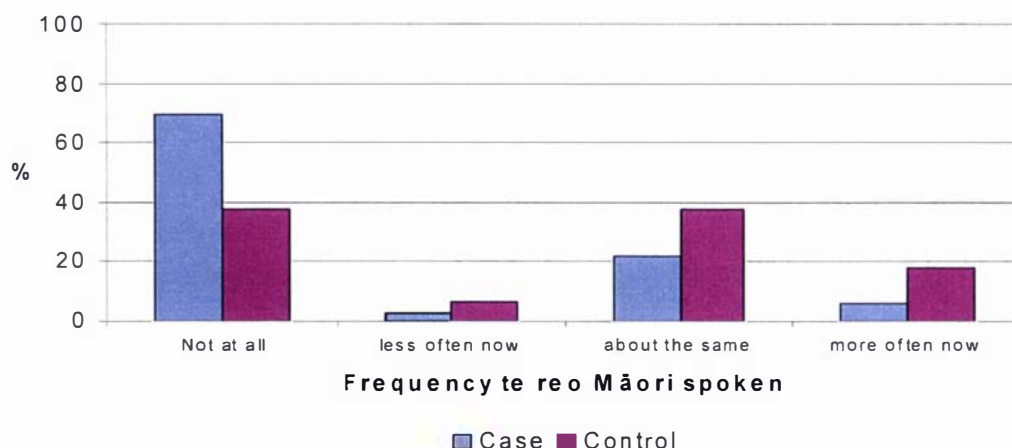
The distribution of watching and listening to te reo Māori on television and radio was variable (Table 8-7). Māori watched and listened to te reo Māori rather than read or write it. Less cases compared to controls watched Te Karere (n=129, 60.3%; cf n=157, 77.4%), Waka Huia (n=117, 54.5%; cf n=132, 65%) and other Māori language television programmes (n=122, 57%; cf n=152, 74.8%) and at higher frequencies (from sometimes to often) than

cases. There was a similar distribution of cases and controls who listened to Māori language radio (n=92, 43%; cf n=92, 45.3%).

Figure 8-22 shows the frequency with which te reo Māori was currently spoken in households compared with a year earlier. Almost twice the proportion of cases over controls did not use te reo Māori at home. More controls spoke te reo Māori less often, the same and more often now than 12 months ago.

Controls had gone through more changes over the last 12 months than the cases with respect to using spoken te reo Māori. Six percent of the controls as compared with 2% of the cases spoke te reo Māori less often, and 18% of controls and 6% of cases spoke te reo Māori more often (Figure 8-22).

Figure 8-22: Te reo Māori spoken in household compared with 12 months ago between Māori attempted suicide cases and controls.



## CULTURAL IDENTITY

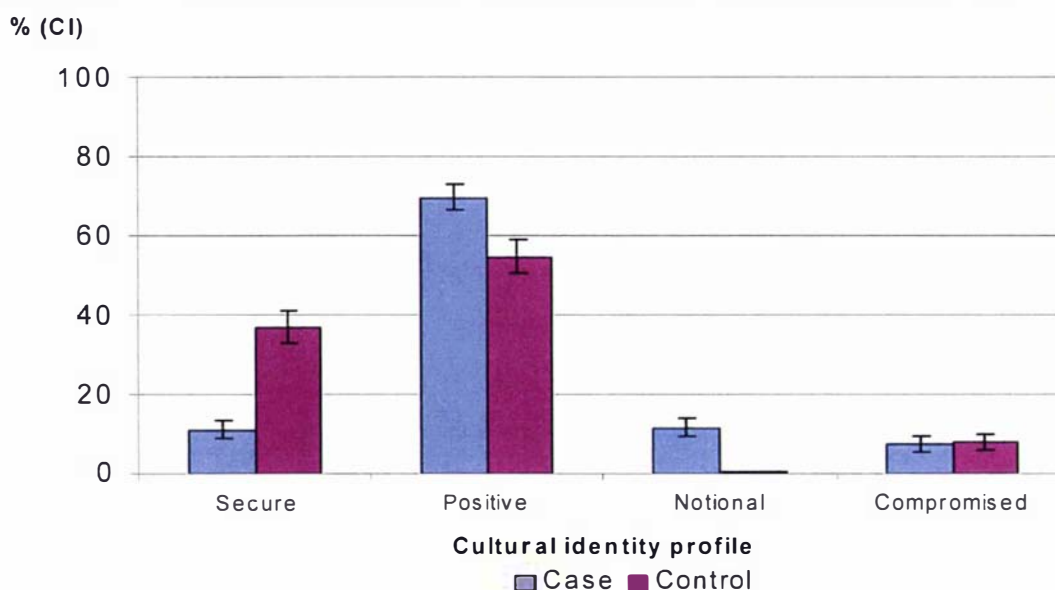
Cultural identity was defined in Chapter 4. Durie and colleagues (1996) cultural identity scale was based on six items including identity, genealogy, marae attendance, whānau relationships, whenua access and overall ability in te reo Māori. A secure identity was indicated by a positive Māori identification and three of the five remaining questions positively designated. A positive identity was indicated by a positive Māori identity and positive responses to two of the five remaining questions. A notional identity was designated when there was a positive Māori identity and three of the five remaining questions were answered less positively. A compromised identity was given to participants who did not self-identify as Māori (Durie et al. 1996). The following section further examines how cultural



identity related to gender, age, socio-economic factors, health factors, substance use, and interpersonal abuse.

The distribution of cultural identity across the participants in the study is outlined in Figure 8-23. Over three times the number of controls (n=75, 37%) than cases (n=24, 11%) had a secure cultural identity, creating a positive association with attempting suicide (OR=0.22, CI 0.13, 0.37, p<0.0001).

Figure 8-23: Cultural identity between Māori attempted suicide cases and controls (95% CI).



Most cases (n=149, 70%) and controls (n=111, 55%) had a positive identity negatively associated to attempted suicide (OR=1.9, CI 1.25, 2.9, p=0.0017). Twenty-five cases (21%) compared with only one control (0.5%) had a notional identity, which appears to be negatively associated to attempting suicide (OR=26.7, CI 3.8, 535.2, p<0.0001). Sixteen cases (7.5%) and controls (7.9%) had a compromised identity, which was not associated to attempting suicide (OR=0.94 CI 0.43, 2.05 p=0.8767).

Table 8-8: Cultural identity between Māori attempted suicide cases and controls.

Cultural identity	OR (95% CI), unadjusted	OR (95% CI), age adjusted & weighting	OR (95% CI), age adjusted, weighting and clustering
Secure	0.32 (0.14, 0.74)	0.29 (0.12, 0.71)	0.29 (0.12, 0.69)
Positive	1.14 (0.52, 2.40)	1.10 (0.50, 2.40)	1.10 (0.50, 2.43)
Notional	4.23 (1.79, 10.93)	4.93 (1.95, 12.49)	4.83 (1.73, 13.83)
Compromised	1	1	1

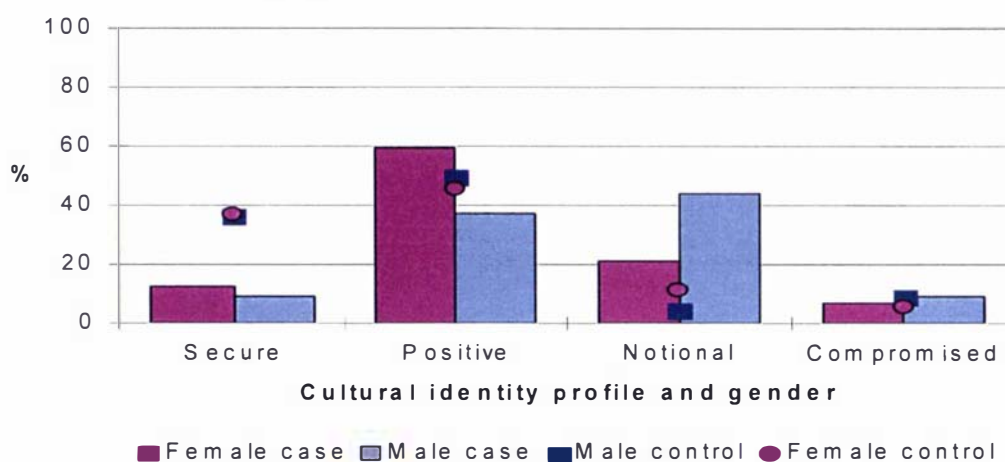
The odds ratio (OR) for attempting suicide weighted for age and household clustering by cultural identity is demonstrated in Table 8-8. Having a secure identity remained associated

after weighting for eligible household participants and household clustering (OR=0.29, CI 0.12, 0.69;  $p < 0.0001$ ). There was no difference between cases and controls who had a positive identity (OR=1.10, CI 0.50, 2.43;  $p > 0.05$ ). Māori with a notional identity were negatively associated to attempting suicide. The low number of controls ( $n=1$ ) who had a notional identity determined the multivariate analysis required appropriate analysis; Sudaan was employed for its ability to detect difference when discrete variables have low numbers.

## Gender

Cultural identity by gender is distributed relatively evenly for controls across each of the identity categories (Figure 8-24).

Figure 8-24: Cultural identity by gender between Māori attempted suicide cases and controls.



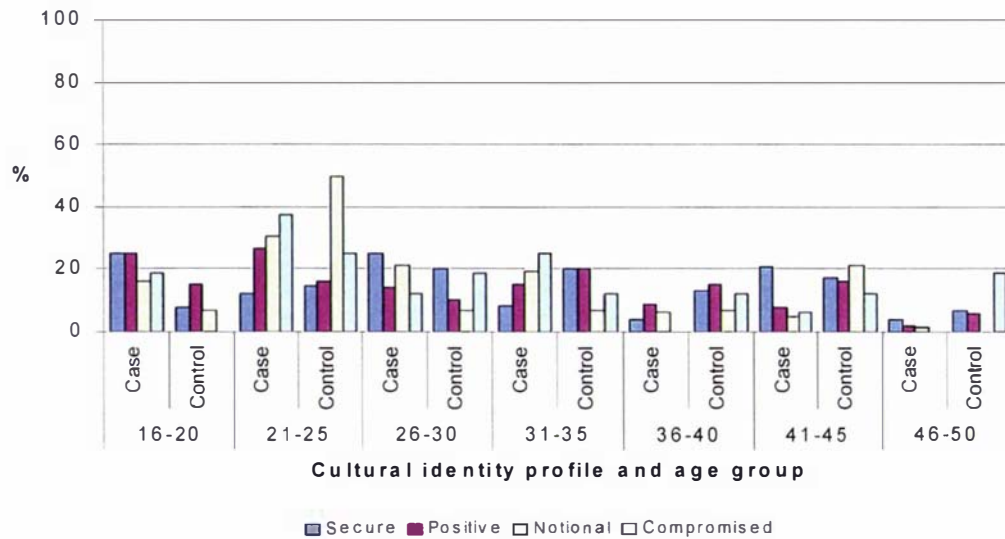
The difference in gender between cases within cultural identity is slightly more marked. Cases showed very little difference in gender of those who had secure (female=13%; male=9%) and compromised (female=7%; male=10%) identities. However, male cases were more likely to have a notional (44%) than a positive (37%) identity and females were more likely to have a positive (59%) rather than a notional (21%) identity.

## Age

Five-year age categories from 16 to 50 between cases and controls by cultural identity are shown in Figure 8-25. Cases and controls who had a secure identity had an even distribution between age groups 21–25 (12.5% cf 14.7%), 26–30 (25% cf 20%), 41–45 (20.8% cf 17.3%) and 46–50 (4.2% cf 6.7%). The biggest difference in cases and controls with a secure identity was in age groups 16–20 (25% cf 8%), 31–35 (8.3% cf 20%) and 36–40 (4.2% cf 13.3%). Cases dominated the young adults and controls the middle age groups. The lowest percentage of both cases and controls was in the eldest age group (46–50 years).

Cases with a positive identity were more common in the younger age groups 16–20 (25% cf 15.3%), 21–25 (26.8% cf 16.3%) and 26–30 (14.3% cf 10.2%) compared to controls who were more common in the older age groups 31–35 (15.2% cf 20.4%), 36–40 (8.9% cf 15.3%) and 41–45 (8% cf 16.3%). The lowest percentage of Māori with a positive identity was in the oldest age group (1.8% cf 6.1%) (Figure 8-25).

Figure 8-25: Cultural identity by age between Māori attempted suicide cases and controls.



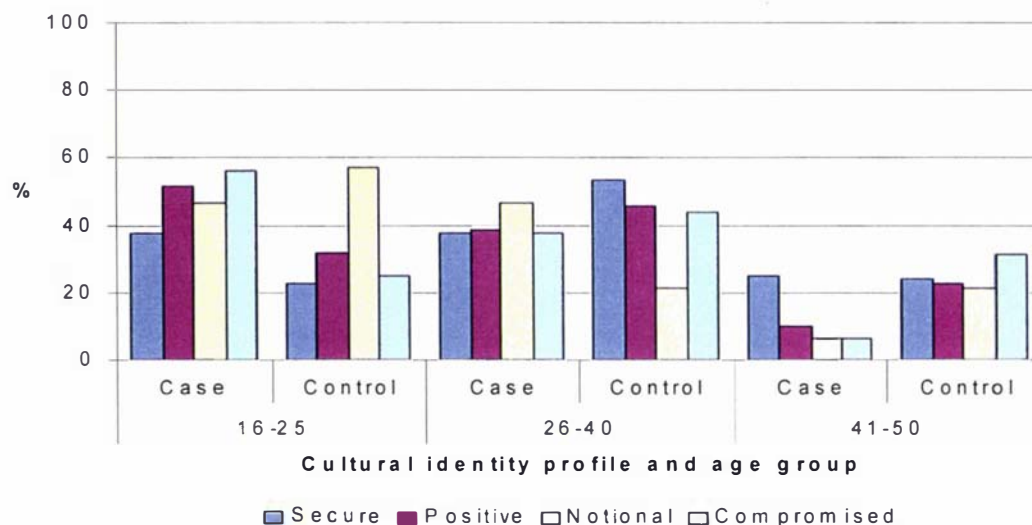
The greatest variability between cases and control was among those who had a notional identity. The highest percentages of participants with a notional identity were aged 21–25 (30.6% cf 50%), 26–30 (21% cf 7.1%) and 31–35 (19.4% cf 7.1%). The greatest difference between cases and controls were in the age groups 21–25 (30.6% cf 50%) and 36–40 (4.8% cf 21.4%); whereas the percentage of cases and controls in the age groups 36–40 (6.5% cf 7.1%) and 46–50 (1.6% cf 0%) were relatively the same (Figure 8-25).

A compromised identity was experienced mainly among the younger cases aged 16–20 (18.8% cf 0%) and 21–25 (37.5% cf 25%), whereas controls dominated the older age groups of 36–40 (0% cf 12.5%), 41–45 (6.3% cf 12.5%) and 46–50 (0% cf 18.8%). The two remaining age groups, 26–30 (12.5% cf 18.8%) and 31–35 (25% cf 12.5%), varied between cases and controls (Figure 8-25).

Figure 8-26 demonstrates the difference between cases and controls across the three age groups of rangātahi (16–25), pakeke/mātua (26–40) and kaumātua (41–50) by the four cultural identified. Cases in the youth age group tend to be more secure (37.5% cf 22.7%), positive (51.8% cf 31.6%) and compromised (56.3% cf 25%) in their identity compared with controls who identify more as notional (46.8% cf 57.1%). Cases in the middle age group were more likely to have a notional identity (46.8% cf 21.4%); whereas controls dominated

the remaining three identities. The third age group was lead mainly by controls except for those with a secure identity (25% cf 24%).

Figure 8-26: Cultural identity by youth (rangātahi), middle aged (pakeke/mātua) and third age (kaumātua) differences between Māori attempted suicide cases and controls.



### Socio-economic factors

Three socio-economic factors with respect to cultural identity are explored in the following section: education, employment and income.

#### Education

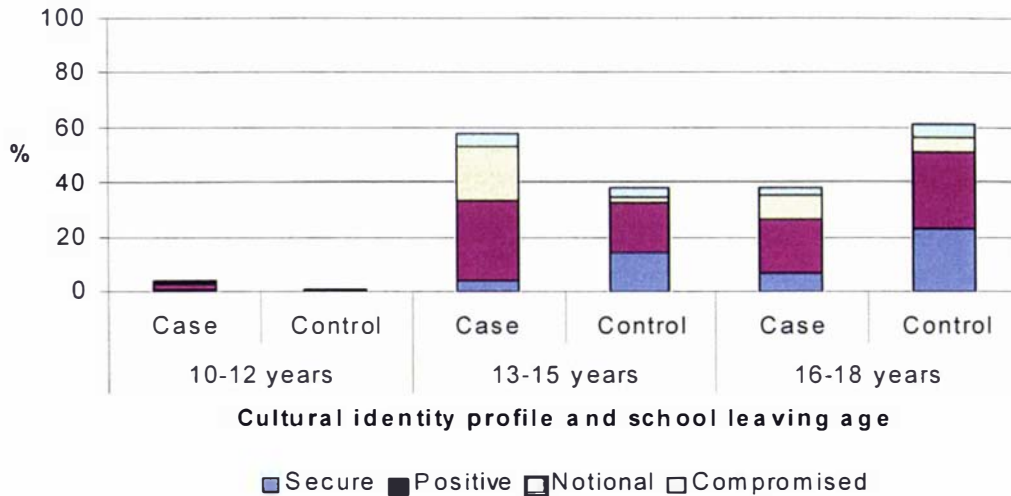
The numbers of cases and controls who left school before 10–12 years, 13–15 years or 16–18 years is shown in Figure 8-27. These ages related to receiving a primary school education, a secondary school education, but not being old enough to sit national qualifications, and a secondary education and old enough to sit national qualifications. Only two (0.5%) controls with a secure and positive identity left school during primary school compared with eight cases mostly with a positive identity (2.4%).

More cases than controls left school aged 13–15 without receiving a national qualification (OR=2.35, CI 1.54, 3.58,  $p<0.0001$ ), which was associated to attempting suicide. Fewer cases than controls (4% cf 14%) with a secure identity (OR=0.12, CI 0.05, 0.3,  $p<0.0001$ ) left school aged 13–15 whereas there was no difference (OR=1.12, CI 0.6, 2.07) between cases and controls with positive (13% cf 18%) and compromised (5% cf 3%) identities (OR=0.87, CI 0.29, 2.67), and there were significantly more cases than controls (OR=9.32, CI 3.0, 32.3,  $p<0.0001$ ) with a notional identity (20% cf 2%). Fewer cases than controls in general left school aged 16–18 (OR=0.39, CI 0.26, 0.60,  $p<0.0001$ ). Cases were less likely to have had a secure (4% cf 23% OR=0.34, CI 0.16, 0.71,  $p=0.0017$ ) and compromised (5% cf 5%,



OR=0.82, CI 0.23, 2.82;  $p>0.01$ ) identity, and were more likely to have had a positive (30% cf 28%, OR=1.31, CI 0.71, 2.4;  $p>0.01$ ) or notional identity (20% cf 5%, OR=3.43, CI 1.4, 8.51,  $p<0.0025$ ).

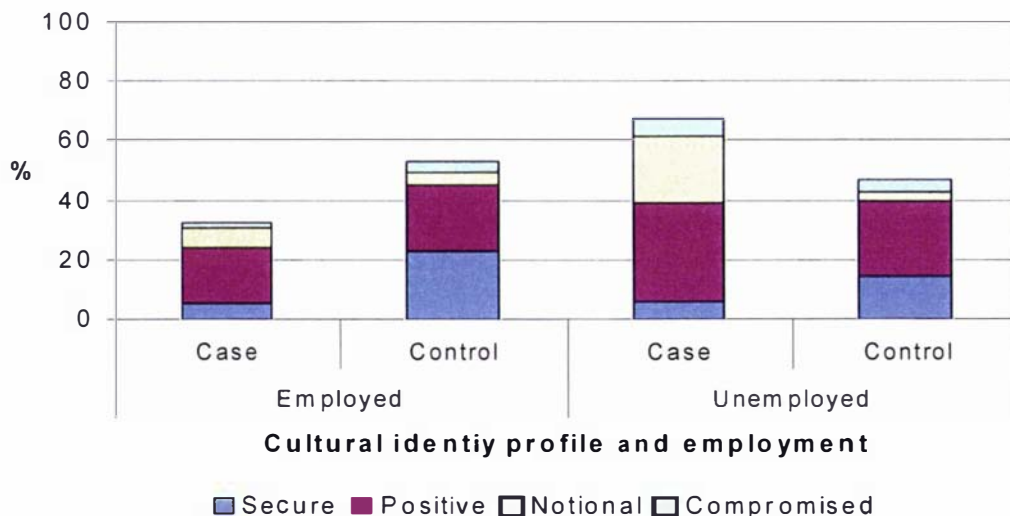
Figure 8-27: Cultural identity and school leaving age between Māori attempted suicide cases and controls.



*Employment*

Employment among controls was greater than among cases (Figure 8-28). Controls who were employed were more likely to have a secure (23% cf 5%); positive (23% cf 19%) or compromised (4% cf 1%) identity than cases who had a notional identity (4% cf 7%). Cases were more likely than controls to be unemployed.

Figure 8-28: Cultural identity and employment between Māori attempted suicide cases and controls.



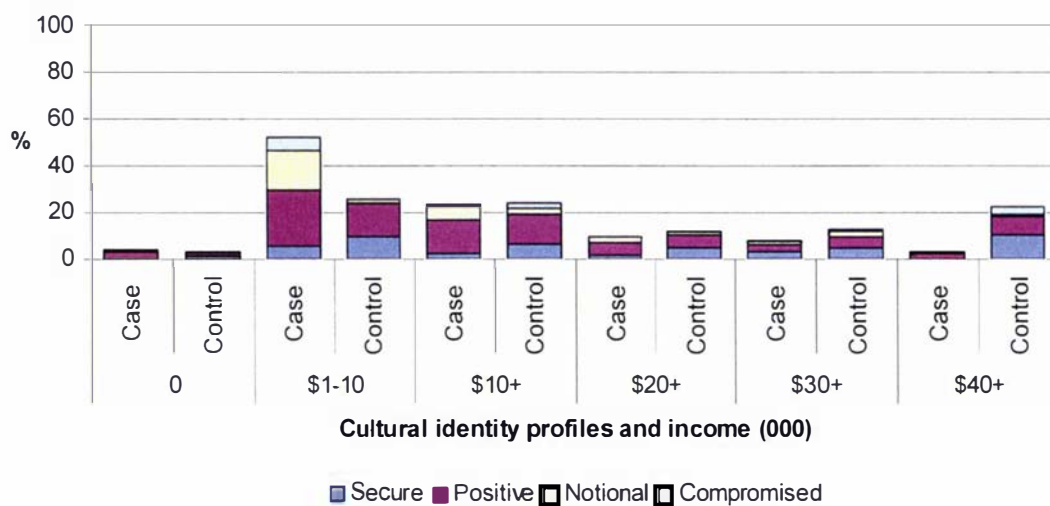
Unemployed cases were less likely to have a secure identity (6% cf 14%, OR=0.39, CI 0.18, 0.8,  $p=0.0054$ ) than controls, and more likely to have a notional (22% cf 3%, OR=7.05, CI

3.1, 16.6,  $p < 0.0001$ ) identity with similar levels of positive (33% cf 26%,  $OR = 1.44$ ,  $CI$  0.92, 2.25;  $p > 0.01$ ), or compromised (6% cf 4%,  $OR = 1.58$ ,  $CI$  0.6, 4.3,  $p < 0.3199$ ) identity. Employed cases were less likely to have a secure identity (5% cf 23%,  $OR = 0.18$ ,  $CI$  0.09, 0.38,  $p < 0.0001$ ).

### Income

Most of the cases and controls ( $n = 147$ , 79.5%; cf  $n = 96$ , 53%) earned \$1-\$19,999. Cases were more likely to earn less than controls ( $OR = 2.45$ ,  $CI$  1.6, 3.7,  $p < 0.0001$ ).

Figure 8-29: Cultural identity and income (\$1000) between Māori attempted suicide cases and controls.



In the lower income category (\$1-10,000) cases identified as positive (24% cf 14%,  $OR = 2$ ,  $CI$  1.1, 3.5,  $p = 0.0092$ ), notional (17% cf 2%,  $OR = 12.2$ ,  $CI$  3.5, 50.6) or compromised (6% cf 0.6%,  $OR = 11$ ,  $CI$  1.5, 228,  $p = 0.0045$ ); whereas controls were more likely to be secure (6% cf 10%,  $OR = 0.2$ ,  $CI$  0.05, 0.6,  $p = 0.0014$ ) in their identity. In the \$10,000-19,999 category there was little difference between cases and controls with a secure ( $OR = 0.3$ ,  $CI$  0.09, 1.2;  $p > 0.01$ ), positive ( $OR = 1.1$ ,  $CI$  0.6, 2), notional ( $OR = 2.7$ ,  $CI$  0.8, 10.2) or compromised ( $OR = 0.47$ ,  $CI$  0.06, 3.0;  $p > 0.01$ ) identity (Figure 8-29).

Few cases and controls had an income \$20,000-29,999 ( $n = 19$ , 10% cf  $n = 22$ , 12%). There was little difference between cases' and controls' identity in this income range (secure 1.5% cf 4.4%; positive 5.6% cf 6%; notional 2% cf 1%; and compromised 0.5% each). A similar distribution was experienced in the next income bracket, \$30,000-39,999 (secure 3% cf 5%; positive 3% cf 5%; notional 1.5% cf 11.6%; and compromised 0% cf 1%). A more pronounced difference existed between cases and controls who earned more than \$40,000 per year. Cases compared with controls were less likely to have a secure (0% cf 10.5%), positive

(2% cf 8%) and compromised (0% cf 3%) identity and were more likely to have a notional (1% cf 0.6%) identities.

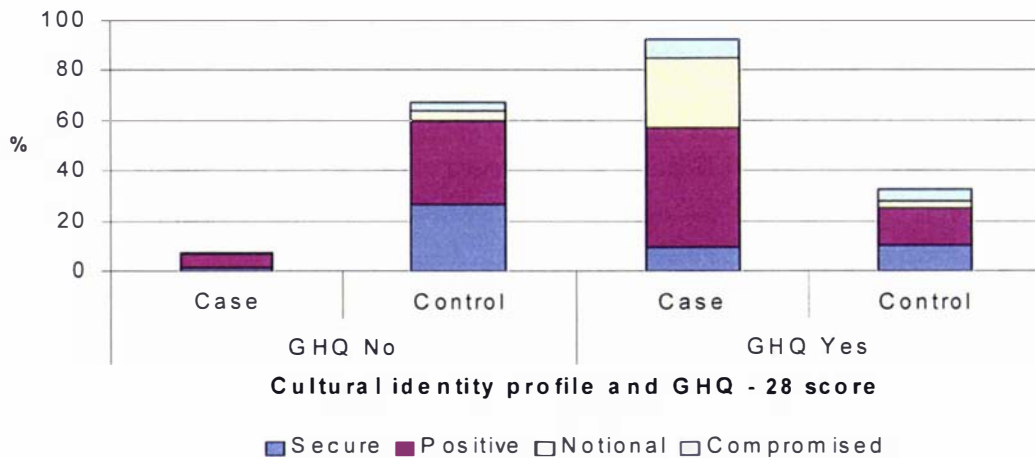
### Health Indicators

The General Health Questionnaire–28 formed the basis of comparison for cultural identity and health. Two overall scores (four or less or five or more) indicated an association to: not being a case and being a case with poor general health status.

#### GHQ–28

Under the definition of ‘not a case’ (GHQ–28 score no more than four) fewer cases than controls had a secure (26.6% cf 1.4%, OR=0.04, CI 0.01, 0.13, p<0.0001); positive identity (33.5% cf 5%, OR=0.11, CI 0.05, 0.22, p<0.0001); notional (4% cf 1%, OR=0.23, CI 0.03, 1.2; p>0.01) and compromised (3% cf 0%) identity.

Figure 8-30: Cultural identity and GHQ scores between Māori attempted suicide cases and controls.



#### Hospital Anxiety and Depression Scale

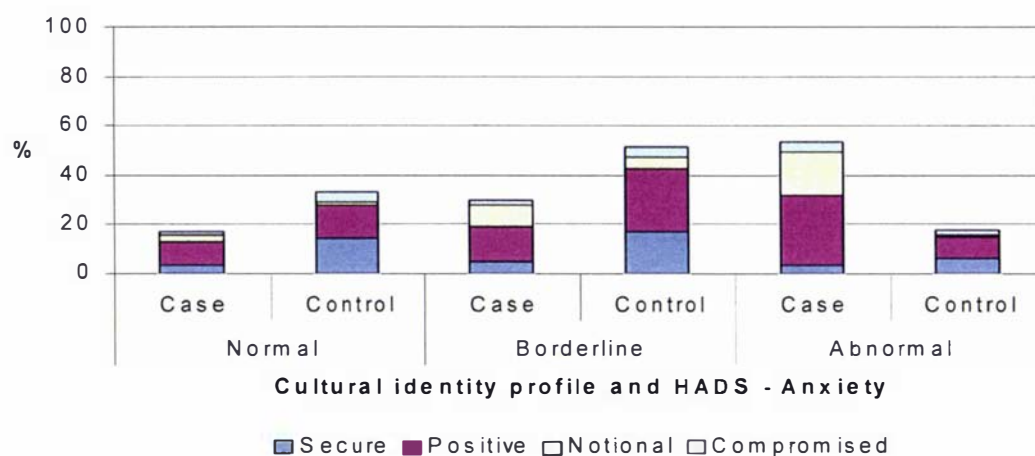
##### Anxiety

Less cases than controls have normal levels of anxiety (17% cf 33%) (Figure 8-31). Cases with normal anxiety levels were less likely to have a secure (3% cf 14%, OR=0.2, CI 0.08, 0.5; P<0.001), positive (9% cf 13%, OR=0.7, CI 0.4, 1.4; p>0.01) or compromised (1% cf 4%, OR=0.35, CI 0.07, 1.5; p>0.01) identity, and were slightly more likely to have a notional (3% cf 1.5%, OR=1.9, CI 0.4, 9.8; p>0.01) identity.

Borderline cases of anxiety had a similar identity pattern as those with normal anxiety levels (Figure 8-31). Cases with borderline anxiety levels were less likely to have a secure (5% cf 17%, OR=0.24, CI 0.11, 0.53; p<0.01), positive (14.5% cf 26%, OR=0.48, CI 0.28, 0.81;

p<0.01) or compromised (2% cf 4%, OR=0.46, CI 0.12, 1.7; p>0.01) identity and slightly more likely to have a notional (9% cf 4.5%, OR=2.1, CI 0.87, 5.15; p>0.01) identity.

Figure 8-31: Cultural identity and HADS–Anxiety between Māori attempted suicide cases and controls.



There were more cases than controls with abnormal levels of anxiety (53% cf 18%, OR=5.2, CI 3.2, 8.4, p<0.0001). Cases with abnormal anxiety levels were more likely to have a positive (28.5% cf 9%, OR=4.1, CI 2.25, 7.5; p<0.01), notional (17% cf 1%, OR=21, CI 4.9, 127.9; p<0.0001) identity. Attempting suicide was not associated to having a compromised (4% cf 2%, OR=2.2, CI 0.6, 8.6; p>0.01) or secure (3% cf 6% OR=0.5 CI 0.19, 1.5; p>0.01) identity (Figure 8-31).

#### Depression

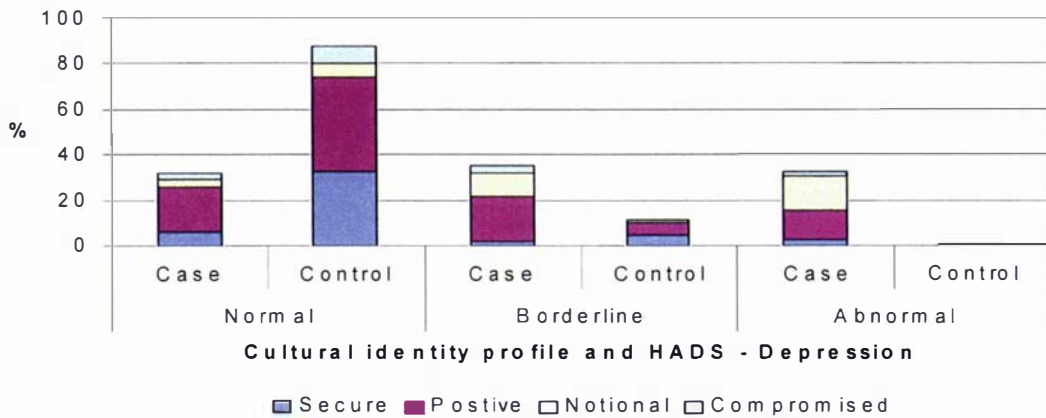
Cases were generally less likely than controls (Figure 8-32) to have a normal level of depression (32% cf 88%, OR=0.07, CI 0.04, 0.11; p<0.001). Cases with normal depression levels were less likely to have a secure (6% cf 33%, OR=0.13, CI 0.07, 0.26; p<0.0001), or positive identity (20% cf 42%, OR=0.35, CI 0.2, 0.55; p<0.0001) and not associated to those who had a notional (3% cf 6%, OR=0.54, CI 0.19, 1.5; p>0.01) or compromised (3% cf 7%, OR=0.36, CI 0.12, 1.0; p>0.01) identity.

Cases with borderline depression (Figure 8-32) had an identity pattern different from those with normal depression levels (35% cf 11%, OR=4.2, CI 2.45, 7.3; p<0.001). Cases with borderline depression levels were not associated to having a secure (2% cf 4%, OR=0.52, CI 0.15, 1.72; p>0.01) identity, but were more likely to have a positive (19% cf 6%, OR=3.8, CI 1.84, 7.9; p<0.01), notional (11% cf 1%, OR=12.1, CI 2.7, 75.3; p<0.0001) or compromised (3% cf 0%) identity.



There were more cases than controls with abnormal levels of depression (33% cf 0.5% OR=86 CI 12.7, 1691 p<0.0001). Cases with abnormal levels of depression were more likely to have a secure (3% cf 0%), positive (13% cf 0%), notional (15% cf 0%) or compromised (2% cf 0%) identity (Figure 8-32).

Figure 8-32: Cultural identity and HADS–Depression between Māori attempted suicide cases and controls.



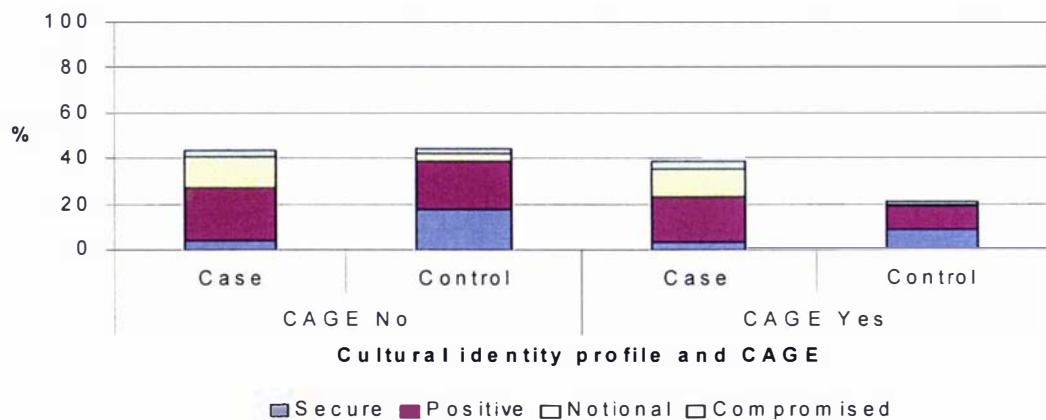
### Substance use

Cultural identity and alcohol (CAGE), marijuana and other illicit drug use were analysed.

#### *CAGE alcohol screening test*

Based on having a CAGE definition of an alcohol problem (at least two items answered positively), a similar frequency of cases and controls did not have an alcohol problem (43% cf 44%).

Figure 8-33: Cultural identity and CAGE (alcohol issue) between Māori attempted suicide cases and controls.



Cases were more likely to have a notional identity (14% cf 3%, OR=5.4, CI 2, 14.7), and less likely to have a secure identity (4% cf 18%, OR=0.2, CI 0.09, 0.5; p<0.0001). Participants with a positive or compromised identity were not significantly different.

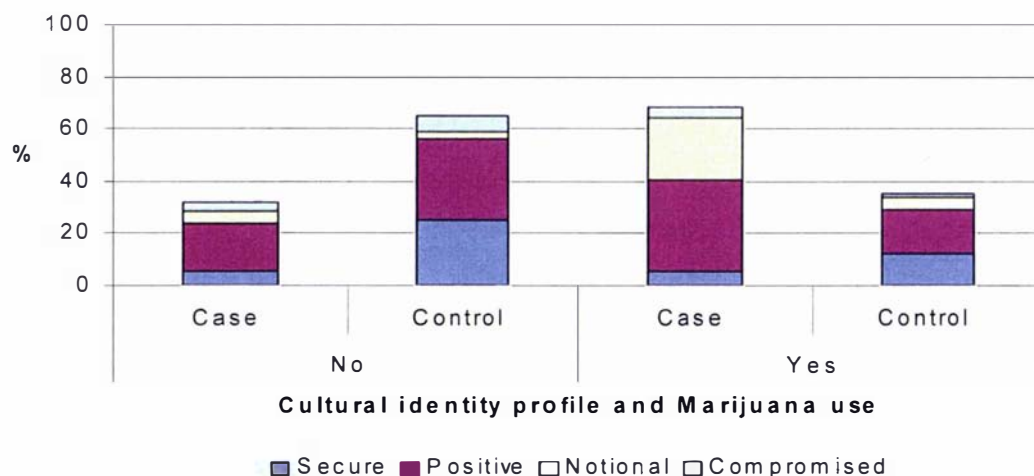
Cases were more likely to have an alcohol problem than controls (39% cf 21%, OR=2.4, CI 1.5, 3.7,  $p<0.0001$ ) (Figure 8-33). Cases with alcohol problems were more likely to have a positive (20% cf 10%, OR=2.3, CI 1.3, 4.2;  $p<0.01$ ), or notional (12% cf 1%, OR=13.9, CI 3.2, 86;  $p<0.001$ ) identity and were not related to those with a compromised (3% cf 1.5%, OR=2.6, CI 0.6, 12.5;  $p>0.01$ ) or secure (4% cf 9%, OR=0.45, CI 0.18, 1.09;  $p>0.01$ ) identity.

### *Marijuana*

Cases were less likely than controls (32% cf 65%, OR=0.13, CI 0.08, 0.2;  $p<0.0001$ ) to not have used marijuana (Figure 8-34). Cases were less likely to have a secure (6% cf 25%, OR=0.19, CI 0.1, 0.38;  $p<0.0001$ ) or positive (18% cf 31%, OR=0.48, CI 0.3, 0.78;  $p<0.0001$ ) identity.

If participants had used marijuana in the previous year then they were more likely to be cases with a positive (35% cf 17%, OR=2.6, CI 1.6, 4.2;  $p<0.0001$ ) or notional (24% cf 4%, OR=7.6, CI 3.4, 17.9;  $p<0.0001$ ) identity. There was no difference between cases and controls who used marijuana and had a secure identity (6% cf 12% OR=0.48 CI 0.22, 1.02;  $p>0.01$ ).

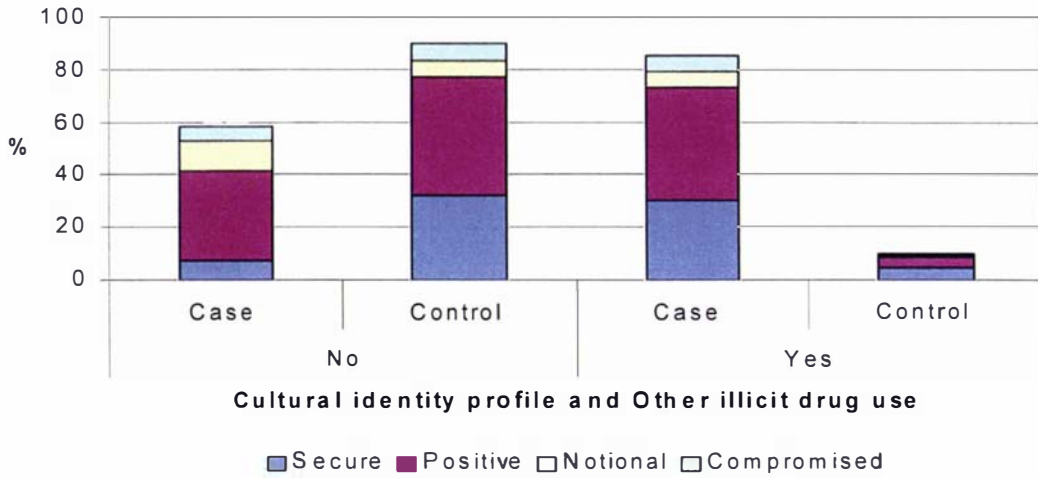
Figure 8-34: Cultural identity and marijuana use between Māori attempted suicide cases and controls.



### *Other illicit drug*

Far more controls than cases had not used other illicit drugs in the previous year (Figure 8-35). Cases who used illicit drugs were more likely than controls to have a secure (31% cf 5%, OR=8.6, CI 4.1, 18.5;  $p<0.001$ ), positive (43% cf 3%, OR=24.8, CI 10, 64.8;  $p<0.0001$ ), notional (6% cf 1%) and compromised (7% cf 0.5%) identity.

Figure 8-35: Cultural identity and other illicit drug use between Māori attempted suicide cases and controls.



### Interpersonal abuse

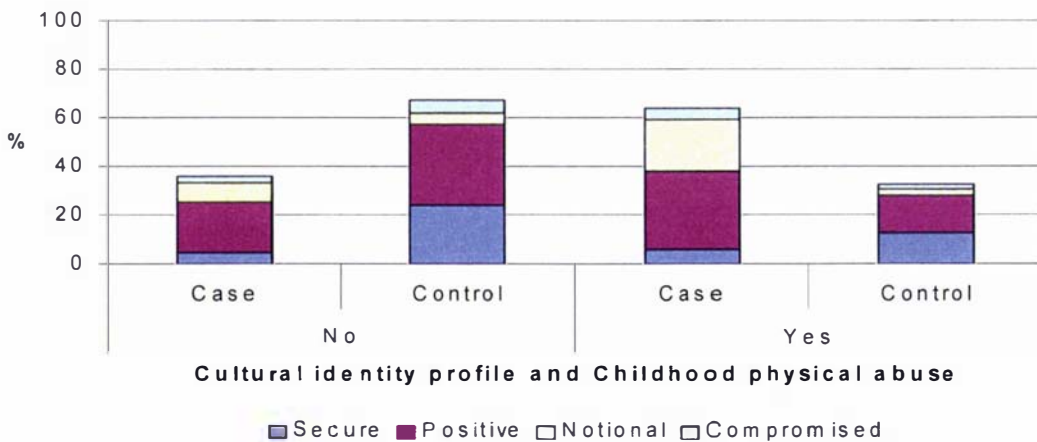
Two temporal interpersonal abuse factors (childhood and recent abuse) were analysed with respect to cultural identity. These were then analysed within sub-categories of physical, verbal, emotional and sexual abuse.

#### Childhood abuse

##### Physical

Cases were more likely to have experienced physical abuse in childhood than controls.

Figure 8-36: Cultural identity and childhood physical abuse between Māori attempted suicide cases and controls.

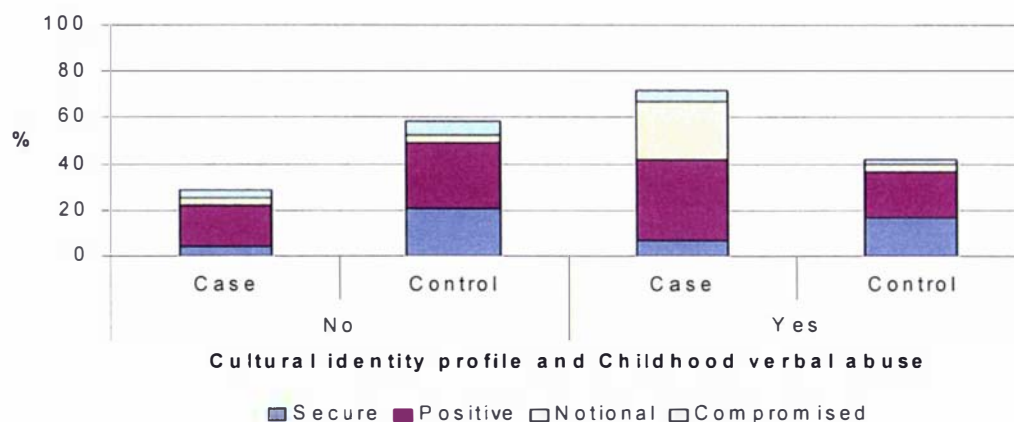


These cases had positive (32% cf 20%, OR=1.9, CI 1.18, 3.05;  $p < 0.001$ ) or notional (22% cf 2%, OR=14, CI 4.7, 46.7;  $p < 0.0001$ ) identities when compared with controls. Cases who had been physically abused in the previous year were less likely to have a secure identity (6% cf 17%, OR=0.3, CI 0.15, 0.63;  $p < 0.0001$ ) (Figure 8-36).

Verbal

Figure 8-37 shows the distribution of verbal abuse experienced by cases and controls in childhood. Controls with a secure (21% cf 4%, OR=0.16, CI 0.07, 0.36; p<0.001) or positive (29% cf 17%, OR=0.49, CI 0.3, 0.8; p<0.01) identity were less likely to have experienced childhood verbal abuse than cases, respectively.

Figure 8-37: Cultural identity and childhood verbal abuse between Māori attempted suicide cases and controls.

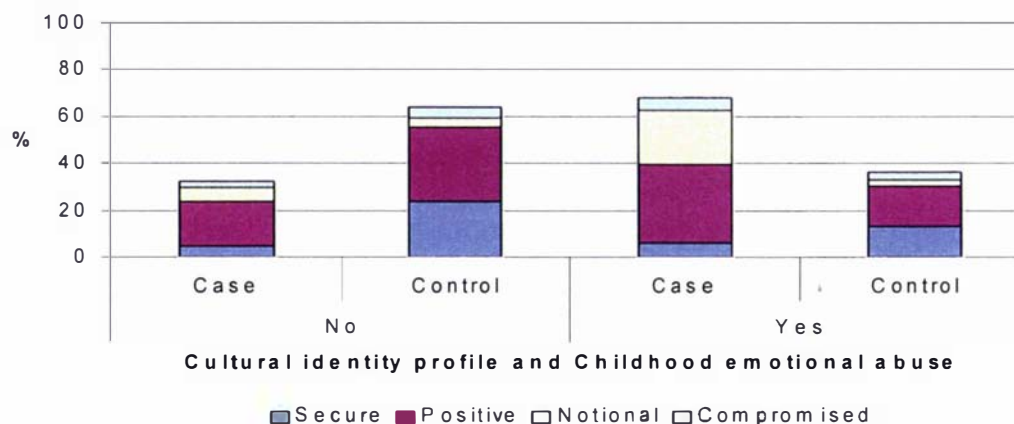


Cases who had encountered verbal abuse in their childhood had a positive (35% cf 20%, OR=2.2, CI 1.4, 3.5; p<0.01), or notional (25% cf 4%, OR=8.2, CI 3.6, 19.3; p<0.001) identity compared with controls.

Emotional

The distribution of cases and controls by emotional abuse during childhood is similar to that of verbal abuse. Controls were less likely to have experienced emotional abuse during childhood in contrast to cases (Figure 8-38). Cases who had not experienced emotional abuse were less likely to have a positive (19% cf 32%, OR=0.5, CI 0.3, 0.8; p<0.001) or secure (5% cf 24%, OR=0.17, CI 0.08, 0.35; p<0.001) identity compared with controls.

Figure 8-38: Cultural identity and childhood emotional abuse between Māori attempted suicide cases and controls.



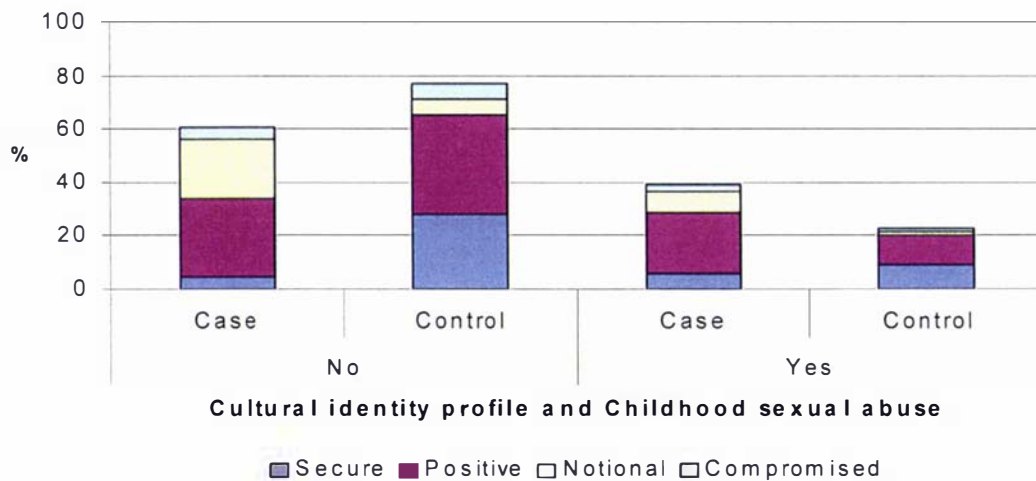


Cases who had suffered from emotional abuse during childhood were more likely to have a positive (33% cf 17%, OR 2.4, CI 1.5, 3.9;  $p<0.001$ ) or notional (23% cf 3%, OR=10, CI 4, 27;  $p<0.001$ ) identity and less likely to have a secure (24% cf 5%, OR=5.5, CI 2.6, 12.1;  $p<0.01$ ) identity.

**Sexual**

Cases who had experienced childhood sexual abuse were more likely to have a positive (23% cf 11%, OR=2.4, CI 1.4, 4.4;  $p<0.01$ ) or notional (8% cf 1%, OR=8.7, CI 1.9, 55;  $p<0.0001$ ) identity, whereas controls were more likely to have a secure identity (28% cf 5%, OR=7.7, CI 3.4, 16.7;  $p<0.0001$ ).

Figure 8-39: Cultural identity and childhood sexual abuse between Māori attempted suicide cases and controls.



*Recent abuse*

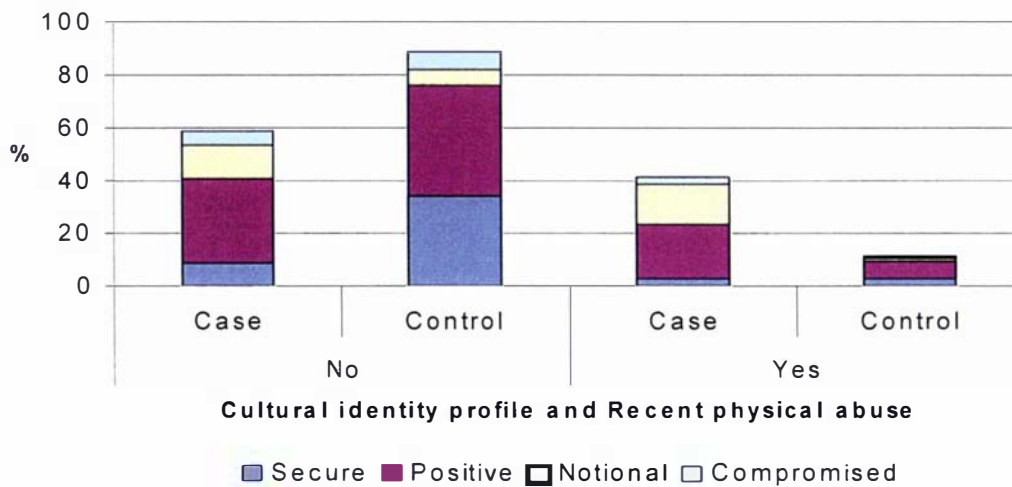
Cases and controls who had experienced recent abuse had more similar distributions in contrast to those who experienced childhood abuse, where the distribution was more variable.

**Physical**

Controls with secure (34% cf 9%, OR=0.19, CI 0.1, 0.34;  $p<0.0001$ ) and positive (42% cf 32%, OR=0.65, CI 0.4, 0.98;  $p<0.001$ ) identities were less likely to have been exposed to physical abuse over the previous year than cases (Figure 8-40). Cases were more likely than controls to have experienced physical abuse (41% cf 11%, OR=5.45, CI 3.2, 9.4;  $p<0.0001$ ).

Relatively the same percentage of cases and controls had a secure or compromised identity compared with those who had a positive (20% cf 6%, OR=4, CI 2, 8;  $p<0.0001$ ) or notional (16% cf 1%, OR=19, CI 4.4, 116;  $p<0.0001$ ) identity.

Figure 8-40: Cultural identity and recent physical abuse between Māori attempted suicide cases and controls.

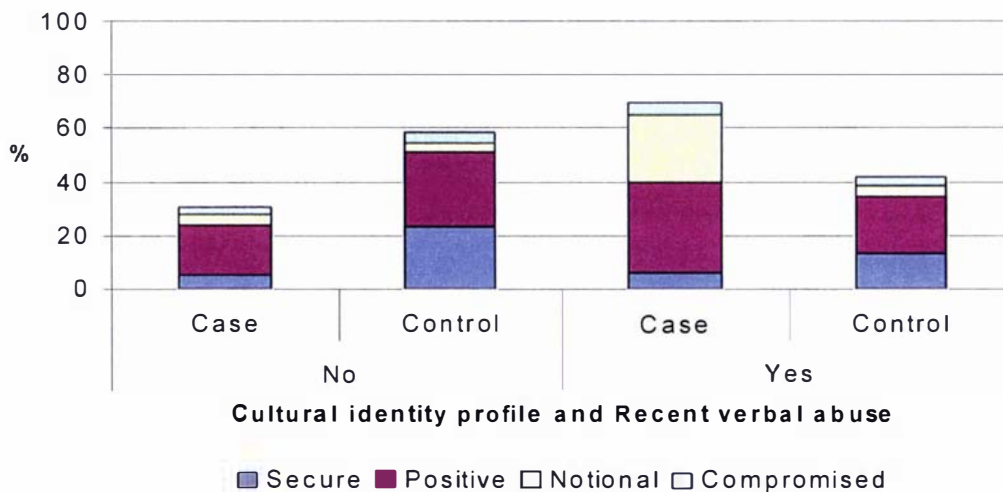


Verbal

Controls with secure (24% cf 5%, OR=0.17, CI 0.08, 0.35) or positive (28% cf 19%, OR=0.6, CI 0.37, 0.98) identities were less likely to have been exposed to physical abuse over the previous year than cases (Figure 8-41). Verbal abuse was more likely to have been experienced by cases than controls (69.5% cf 41.5%, OR=3.2, CI 2.1, 4.9; p<0.0001).

Controls who had been verbally abused were more likely to have a secure identity (14% cf 6%, OR=0.4, CI 0.19, 0.84; p<0.001). Cases who had experienced verbal abuse were more likely to have a positive (34% cf 10%, OR=4.7, CI 2.7, 8.5; p<0.0001) or notional (25% cf 1.5%, OR=22.5, CI 6.6, 91.9; 0.0001) identity.

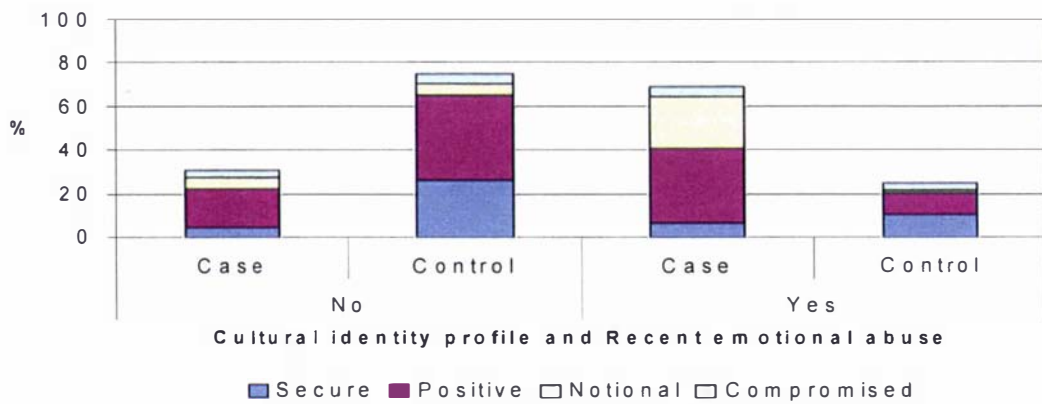
Figure 8-41: Cultural identity and recent verbal abuse between Māori attempted suicide cases and controls.



**Emotional**

Emotional abuse was more likely to have been experienced by cases than controls (69% cf 25.5%, OR=6.5, CI 4.1, 10.3;  $p<0.001$ ). Controls with secure (27% cf 5%, OR=0.15, CI 0.07, 0.3;  $p<0.0001$ ) and positive (39% cf 18%, OR=0.35, CI 0.22, 0.56;  $p<0.0001$ ) identities were less likely to have experienced physical abuse over the previous year than cases (Figure 8-42). Cases who had experienced emotional abuse were more likely to have a positive (34% cf 10%, OR=4.7, CI 2.7, 8.5;  $p<0.001$ ) or notional (24% cf 1.5%, OR=20.9, CI 6.12, 85.3;  $p<0.0001$ ) identity.

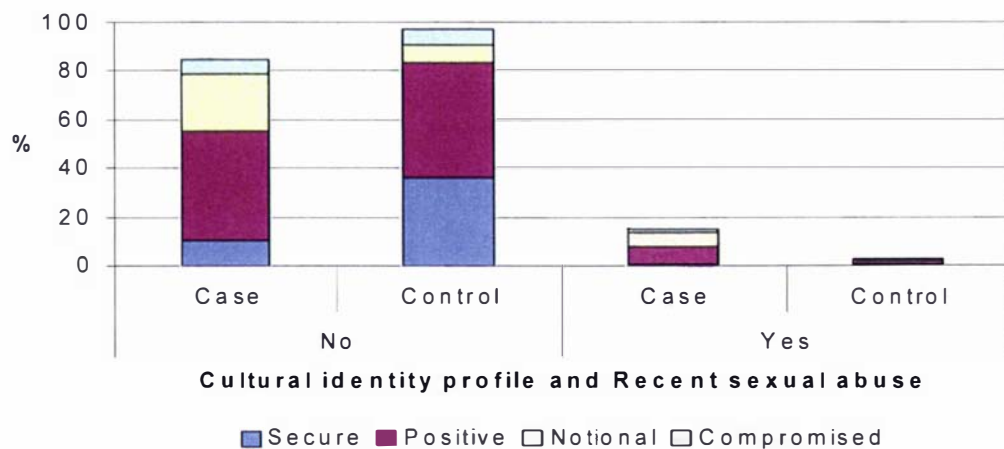
Figure 8-42: Cultural identity and recent emotional abuse between Māori attempted suicide cases and controls.



**Sexual**

Far fewer cases (15.5%) and controls (2.5%) had experienced sexual abuse over the previous year than physical, verbal or emotional abuse (OR=7.2, CI 2.5, 21.3). One case and control with secure identities had experienced recent sexual abuse (0.5%), 15 cases and three controls (7.5% cf 1.5%) had a positive identity and 11 cases (6%) had a notional identity while three cases and one control (1.4% cf 0.5%) had compromised identities (Figure 8-43).

Figure 8-43: Cultural identity and recent sexual abuse between Māori attempted suicide cases and controls.



## CULTURAL IDENTITY MODEL

Table 8-9 shows the cultural identity model with respect to age, gender, socio-economic factors, GHQ-28, the Hospital Anxiety and Depression Scale (HADS), substance use and interpersonal abuse.

Table 8-9: Model of cultural identity between Māori attempted suicide cases and controls.

Cultural indicators	Age + gender	Age + gender + SES	Age + gender + GHQ-28	Age + gender + HADS	Age + gender + substance use*	Age + gender + abuse
Cultural Identity Profiles	$X^2_3 = 33.62$ ; $p < 0.0001$	$X^2_3 = 19.09$ $p = 0.0003$	$X^2_3 = 3.06$ ; $p = 0.3$	$X^2_3 = 2.76$ ; $p < 0.4$	$X^2_3 = 24.15$ $p < 0.0001$	$X^2_3 = 18.79$ $p = 0.0003$
<b>Secure</b> OR (95% CI)	<b>0.28</b> (0.11, 0.70)	<b>0.37</b> (0.12, 1.12)	<b>1.14</b> (0.19, 6.73)	<b>0.52</b> (0.15, 0.32)	<b>0.24</b> (0.08, 0.70)	<b>0.19</b> (0.05, 0.83)
<b>Positive</b> OR (95% CI)	<b>1.03</b> (0.45, 2.36)	<b>1.15</b> (0.42, 3.21)	<b>3.05</b> (0.65, 14.41)	<b>1.11</b> (0.34, 3.66)	<b>0.97</b> (0.36, 2.58)	<b>0.91</b> (0.23, 3.61)
<b>Notional</b> OR (95% CI)	<b>4.40</b> (1.45, 13.31)	<b>3.68</b> (1.04, 12.98)	<b>1.80</b> (0.21, 15.31)	<b>1.23</b> (0.25, 6.08)	<b>2.91</b> (0.83, 10.23)	<b>3.25</b> (0.59, 17.98)
<b>Compromised</b>	1	1	1	1	1	1

\* Substance use: alcohol (CAGE) + marijuana + other illicit drugs

A secure identity, adjusted for age and gender, was associated to attempting suicide (OR=0.28, CI 0.11, 0.70,  $p < 0.0001$ ). Secure identity by socio-economic factors and GHQ-28 were not significant factors with respect to cultural identity. Having a secure cultural identity (adjusted for age and gender) while using substances (alcohol, marijuana or other illicit drugs) remains positively associated to attempted suicide (OR=0.24, CI 0.08, 0.70,  $p < 0.0001$ ). This was also true when exposed to interpersonal abuse having a secure identity (adjusted for age and gender) positively associated to attempted suicide (OR=0.19, CI 0.05, 0.83,  $p = 0.0003$ ).

Having a positive identity was not associated to attempting suicide. However, having a notional identity adjusted for age and gender was negatively associated to attempting suicide (OR=4.40, CI 1.45, 13.31,  $p < 0.0001$ ) and socio-economic factors (OR=3.68, CI 1.04, 12.98,  $p < 0.0003$ ).

## CHAPTER SUMMARY

Most cases identified as sole Māori whereas controls tended to identify with several ethnicities. Controls were more able to show greater knowledge of their ancestry, iwi, hapū, and waka. Cases were less likely to go to and feel comfortable on marae for hui or tangihanga. Controls



were more likely to spend time with whānau, either through contact, staying with or having whānau stay with them than cases. Controls also had stronger links, supportive, positive expectations and greater participation with whānau than cases. Generally cases believed their knowledge of tikanga was better than did controls. Although there was a protective association between Māori and customary land, cases generally felt dissatisfied with the income derived from land interests than controls. Few Māori organisations were accessed by Māori and there were mixed reactions to the relationships with such organisations. Controls were more likely to participate in traditional kai preparation techniques than cases. Controls were also more likely to have an ability to speak, understand, use and belief in the importance of te reo Māori.

Cultural identity among controls was more likely to be secure and positive compared to cases. Māori who had a secure identity were associated to attempted suicide, and Māori with a notional identity were negatively associated. Male cases were more likely to have a notional identity and female cases a positive identity. Little variability in the distribution of cultural identities across age groups was demonstrated. Māori with secure identities were more likely to leave school when they were older (16–18 years), and cases tended to be younger with positive and notional identities when they left school. Among controls employment was associated to a secure identity, while unemployment was linked to a ‘positive’ or ‘notional’ identity. Controls were more likely to earn more money than cases and have a secure identity. Cases were more likely to have positive and notional identities and earn less.

GHQ-28 by cultural identity found that cases with positive, notional, and compromised identities were more likely to have health problems than controls. *Secure* and *positive* identified controls were unlikely to have health problems.

Controls with a *secure* identity were unlikely to have an alcohol problem or use marijuana and other illicit drugs compared with cases with *positive* and *notional* identities.

Cases who had *positive* and *notional* identities were prone to childhood and recent physical, verbal, emotional and sexual abuse. Controls who had been physically, verbally, emotionally and sexually abused in both childhood and in recent times were more likely to have a *secure* identity.

Only five of the possible 18 relationships of association in the cultural identity model were significantly associated (Table 8-9). The three positive associations were linked to having a secure identity with respect to age and gender, substance use, and interpersonal abuse. The two associations that negatively impacted on attempting were between Māori who had a notional identity with respect to age, gender and socio-economic factors.



## CHAPTER 9

# KAINAMU WHAKAMOMORI WHAKAKOREROTIA: DISCUSSION OF MĀORI ATTEMPTED SUICIDE

### **INTRODUCTION**

Suicidal behaviour is a major public health issue globally. Approximately one million people take their lives each year. In many countries suicide and suicidal behaviour is a leading causes of death or injury.

### **SUICIDAL CONTINUUM**

The incidence of suicide and attempted suicide on an international scale is particularly excessive among indigenous populations and the statistics may be an underestimate of the problem.

Caution must be exercised when interpreting suicide attempt data as records are kept only on those who are admitted to hospital as in-patients or day-patients. New Zealand data, like that in many other countries, are not collected nationally on people treated in private Accident and Emergency (A&E) as outpatients (although some hospitals are now reporting people admitted to A&E day or short-stay units), or on people treated by general practitioners, or those who do not seek medical treatment. Also, changing treatment practices make comparisons across years and countries difficult. In addition, in 2000 a new international disease classification system (ICD-10) was introduced that altered the inclusion criteria for a diagnosis of intentional self-harm. The definition of an admission also changed, resulting in the inclusion of cases that had not been included previously.

There is a universal heterogeneity of suicidal behaviour across countries and within countries. The rates of suicide are variable, from very high in Western Europe and Scandinavia to low in countries close to the Mediterranean. Of particular concern has been the rise in suicide rates in those aged 15–24, especially males (except in China) and those with psychological illnesses, but varying across ethnicity, socio-economic class, choice of method, and social and family circumstances.

Non-indigenous populations are more likely to have more people complete suicide compared with indigenous populations, however, due to the smaller population of indigenous peoples their rates of suicide and suicidal behaviour are more likely to exceed those of their non-indigenous counterparts.

Non-indigenous suicide rates range from less than one to 47 per 100,000, but indigenous suicide rates can exceed 200 per 100,000. In some countries the ratio of non-indigenous to indigenous is of the order of 1:4. Common reasons suggested for the higher rates of suicidal behaviour among indigenous populations have included: disorganisation; social and family disruption; cultural conflict; acculturation pressure; self-identity and actualisation in minority status; complex choices related to adopting mainstream or traditional cultural beliefs and values; the impact on traditional tribal structures of Western education, religion and legislation; intergenerational abuse; the erosion of traditional structures and processes; oppressive government programmes and policies; colonisation; and collective despair.

Studies of completed suicide have often used psychological autopsies as a retrospective method elicit causative information about what lead to the event. This method involved interviewing significant others, while in attempted suicide studies the individuals themselves are interviewed. Interviewing attempted suicide cases is more likely to extract accurate information and lead to better preventative methods. Also, people who have already made one suicide attempt are at a greater risk of dying by suicide, so it is important to undertake research with people who have attempted suicide.

The attempted suicide data includes self-inflicted injury and may include cases of deliberate self-harm where the intent was not death. Hospitalisation figures include people who are admitted more than once during that year, and also include those who died while in hospital.

The rates of Māori suicide and attempted suicide have exceeded the non-Māori rates in New Zealand. Māori historically operated from a shame-based morality of honour protected by traditional social structures. In modern times, however, these structures and values have been



largely subsumed by the dominating culture. Contemporary Māori theorists propose several reasons for the disparity in suicidal behaviour between Māori and non-Māori including: whānau dysfunction; deculturation; racism; cultural depression and grief; an insecure identity; a loss of balance between self, environment and human relationships; oppression; autonomy; alienation of land and resources; acculturation; and humiliation; all of which are associated with the colonisation process.

## **METHODOLOGICAL INTERFACE**

In this study, all of the aforementioned risk factors drawn from the literature, were incorporated into a questionnaire to address the hypothesis, that Māori who attempt suicide are more likely to be culturally alienated. Two methodological paradigms were amalgamated to test the hypothesis. The first of these methodologies ensures the study processes were culturally apposite by: involving Māori at all levels of the research; incorporating cultural questions; having interviewee-controlled whānau participation, timing and placement; having consultation and dissemination hui; and using a Māori advisory group. Some of these processes affected on the accuracy of the second methodology. Analytical designs such as the one incorporated in this research have strict parameters. By allowing interviewees to control most of the interview process can affect information bias, in particular, the recall bias related to the time chosen to be interviewed.

This case control study was the first to be performed in New Zealand that focussed on Māori subjects. Two hundred and fifty consecutive Māori cases of attempted suicide admitted to one of three Auckland public hospitals were compared to 250 random, community-based Māori controls (found by door knocking). A one-to-one case control study was chosen over a cohort study for timing and expense reasons and over a randomised control trial as there was little evidence to suggest an effective intervention. The number of cases (n=250) was chosen as a compromise between statistical power (80%) and the time needed to recruit participants (2 ½ years).

A restricted age range was prescribed, rather than matching for age, to guarantee that age was not a factor in Māori attempted suicide. Restricting age limited the generalisability to Māori over the age of 50 years. However, the majority of suicides completed and attempted occur between the study's age range.

A comprehensive, 392-item questionnaire was administered with study participants. It included many validated measures such as the Demographic scales; General Health Questionnaire-28; Hospital Anxiety and Depression Scale, CAGE alcohol screening test; Composite International Diagnostic Index – suicidality; Beck's Scale of Suicide Intent; and Cultural Identity. The difficulty with using such an expansive questionnaire is that participants find it difficult to maintain interest and often decide not to complete the whole interview. To minimise this withdrawal effect participants were asked throughout the process if they wanted to continue, and the maximum interview time was limited to one and half hours. However, without all the items a comprehensive understanding of attempted suicide would not be achieved.

Selection recall and information biases are the major factors to affect the level of association between exposure and outcome in case controls studies. The case and control selection outcome of this study had slightly older and higher socio-economically status controls than cases, possibly affecting the outcome with respect to cultural identity. Older Māori may have grown up without having access to their culture, whereas younger people are more likely to have been exposed to the cultural rejuvenation. The affect of older controls would be to bring the association closer to the null. Although the controls were slightly older this was not significantly different. Controls being socio-economically more secure than cases would exaggerate the effect in culture identity. People who have access to financial security have more opportunity to access culture. The reason why controls agreed to participate in the study may have introduced selection bias to the study. People who have been affected by the death of someone to suicide may be more likely to participate and also have their own reasons why the death occurred and may answer questions toward that bias. As part of selection bias was where the cases and controls originated. Cases were selected from within a hospital system where they had been through several filters to get their including: the availability of transport and being poor going to the public health system rather than private, whereas the controls had not been through the public health system. Cases were also more likely to agree to participate because they may have expected more personal contact after their admission and discharge from the hospital. Controls may have been less likely to agree to participate because of their lack of buy in. However, the two high response rate would not reflect any selection bias with respect to participation.

Recall bias is another extremely important part in case control studies. Due to the long term and less variable nature of the exposure under investigation (cultural identity) recall bias may

not be a major affect on the outcome of this research. The structured questionnaire also made recall easier for participants. Cases recall however, would be more accurate about the circumstances of the attempted suicide and health indicators than controls. This could affect the outcome to some small degree, this would be the case of most case control studies.

Information bias occurs when there is a difference between the information supplied by the cases and controls, due to some inadequacy in the questionnaire. To compensate for this validation occurred within the questionnaire. From the results obtained there is little suggestion that information bias has occurred.

Using a strictly prescribed epidemiological design, while being 'scientifically rigorous' has proved restrictive for Māori research. Kaupapa Māori research has contributed to knowledge about suicide prevention and provided the evidence base for further policy development but has not always been perceived as 'rigorous' and with its own limitations. Combining of these two methodologies has demonstrated that epidemiological research need not be restrictive or prohibitive and can be strengthened by kaupapa Māori processes.

## **DETERMINANTS OF MĀORI ATTEMPTED SUICIDE**

### **Health Indicators**

The research took far less time to complete than the expected two and a half years indicating a level of under-reporting of attempted suicide and inaccuracies in reporting ethnicity information. Taking just over 17 months it suggests a third of the cases of Māori attempted suicide go unreported.

Another major factor suggesting combining the two methodologies would be effective and appropriate was the high response rates for both the cases and controls, including the fact no one withdrew from the study and all the questionnaires were completed to satisfaction. Further analysis of the response rates revealed very few face-to-face refusals to participate.

For the purposes of this section the determinants of Māori attempted suicide have been imposed by the questionnaire developed. Three major determinants are discussed in the following section: health and demographic and socio-economic indicators.

Health indicators used were described in the GHQ-28, HADS, mental ill health items, substance use, interpersonal abuse, health service use and CIDI suicidality.

The GHQ-28 was used to measure the health status of Māori who have attempted suicide because it had been used previously among other indigenous populations and its frequent use in research involving suicidal behaviours. Although the GHQ had not been used among Māori, the pilot study and the fact no one refused or complained about the questions implied its use was appropriate. Acknowledging that the GHQ should be analysed as a total measure, it is also important to display the complex nature of suicidal behaviour for Māori and examine the four, seven item components individually.

The association of suicide and somatic disorders has been investigated in many studies (Beautrais, 2003; Hale, 1997; Kleinman, 1977; Stenager and Stenager, 1997). However, the relationship of somatic disorders with attempted suicide has had little attention. All four of the GHQ individual components scored highly for Māori who had attempted suicide. Somatic symptoms as a physical expression of mental ill health are very important for Māori, who are more likely to express physical illness before admitting to psychological distress. This may be due to the social stigma attached to mental illness or may be linked to the greater perceived threat of physical distress. Social impairment involves the lack of ability to perform normal day-to-day activities or social interactions. Māori might be expected to be different from non-Māori, because their social networks are likely to be broken down by urbanisation, detribalisation and marginalisation. Previous work found societies with lower levels of social integration had higher levels of suicidal behaviour (Sainsbury, 1986). Anxiety as measured by the GHQ-28 was not as strong an association to attempting suicide as depression. Pathological anxiety plays an important role in suicidal behaviour, independently and as a co-morbid symptom, by increasing the risk of psychiatric disorders, imminently and over a lifetime. Individuals with anxiety disorders demonstrate neuroses, panic attacks, social phobias, post-traumatic stress disorder and obsessive disorders. Anxiety can be pathognomonic of a primary disorder, a cardinal symptom of depression, substance abuse or psychosis, it may be an acute response to threat, loss or conflict, all of which affect Māori disproportionately. In this study, levels of depression among cases exceeded those among controls. Therefore, this was negatively associated to attempting suicide for those people with depression. Depressive disorders are common in the general population. High proportions of depressed persons have suicidal thoughts, related usually to the severity of the depression. Suicidal behaviour in depression is particularly common among people with co-morbid mental and physical disorders. Subjective depressive feelings, hopelessness and suicidal ideation are significantly more marked in suicide attempters than non-attempters (Lönnqvist, 2000).



These two latter indicators (anxiety and depression) were repeated in the HADS and the outcome was the same in that there was a negative association to attempting suicide for those who suffered from anxiety and/or depression.

As found in previous New Zealand research mental illness increased the risk of suicidal behaviour. However, having a whānau member or growing up in an environment where a relative or friend who had had mental ill health or experienced suicidal behaviours was unrelated to attempting suicide.

Māori had high levels of substance use in both cases and controls. However there was still a sufficient differential between cases and controls to suggest that using alcohol, marijuana or other illicit drugs being negatively associated to Māori attempting suicide.

Interpersonal abuse is as a major factor in suicidal behaviour among all populations. Māori throughout New Zealand have suggested anecdotally that sexual abuse is a major reason for suicide and attempted suicide. As the myth of Hine Titama (the first woman) says she took her own life out of shame when she found her lover was her father (incest – sexual abuse). Four categories of interpersonal abuse were measured across a temporal range of childhood and recent experience. Interestingly enough, recent experiences of abuse were more indicative of suicidal behaviour, particularly sexual, emotional and physical rather than verbal abuse.

Health service use was low in this study, but Māori were inclined to be registered with general practitioners. Cases saw their doctors more frequently than controls, and controls were more likely to have been to a medical specialist than cases. This may indicate cases tried to get assistance before their suicide attempt or that Māori are seeing general practitioners for other factors such as mental ill health. The fact community-based controls were more likely to see a medical specialist suggests that cases are less likely to use secondary health services, including psychological services. Other health service use was minimal for both cases and controls indicating that there are still barriers to their use. Distance and cost were cited by both groups as significant barriers.

The final health indicator investigated was previous suicidal behaviour. Having suicide thoughts, plans and previous attempts all were negatively associated to attempting suicide. The cases in this study were slightly older than the controls the first time they had attempted suicide. Most of the cases and controls who had attempted suicide previously had done so more than once. Cases had made more serious attempts requiring medical attention (often

overnight hospitalisation); whereas the controls' suicide attempts were less likely to require medical attention.

Even after including the GHQ-28 and HADS health indicators into a single model and adjusting for age, gender, socio-economic factors, substance use and recent interpersonal abuse both the GHQ-28 and HADS remain significant associations to attempting suicide. The GHQ-28 total had the same odds ratio (OR=1.28) even when age and gender; income, employment and school leaving age; alcohol, marijuana and other illicit drugs; and recent interpersonal abuse were accounted for.

HADS-Anxiety decreased slightly when the age, gender, socio-economic, substance use and interpersonal abuse were modelled. Depression and attempted suicide strengthens with respect to socio-economic factors and then gender and age; whereas accounting for substance use and recent abuse suicidal behaviour is weaker. As expected when Māori were depressed suicidal behaviour is negatively associated even when education, employment and income were modelled. However, it was not expected that substance use or having been recently abused would weaken the association to attempted suicide. This may be a research anomaly or it may be that Māori who use drugs or have been abused may have some small advantage compared with those who are socio-economically disadvantaged. Māori who use substance maybe able to mask their environment with the substances they are using and Māori that have been abused may have built up a level of tolerance to their environment.

### **Demographic and Socio-economic Determinant**

The two final major determinants investigated in this study were demographic and socio-economic indicators including education, employment and income.

Age and gender differences between cases and controls were not significantly different in this study population. Unlike in some previous studies sexual orientation did not appear to be related to suicidal behaviour. This could be in part due to the Māori family structure being more relaxed about sexual orientation. As in previous studies living alone and being unpartnered was negatively associated to attempting suicide. Therefore, living with others including children, and having a partner was positively associated to attempting suicide. Being a sole parent was not related.

Attending more than two primary schools appeared to be positively associated to attempting suicide later in life. This may be due to the increased socialisation that may occur for those attending multiple schools during childhood. Leaving school after the age of 15, particularly

with a secondary school qualification was also positively associated to attempting suicide. Nationally, 39% of Māori males and 35% of Māori females leave school without a qualification.

The impact of unemployment on the health of the unemployed and the wider population has long been recognised for their association to suicidal behaviour and there is a vast amount of literature that confirms the adverse effects on physical and mental health at both individual and aggregate levels. Māori adults employment levels have improved over the decade 1991–2000, rising from 43% to 56%. This study, like many others also determined that being employed had a positive association to attempting suicide.

Leading on from education and employment, income levels can affect the association of attempting suicide. The median annual income for Māori adults was only \$14,800 for the year ended 31 March 2001. Interviews in the study found that having an income less than \$20,000 per year (60% of Māori adults) was negatively associated to attempting suicide. Only 5% of Māori adults nationally had an annual income of more than \$50,000. The study corroborated the national income figures. As income increased the association to attempting suicide weakened.

Modelling socio-economic factors with respect to age, gender, substance use and recent abuse showed little effect to attempting suicide. Attempting suicide and leaving school before the age of 15 was negatively associated when age, gender, interpersonal abuse and substance use were modelled. Employment was equally effected by age, gender, substance use and interpersonal abuse. The negative association to attempted suicide for Māori having an income less than \$20,000 remained unchanged after adjusting for age, gender and substance use but the effect weakened for those who had experienced recent abuse.

## **CULTURAL FACTORS AND MĀORI ATTEMPTED SUICIDE**

In order to address the hypothesis, over one-third of the items in the questionnaire were directed toward cultural awareness. Not surprisingly then, the biggest results chapter eight, was produced from these items.

Unexpectedly, identifying as sole Māori was negatively associated to attempting suicide; having multiple ethnic identities was positively associated. This may be linked to a greater facility in coping with multiple living situations. Sole Māori would be expected to be strong in their Māoritanga and operate in a more traditional way. This surprising outcome supports

the hypothesis suggested by Broughton (pers comm) that Māori who are strong in their Māoritanga were more likely to attempt suicide. However, this theory has been negated by the following results about cultural identity and whakapapa.

If Māori had knowledge of whakapapa (genealogy), Iwi (tribe), hapū (sub tribe), waka (ancestral canoe), marae (village common), whenua (ancestral land), te reo Māori (Māori language), traditional food gathering and preparation and a supportive whānau with strong links and involvement in their lives was positively associated to attempting suicide. The one other cultural indicator that gave a negative response was the knowledge of tikanga (protocol). Cases of attempted suicide said they had a better knowledge of tikanga than did the community-based controls. This may be an anomaly of the research, but it could also mean that for those who have an in depth knowledge of tikanga there was a negative association to attempting suicide, therefore a possible increased concern about adherence to traditional values.

Participants in the study were more likely to come from tribal regions outside of the Auckland study. The Māori of the central Auckland region are Ngāti Whatua, of a small part of the north and west Auckland are Ngā Puhi, and of southern Auckland are Tainui. However, further analysis illustrated that the Māori participants had family origins further afield than Auckland. The low representation of the Māori of Auckland (Ngāti Whatua) may be an indicator of the low number living in Auckland or possibly the protective nature of living on one's ancestral land.

Cases were less likely to go to marae (village commons) where the traditional tribal structures and processes are upheld, so were less able to access te ao Māori (Māori world). They would less commonly gather and prepare traditional foods.

Each study population believed in the importance of using te reo Māori (Māori language) in many situations. Community-based controls however, were more likely to read, write, listen and/or watch Māori language medium. Language is one mechanism for delivering culture to those who may not have access to it.

A method of measuring cultural identity and therefore a persons access to te ao Māori was to combine several questions and establish a level of identity as it related to culture. The four possible cultural identities have been discussed at length in early sections so are only briefly mentioned here. Having a secure identity meant the person had a high level of access to te ao Māori; having a positive identity meant the person had a medium level of access to te ao



Māori; having a notional identity meant the person had a limited access to te ao Māori; and having a compromised identity meant the person did not identify as Māori irrespective of their access to te ao Māori.

Preliminary analysis found that only Māori who had a secure identity were protected from the negative association to attempting suicide. Positive or compromised identities had no relationship or association to attempting suicide, and a notional identity was negatively associated to attempting suicide. This outcome may indicate that cultural identity for the purposes of measuring the association to suicidal behaviour has four discrete Māori identity profiles.

Being secure in cultural identity occurs when Māori self-identify; are involved with marae, whānau and land and have knowledge of whakapapa (genealogy) and language. Therefore, increasing Māori access to te ao Māori could counter suicidal behaviour.

On the other hand having a notional identity was associated negatively with suicidal behaviour. Identifying as Māori but having little involvement with marae, whānau and land, and having a limited knowledge of whakapapa (genealogy) and language would not protect Māori from the association to attempting suicide. The need to access the Māori world through family, land and language are important as potential protective factors.

That similar proportions of cases and controls had identities that were positive or compromised is interesting. Māori with positive cultural identities self identified and had medium levels of access to the Māori world; whereas Māori who had a compromised identity chose not to identify as Māori but had high or low levels of access to te ao Māori. Not identifying as Māori could mean that the two worlds in which Māori operate are dysfunctional.

Modelling cultural identity against age, gender, socio-economic status, GHQ-28, HADS, substance use and interpersonal abuse revealed a few unexpected outcomes. Neither of the two health indicators, GHQ-28 and the HADS, were statistically associated to any of the cultural profiles.

Māori who had a secure identity were positively associated to suicidal behaviour irrespective of age and gender. This positive association strengthened when substance use and interpersonal abuse were incorporated as possible confounders of cultural identity. Using substances and the experience of interpersonal abuse may not impact on secure Māori because of helpful, supportive responses to the abuse, alternatively because surviving the abuse may have strengthened the identity.

Māori with positive identity profiles had no associative relationship with the above-mentioned indicators. This meant the associations might be due to chance; the odds ratio and confidence intervals crossed one. Although the closest indicator of association was with the GHQ-28.

Māori with a notional identity were affected only by age, gender and socio-economic status. Factoring in socio-economic status was negatively associated to attempting suicide. This implies that having a notional identity is influenced by socio-economic status, including school leaving age, employment and income.

## **MODEL OF MĀORI ATTEMPTED SUICIDE PREVENTION**

This thesis has addressed the hypothesis that culture is a determinant of suicidality for Māori. A logistical regression model of age, gender, cultural identity, overall GHQ score, any abuse in last the 12 months, having at least two positive CAGE scores, using marijuana, school leaver under 15 years and employment (yes or no), and income under \$20,000 is demonstrated in Table 9-1.

Cultural alienation does in fact show a small association to suicide risk. This association could have arisen by chance. For Māori with a positive identity there is an increased risk of suicidal behaviour (OR=3.31; CI 1.10, 9.95) but there is no association with suicidal behaviour for Māori who had notional (OR=1.56; CI 0.19, 19.95) or compromised (OR=1.70; CI 0.23, 12.38) identities. However the wide confidence intervals reflect the small number of Māori with notional or compromised identities. It may be that the small numbers have led to a type II error.

Once general health status was controlled for in the logistic regression model other indicators became statistically insignificant. Therefore, in the study of Māori attempted suicide poor general health is statistically more significant than cultural identity, interpersonal abuse, substance abuse and socio-economic indicators in determining association to attempted suicide.

In terms of this study general health status has been defined by the GHQ-28. This index incorporates the four, seven-item categories (somatic symptoms, anxiety, social impairment and depression (OR=1.28, CI 1.20, 1.35,  $p < 0.0001$ ) described in depth earlier.

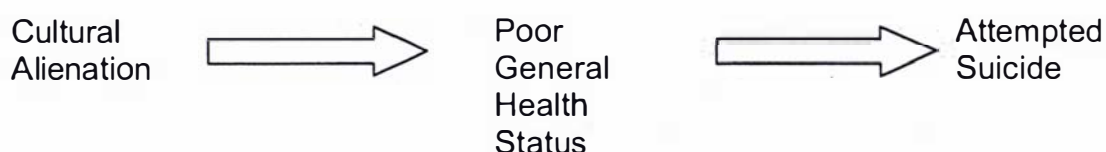
Table 9-1: Model of Māori attempted suicide risk factors.

Variable		OR	Confidence Intervals	P value
Demographics	Age	0.99	0.95, 1.04	0.8
Gender	Female	0.75	0.31, 1.80	0.5
	Male	1		
<b>Cultural Identity</b>				
	Secure	1		0.2
	Positive	<b>3.31</b>	<b>1.10, 9.95</b>	
	Notional	1.56	0.19, 19.95	
	Compromised	1.70	0.23, 12.38	
<b>Health Indicators</b>				
<b>Health Status</b>	<b>GHQ-28</b>	<b>1.28</b>	<b>1.20, 1.35</b>	<b>&lt;0.0001</b>
Interpersonal Abuse	At least once (last year)	2.04	0.69, 5.88	0.2
	No	1		
Alcohol (CAGE)	Two items	1.51	0.61, 1.64	0.4
	Less than 2 items	1		
Marijuana	Use	1.55	0.68, 3.85	0.3
	Don't use	1		
<b>Socio-economic Indicators</b>				
Education	School leaver ≤ 15 years of age	1.84	0.75, 4.51	0.2
	School leaver > 15 years of age	1		
Employment	Yes	1.03	0.36, 2.93	0.96
	No	1		
Income	Under \$20,000	0.84	0.31, 2.28	0.7
	At least \$20,000	1		

Māori health perspectives, because they are holistic, raise the possibility that the null hypothesis was a function of the instruments used. Another plausible reason for this outcome is that health status is not a confounder but an intermediate variable. On the basis of previous research factors believed to be intermediate steps in the causal pathway between exposure and outcome should not be treated as confounders (Rothman, 1986). Controlling for these factors would produce biased effect estimates, because the effect of the exposure that is mediated through the intermediate variable would be inappropriately eliminated. Factors that are caused in part by the exposure and also associated to the outcome should also not be treated as confounders, because their control may produce biased effect estimates (Weinberg, 1993).

In effect poor general health status is intermediate in the causal pathway between cultural alienation and attempted suicide. By running the same analysis without the intermediate variable (GHQ score), cultural identity, abuse and marijuana use became significantly associated to increased suicide risk (Table 9-2).





Cultural identity was the strongest of these relationships and being the least likely to be due to chance. When the intermediate health status variable was removed from the model, Māori with notional identities went from having no association (OR=1.56, CI 0.19, 19.95, p=0.2) to having a statistically significant association (OR=8.32, CI 2.51, 27.61, p=0.003), and Māori with compromised identities went from no association (OR=1.70, CI 0.23–12.38, p=0.2) to a statistically significant (OR=4.30, CI 1.31–14.1, p<0.003) association. Māori with a positive cultural identity experienced a weakening of association when the health indicator was removed from the analysis from OR=3.31, (CI 1.10, 9.95, p=0.2) to OR=2.48, (CI 1.21, 5.08, p=0.003).

Table 9-2: Māori attempted suicide risk-factors without General Health Questionnaire–28.

Variable		OR	Confidence Intervals	P value
Demographics	Age	0.99	0.96, 1.03	0.8
Gender	Female	0.88	0.43, 1.81	0.7
	Male	1		
<b>Cultural Identity</b>				
	<b>Secure</b>	<b>1</b>		<b>0.003</b>
	Positive	2.48	1.21, 5.08	
	Notional	8.32	2.51, 27.61	
	Compromised	4.30	1.31, 14.1	
<b>Health Indicators</b>				
Interpersonal Abuse	<b>At least once (last year)</b>	<b>2.27</b>	<b>1.15, 4.35</b>	<b>0.02</b>
	No	1		
Alcohol (CAGE)	<b>Two items</b>	<b>1.85</b>	<b>1.00, 3.45</b>	<b>0.05</b>
	More than two items	1		
Marijuana	<b>Use</b>	<b>2.27</b>	<b>1.24, 4.16</b>	<b>0.008</b>
	Don't use	1		
<b>Socio-economic Indicators</b>				
Education	School leaver ≤ 15 years of age	1.69	0.77, 3.71	0.07
	School leaver > 15 years of age	1		
Employment	Yes	0.77	0.37, 1.60	0.5
	No	1		
Income	Less than \$20,000	1.73	0.88, 3.40	0.1
	At least \$20,000	1		

The difference between Table 9-1 and Table 9-2 for cultural identity suggests that health had an influence on Māori who are culturally alienated. When health was removed from the analysis cultural alienation played a larger part on suicidal behaviour.



This was the outcome that had been expected from the research and it would have been consistent with international studies, as it seemed likely that Māori who had lost or become detached from their cultural background would be more likely to attempt suicide.

The next statistically significant factor is marijuana use (OR=2.27, CI 1.24, 4.16, p=0.008), followed by interpersonal abuse received in the previous 12 months (OR=2.27, CI 1.15, 4.35, p=0.02); both these factors were associated to attempting suicide.

Other indicators including age, gender, alcohol use, education, employment and income, were not associated to attempted suicide.

This research corroborates, other indigenous research that cultural alienation, deculturation and colonisation are indicators of attempted suicide among indigenous peoples including Māori.

### **Strengths and Weaknesses of the Study**

The results of this study provide previously unknown information about Māori who presented to emergency departments in Auckland, New Zealand following an act of attempted suicide. This adds to the knowledge about Māori attempted suicide on a national level and have the potential to add value to studies of indigenous suicide prevention. The research also provides further understanding how to perform effective culturally appropriate research with Māori in order to produce evidence-based information.

A further strength of the research is the ability to apply the findings to Māori nationally, since the study included Māori from many of the tribes and from both urban and rural areas. The conclusions from the study have implications for policy-makers, clinicians, researchers, evaluators, academics and community workers, nationally and internationally in the formulation of suicide prevention activities.

Despite the strengths, however, the study has some weaknesses. Most of these are centred on its uniqueness, the methodological combination of the kaupapa Māori process and the case control study. Since the subjects had the choice of interview time and place this may have affected their recall. However, since most of the questions were based on long-term factors then recall is probably less of a problem, with the exception of cases recalling the suicidal event. Topical issues that might be identified as factors effecting suicidal behaviour, such as adoption, gambling and racism were not part of this study. One last, and possibly vital, weaknesses is the instrument used for measurement of health status. It may not have been the

most appropriate for Māori, due to its two dimensional approach and the multi-dimensional approach offered by hauora models such as Te Whare Tapa Whā may have been more appropriate.

## **Unanswered Questions and Future Research**

The unanswered questions about adoption and gambling need to be addressed in any further research, along with the generalisation across iwi (Māori) and other indigenous cultures. Future research might move on from describing risk and protective factors to designing effective interventions. A suicidal behaviour intervention study would assist in validating the findings of this research.

## **PREVENTATIVE STRATEGY**

### **Meaning of the Study**

Overall, this research has determined that Māori cases of attempted suicide who have a poor general health status are more likely to attempt suicide. Previous research identified the importance of health in suicide prevention and this research supports that theory. It is imperative general health services are involved in any Māori suicide prevention strategies. However, when general health status is taken out of the equation then cultural identity, marijuana use and interpersonal abuse are the next influential factors.

Figure 9-1 is a schema for Māori suicide prevention. It represents the current suicide prevention activity in New Zealand, with the addition of the risk factors generated in this study (on the far left). Until now suicide prevention workers have been operating in an environment of speculation about the possible indicators for Māori suicide.

The New Zealand Youth Suicide Prevention Strategy initiated a programme for Māori based on a community development model. The programme is directed at strengthening youth wellbeing in the community by strengthening: whānau, hapū, iwi and Māori development; taitamariki (youth) development; cultural development; mainstream responsiveness and information and research. Community health workers are expected to assist in fulfilling these objectives by targeting youth in their communities, the lower section of the triangle in the schema (Figure 9-1).

At higher levels, clinical workers become involved in the preventative activities. Often they are non-Māori yet are expected to understand the complexities of being Māori today. The

clinicians often come from a medically based background and look for answers to suicide prevention within the biological model. This research, general health care is an important avenue for suicide prevention among Māori, but it is also vital to look at the cultural indicators. Training primary health workers about the cultural indicators of suicide may help prevent suicidal behaviours among Māori.

A regulating factor in the ability to prevent suicide is the capacity to predict its occurrence among the many individuals who exhibit suicidal behaviours (Figure 9-1). Many suicide studies have tried (and failed) to develop predictor variables (Farberow and MacKinnon, 1975; Goldney and Spence, 1987; Goldstein et al. 1991; Pokomy, 1983, 1993). The result of this is that programmes designed specifically to prevent suicide, even those which purport to focus upon high risk groups, have not demonstrated a reduction in suicide rates (Goldney, 2000). This has led to conclusions such as: 'The reality is that there is no convincing evidence that education, improved social conditions and support, or better training play a substantive part in preventing suicide' (Wilkinson, 1994).

While it is technically true that there has been no single intervention, in a well-conducted randomised control trial, to reduce suicide (Gunnell and Frankel, 1994), the question must be posed whether there could be a randomised control trial of significant magnitude to demonstrate the efficacy of a suicide prevention strategy (Goldney, 2000). Might it not be more practical to measure the effect of broad population interventions and relate those changes to variations in suicide rates?

Although clinical utility is unable to predict and prevent suicide in any one individual, a public health model adopting a broad community measure may influence suicide rates favourably (Rose, 1993).

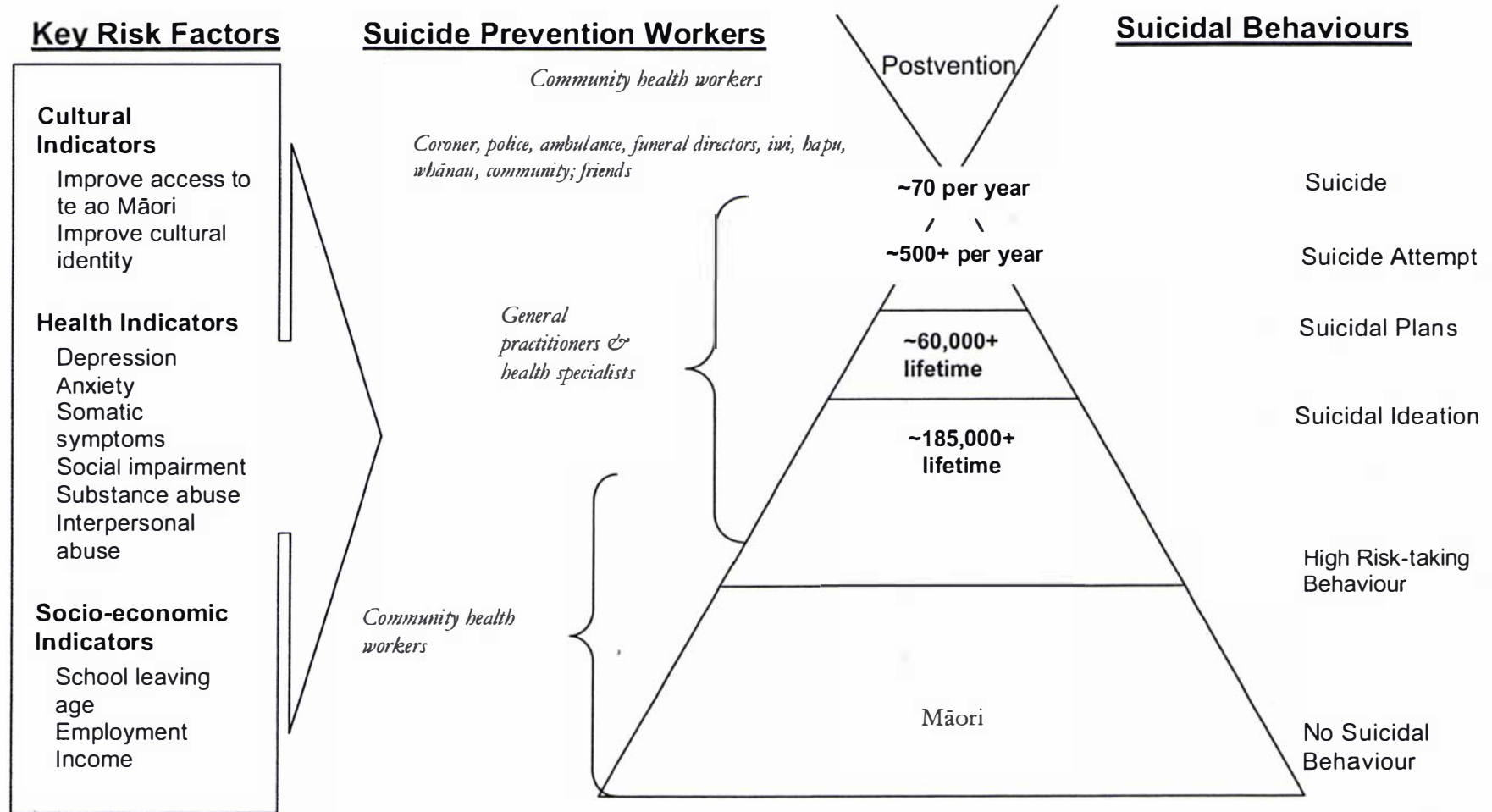
Therefore, this author proposes that, one way to assist in preventing the suicide of Māori in New Zealand is the employment of an integrated health model including both public and personal health components. This development could be a comprehensive health service with two key integrated components looking at a health and culture. The health service would look at hauora (Māori health) from a holistic manner including mental, physical, spiritual and family. The cultural service would increase individual's capacity to access te ao Māori (Māori world). The cultural service would ensure the health service was culturally appropriate in its operation and the health service would ensure the cultural service was safe in its processes.

In effect a number of health services already employ an integrated approach (clinical, cultural) to mental health problem. However, the two strands often operate in relative isolation of each other so that its component parts blur the combined picture.

Clearly, given the central importance of health status for Māori suicidality, as well as the secondary importance of culture and cultural identity an approach that can combine both components in an integrated manner has the potential for saving lives.



Figure 9-1: Suicide prevention schema for Māori in New Zealand.



## CHAPTER 10

# POROPOROAKI: MĀORI PERSPECTIVES OF SUICIDE PREVENTION

On 28 Pepuere (February) 1852 in Moeraki (just north of Dunedin, New Zealand) a waiata (song) was written in respect to Pirihia (Pi-Phyllis) Tiramorehu a woman who had taken her life the year before on 20 February 1851. This waiata was written by the author of a manuscript Pirihia Pi's husband, that was given to me by my tikanga supervisor and Māori historian, Dr Te Maire Tau (Appendix 2). He gave me the manuscript to ensure the thesis was based in tikanga (Māori protocol) and I've presented the waiata here for reflection, to remind us that during the production of this thesis that about 500 Māori have taken their own lives leaving behind a grieving whānau (family), friends and colleagues. The 150-year-old waiata reflects the same grief today of those who have lost loved ones. '

He waiata he tangi mo Pirihia (Pi) Tiramorehu

*Nau mai E kui*

*ka moe taua taria koe*

*E tuku atu ki a whai*

*E kui i te ara ia*

*Hine i whai ai E Tane ka matua ko te po ia*

*Tahukumuia i a Tahuwhakaero o Ka poki o mata au.*

*Matiaha Tiramorehu*

*(John White Papers – 0075-089)*

In an attempt to leave this thesis on a more positive note this waiata was written by one of the Kia Piki te Ora o te Taitamariki (Strengthening Youth Wellbeing: Māori Suicide Prevention), community development sites in Taneatua, in the Bay of Plenty. The waiata was written by a kuia from Ngai Tūhoe (Tūhoe tribe) who gifted it to her daughter, a site co-ordinator. The melody was written by a rangātahi (youth) of the area. This waiata uplifts the rangātahi of today by encouraging their whānau to take responsibility for their care by providing a nurturing environment to ensure youth pursue positive roles in life.

Kia piki te ora o te taitamariki

*He kakano i ruia i Rangiatea*

*Tuku tuku iho*

*Te ira Tangata mai i te marae o io Matua e*

*Ma te whānau whanui*

*Hei poipoi – hei manaki – i te Ukaipoho*

*Kia tipu tika*

*Ahakoā he iti – he māpihi pounamu*

*Kia piki te ora o te taitamariki e*

*Kia piki te ora o te taitamariki e*

*MI Kutia*

2003





## CHAPTER 11

### APPENDICES

1. Appendix: The Epidemiology of Māori Suicide
2. Appendix: Māori Manuscript Whakamomori
3. Appendix: Study Protocol
4. Appendix: Case Questionnaire
5. Appendix: Control Questionnaire



## APPENDIX TWO: MĀORI MANUSCRIPT OF WHAKAMOMORI

Moeraki 28 Pepuere 1852

He Karere Māori Tēnei

He tohu hoki tēnei mo te matenga o Pirihira Pi

I mate i runga i te whakamomori nana au i Kaihere I a ia (Mira) I whakaaro au Kahore he wahi Kahore hoki he rawa Kahore tahi hoki he take Kotahi tonu taku whakaaro Kei au tonu te take I whakamomori ai a Pi Kei taku korero kia ia I tetahi 1851 o ngā tau Kua pahure ake nei I korero atu au Kia ia E Pi Kia rongu mai koe Kei te tau ki tua nei Ka haere ahau ki Kaiapoi mo te tau ki te (Kara) Ka haere ahau ki tua ki Poutini No reira Pi i ki mai ai Ki au me haere tonu hoki ahau Ka Ki atu ahau Kia ia E Kore rawa a Koe e tae I au E Kare Ko koe te noho Kia Ripeka Ka tahi ano te waha a Pi Ka Ki mai Ki au He tinga ka whakarere raia tāhau

E Matiaha i au Ka Ki atu ahau Kia ia e Kore rawa koe e tae i au Ēkara me noho koe ki to hākui No konei i tīmatatia mai ai e Pi te korero He tingaka whakarere na haku ia Ka ki atu au kia ia Kaue koe E pera i Pi Heoi whakamutu atu I reira tera kupu No Hamuere nei Ka Ki atu ahau Kia ia e Pai akua nei ahau Ka haere ki te whare ia Tamaiaiki moe ai I te mea wahi iti Ka haere au Ka ki mai a Pi Ki au he korero whakarere tāhau moku Ka ki atu ahau Kia ia e Pi mo te aha koe ka korero peira ai Ka tahi ka waiho tonu E nei Ka wahi E Pi hei take korero ki te he Ko taku whakaaro tonu tēnei ki te tinga ka a Pi I whakamomori ai Kei taku pō ki te whare ia Tamaiaiki a moe ana pō Kotahi ahau ki reira non te rua a aku pō ki a Tamaiaiki. He awahi (mo/no) waeka nui pō Ka hoki mai au ki to matau whare moenoa māua aonoa atu te ra. No matau ka haere atu kia matara nei Hoki mai nei ta matau Poti I Arama Karaka ahau e moe ana ao noa atu hooki te ra no te ata ka haere atu ahau Kia ia mo te aha to korero Ka pena ai Kaore koe I mahara ki to taua mārenatanga Ka ki mai ia Ki au o a Kai te whakarere koe I au E tia ano ahau He wahine (hurumame) Kia peneitia ahau a koe te moe Ka Ki atu au kia ia E Pi ko waitu E tangi nei Ka ki maiia ki au ko koe taku a kanohi nei ki te tangi I te po Ka ki atu au kia ia E Pi tena ano tahau e kanohi nei koe i te po. Ka ki mai a Pi ki au o Kai te whakarere ra

wa koe i au Ka ki atu ahau kia ia e Pi kaitewhare ano koe e moe ana Kati rawa to kore e Penei No te mea kua whakaro ahau kia koe E kanohi I te po nei Ko taku korero hoki kia koe e Pi ki te kore o a taua tamariki. Kua mate anake a taua tamariki moa noa iho a koe moe noa iho hoki ahau. No konei a Pi i ki mai ai ki au Matiaha. Ko au anake ki ro te whare nei moe ai a popo ia koe raru ai I tohoa ia te Nihomaka nei ka ki atu ahau kia ia E Pi ko te waha anake te ta (E neine) Kau ana ki te moe ko te whakaaro kua aka ke atu to aroaro ki whea ranei Heio Ka haerematau ki waeka Ka I ahi te ra ka tae mai ki tengai ka nei ka tata ki te taima o te moe Ka ki atu au Kia ia E Pi moe maria korua ko huarau I konei a haere ana ahau ki te whare i a Tamaiaiki ra moe ai Ka ki mai a Pi ki au haere E ta ki te whare i te wahine. No te mea he ropā a koe na taku Heoi Ka Haere ahau ki te whare ia Tamaiaiki moe ai ka ao ake te ra I te ata Ka haere ahau ki wao kia kite i tepaukena. Ka tutaki au ia Henare Ka hoki mai maua ki te whare ia Tauahira mawahi ai I ka (maui) ki katangata Ka hara mai au ki te whare ko Pi anake E noho ana I roto i te whare Kua mo ao ake te Kopiha kai kua taerawa atu hoki te rihi kai ia Pi ma mumu raua ko Ripe. Ka kua tae mai hoki a Pi ki roto ki te whare noho ai ko ahau hoki ka tae atu kia ia ka ki te mai a Pi i au ka ki mai ki au matiaha te tangata haere ki nga whare ra moe ai kua rongō ano a koe E hara ahau i te wahinerawehangatia i te mea Kei te whakarere koe i au ka ki atu ahau kia ia E Pi he wahine pai koe I mua katahi nei koe korero o Kutu Kua rere Ke atu hoki to whakaaro ka ki mai a Pi ki au Tiramorehu e a Popo ia koe raru ai I tohoa ia te Hihomaka nei Na hau whakariri i au Ka tahi ano taku waka ka ki atu ki a ia e Pi E matau ana ahau ki te tangata o to kupu e Pi mo te Hihomaka i te mea i pipiri koe ki au i mua tena ko tenei kua tahuri ke atu to aroaro ka ki mai a Pi ki au E hara ia ka moe taua ka Hikitia mai ahau e Pi ki runga ki te haka noho ai ka tae heai.

A te Kawaihuarau ki ro te whare nei Ka ki atu au kia ia Hoatu ra ki waeka ka ki mai a Pi ki au kahore kia mao rawa ano taua ka haere ai ki waeka ka tahi ka turaki(e) na mai au e Pi ki runga ki te rara ka tonu mai hoki a Tutu ki te ahi raua Ko Huarau ka peke mai a Pi ki runga ki taku Kopu nei tapapa. I ho ai ka tonu heai a Hariata Pokiri ki roro ki te whare nei I tiki mai i te tatari witi. Heoi ka haere atu a Hariata raua ko Huarau ki waeka ka ta (K/Roto) maua i runga i te rara Ka ngaraka atu a Pi kia tutu Horoia a tatau weruweru I na ano te wai werawera E iri i te Kerena. Heoi ko Tutu ki waho horoi ai ko maua ki te takoto i roto i te whare a roa rawa atu te taima ka karaka ake a Pi kia Tutu ma rumurua He taewa e Tutu ma tatau ka hoatu Kahua e Tutu ki te ahi tumi ai Ka maoa kahua ka ara atu maua Ko Pirihia ki runga E rua Kahua ia Tutu e rua hoki ma Pi na haku Ke I kai Heoi ka haere atu a Tutu ki waeks witi kia Hinematua rawa he wahi tutata tomi atu ki Inekakara Ka tae atu maua Ko Huarau anake I



waeke e pupu ana I ka witi ka ki mai a Pi ki au ko koe E Matiaha te haere ki te kokoti witi ko au ki te patu I ka witi ka hanga e ia te pana hei potuka witi mana Kia roa rawa atu te taima ka karaka atu au ki i Huarau Kia Kopihatia he kai ka hara mai a Huarau ki te Kopiha kai ma matau maoa rawa ake te Kopiha kai kua nui puku ka witi patu a Pi (o/e/i) kotahi pea te pupera o Ka witi a Pi ka karaka mai a Huarau kia Pi kia haere atu ki te pata kai kia rikia te wai ka karaka mai hoki raua ki au ka haere atu ahau ki te kai a matau tokotoru ka mutu te kai ia matau ka ki atu a Pi kia Kawahurau aku nei kia haere rawa ra tatau ki te ngaika Ka whuti ai I etahi kai mo a popo I te wiki Ka tahi ano a Huarau Ka ki atu kia Pi He mea raia Kua Hua poroporotia te kete kai a mea ma I hoki i Hango nei Ka ki atu hoki a Pi Kia Huarau e reka ana ia e ta me Kopiha Ka kawa tena me murumuru ano Ko ia kau te reka o ka hua o taua kete ra na Tutu i murumuru ka hua e wha e rua ia ia e rua hoki ma taku na te Rauparaha Ke I kai No konei ahau i ki atu ai kia ia ko wai a te Rauparaha e Pi Ka ki mai ia ki au ko koe e Tiramorehu a te Rauparaha Kei te pera hoki to puku me te Rauparaha. Ka ui atu ahau kia ia he aha koe e Pi ki au ko te whare kua mahue ia koe kua haere ke koe ki nga whare ra moe ai ko ta maua uaua tonu hoki tenei I waeka ka ngaraka atu au kia Pi ko koe ano e Pi a te Rauparaha ko te ingoa hoki tenei e Pi ko te Rauparaha ka ki mai a Pi ki au e aka rawehaka I kona ki au kia ra au ka. A popo I tohoa ia te nihomaka ra Heoi ka rapu a roto I taku ngakau ki te tangaka mo te nihomaka ka tahi ano taku waha ka karaka nui atu ki a ia e Pi kua rawa koe whakakorekore a popo I te ata Ka ki mai a Pi ki au e kore au e whakakorekore I ten kupu ka ki atu hoki au ki a ia e Pi e kore koe E korero mai ki au ka ki mai hoki a Pi ki ao whakarongo koia e te Kawaihuarau kia Tiramorehu ka huana ki te parau ka karaka nui tonu atu ahau ki a ia E Pi kia rongoi mai koe mea ke a popo ka korerotia e au te tikanga i roto ia te nihomaka ka ki mai a Pi kia au He aha tau tikaka mo tena kupu I waiho ai E koe Pi kua noho koe i runga i te he I na hoki kua tatara atu koe I au Ko ia ahau ka whakaaro ai E Pi meake korerotia e au te tikaka o te nihomaka ki te aroaro o te toko ma ka karaka mai a Pi ki au He aha Koia e Matiaha mo tena kupu te waiho noa iho ai I konei kua kiki hoki taua kati noa iho ka karaka atu ahau kia ia e Pi E kore e mutu te korero i au I konei e kari a popo na te rangi E korero ai au ki te tikaka o te Nihomaka. No konei te waha a Pirihira Ka karaka mai ai ki au ko koe anake e Tiramorehu Hei (tirotiro) I ka he o ka tangata katoa ka ki atu ahau kia ia e Pi ko te ingoa tenei Ko te Rauparaha no te mea ko te Rauparaha te ingoa o te tangata ko te Nihomaka hoki te ingoa o tona haere I hika katoa ai Ka tangata manui o KaiTahu waihoki no mua pea e Pi to kotore areareta ka mo o tane tua tahi I na hoki to kupu mo te Nihomaka kua homai e koe ki taku aroaro Heoi kua mariki noa mai ka roimata I ka kanohi o Pi ka ki mai i a ki au ma hau

anake tena kupu a Tiramorehu E tohe i kona. Ka karaka atu au kia ia e Pi E kore tenei kupu e mahui i au No te mea he whakaatui te hara te tikanga o tenei kupu. He whakaatu mai hoki I to he I na hoki kua kanohikoe i te po ki te tangi ko ia ahau ka ki atu ai kia koe whaki na mai ki au kua he ia koe e Pi Kei a popo ra te rangi E korero ai ahau ki te aroaro o te tokorua ha ka tahi te waha a Pi Ka karaka mai o te puremu ka rato ki te tini ki te mano me korua ka ki atu au ki aia kahore ano au e Pi kia he noa ka ki mai ia ki au Kati Kahaia a Koarero Ko ia e kai kaore ia me tinuitinui hoki kei te purinui ano No konei te waha o Tinuitinui ka karaka atu kia ia e Pi e He aha ko ia te kiki marie ai koruana I witi ke mai ai ki au aua atu hoki ia au nei He puwhara hoki ia au nei Koia ra pea tena ko koutou kua tu noa ake a Pi ki runga kua haere atu ki tona pa na tangi ai ka rongu au ki te reo o Pi e tangi ana ka ki iho au kia hurau No noho marie koe ka haere au ki a Pi hei te tangi ka tae atu au kia ia ka whakaarahia mai e auki runga tika tonu atu ki raro ta koto ai E rua aku whakaarahaka mai ki runga hika tonu atu ki raro takoto ai Kia roa rawa atu te taima Nana au I aia noa mai ki runga noho ai ka ki mai te wahoo Pi ki au Matiaha kia rongu mai koe ki taku kupu ko i ki koe kihai ahau i ki atu kia koe me tango wahine koe e Matiaha ma hau kia haere hoki au ki te tango tane ma taku ka ki atu au kia ia ko wai e Pi te tangata e Inanawanui mai kia koe e kore koe e mahara ko te kupu a te (Kotau).

E mea ana ko koe hei wahine tipu ki au kia tiaki a koe i au ko au ko au hoki hei tane tupu ma hau a mate noa taua ka ki mai ki au o ko Hamiora Tepae ano he tane ma haku ko te kupu whakamutenga hoki tenei a Pirihia ki au ka ki atu au kia ia e Pi e ko ia I a nei koe e mahara ki te kupu a te Karaiti Ko te hunga Ka oti te hou e te Atua kaua e wahewehea e te tangata ka mutu ka tu a Pi ki runga ka mau ki te tini ki te poro tupeka ka hara mai tonu ki te huanui ka tahi ano au ka tu mai ki runga E rua aku whai ka mai kia noho maua ki raro kaore hoki kia noho no taku whaika tuatoru mai ka unuhia mai ano E ia te tatari paraikete o runga i te tangata Heoi ka taene kau atu ahau kia hoki mai kaore hoki I kia rongu mai tika tonu mai ano i te huarahi Hua noa mai au kei te tika mai ki te kaika nei kaore koia tonu tenei ka hoki au ki te patu i ka witi kia roa rawa atu te taima ka tae ake a Tutu ki te tiki ake i ka witi a te a te Hakui ka ki atu au ki a Tutu kaore to hakui kia tae atu ki kona ka ki mai a Tutu Kahore ia kia whiti ake ki tawahi ka ki atu au tena ra ia a Pi Kua a ma atu ko te Kiri ana ke ka mutu ka haere mai a Tutu raua Ko Huarau ki te Kaika nei ko au I noho marie ki reira Karakaraka noa ai kaore hoki I ki mai te waha Heoi haere rawa mai ahau ki te kaika nei ka tae mai au Ka ui mai ahau kia kawa kaore ano a Pi kia tae mai ka ki mai a kawa kaore ano raia kia tae mai Heoi ka haere tonu au ki te tiroiro i nga whare ki o (Mamu) raua ko Ripeka ki o Kotihotiho

raua ko Meri kahore hoki ka haere mai ahau kia Turumeke ratau ko oua tamariki ka ui atu au  
Kia ratau kaore koe Turameke kia kite ia Pi ka ki mai ia ki au o kai te ahi e noho ana. Ka  
haere mai au ki te tiki weraweramaia kia maua e tutu raua ko paipai ki te raua hakui ka ki atu  
ahau ki ka tamariki haere maua He werawera ki to kourua hakui i na a Turameke e ki mai nei  
kei te aha ano e noho ana Ka haere ka tamariki Tae noa atu ki waeka rawa i te po karakaraka  
noa ratou i te po a kihai hoki. I kitea e Tutu raua ko Paipai i te po hoki rawa mai ratou ka tae  
mai ki au ka ui atu au kia ratou kei hea to korua hakui ka ki mai raua kaore ia I reira Heoi Ka  
whakaaro tonu ahau kua mate ka haere tonu hoki ahau I te po ki waeka rawa i te po  
karakaraka noa au A hoki rawa mai au i te po ki roto ki te whare moe ai. No te ata e pouriuri  
ana ka rongoa maua ko Huarau ki te tatau o tetahi whare iti e papa ana Ka haere atu ki reira  
Hua noa au he tangata tiroiro noa ana ahau E hara ia ka haere au I matua tiki ka hoki mai au  
maua ko taku kuri Ko Pouia ka hoki tonu hoki maua ko taku Kuri tae rawa maua ki  
Onkakara hoki tonu mai au ka tae mai ki te mara ka haere ahau ma te taha ra whiti I haere au  
ki ka tiaka titiro ai I reira ka aho hapuku E tiraha ana I au ki nga tiaka ka ki te au kua roto ka  
tiraha o Ka tiaka no reira ahau Kahore hoki aku Kakawa ka taturi mai taku aroaro ma runga i  
te Hiwi Kua tae atu te kuri ki raro o te Kapuka paripari ai te kuri me te tangi tonu te kuri ki te  
tangata e tare wa ana i runga i te Kapuka ka ki tea iho e au ki te Kapata e whero ana i roto i ka  
raukaio ka tae atu au ki raro noho ai He nui whakaha rahara te pouri I au i taua taima He tini  
hoki te whakaaro i au I taua ata kia roa rawa te taima Ka tukua te tangata e au ki raro ko te  
kareko I tukua ki te Hope here ai Ko te Kapa ta anake i runga i te uma e Here ana ki ka u ko  
te tinana o te tangata Kua mataotaotia ka roto I ka keke e werawera ana Ka haere mai au ki te  
kaika nei ki te tiki werawera mai ka haere katoa ka tangata k(ei/o) te tiki i ka e a te tupapaku  
ka hae mai ki te kaika nei I te rua tekau 2 o ka ra o Pepuere He nui puku taku wha Kaaro ki te  
mate i taua taima He mamae rawa hoki no roto I a au Kia Pi I te mea Kahore hoki he rawa  
tahi I whakamomori ai aia Ko tahi tonu taku I whakaaro ai Ko te Nihomaka anake te kupu I  
hika ai a Pi Ko i a au I whakaaro ai He wahine tuku kino na haku a Hinehou I mua i mua  
haere noa atu hoki tera hoa o ku I ruku i te he maihoki Ko Pi Kua Kaihere hoki I a ia nana  
ano I taroua i aia.

He korero tenei mo taku

Po raki ki au ano

Kei pohehe noa iho ai taku whakaaro i konei ko i mamae haere noa ai taku wairua i ruka I te  
he Otira Kahore rawa He wahine o mua i penei me Pi E kari te tangata o mua a Ka tangata

Māori kia patua e te tane te wahine ko reira tika ai ki te whakamomori Ko te teta hi tikanga a Ka tangata Māori. He wahine purua. Ka hae tetahi wahine ki tetahi wahine mo ta raua tane ka tumou rawa atu ki teta hi wahine ko reira tetahi wahine whakamomori ri ai ko te tikanga pono tenei i mua tena ko tenei kei ai a ano te take o taua wahi i whakamomori ai a Pi Hira tera ano te tino wahine nei o mua Ko Hineatuaira te ingoa No nuri iho i te waihakatanga a Tane i te rangi no reira I hanga ai e Tane a Hineateuira I noho tonu hoki ia Tane taua wahine No Hineatuaira ka rongo ko tona matua Tonu tenei E noho ia ia nei Hei no konei te take o taua wahine I haere ai ki te whakamomori i haere ia i runga i te whakarua ko Tane i whai noa atu ia ia Kihai hoki i mau mai ia ia.

He Waiata He tangi mo Pirihia Pi

Nau mai E kui ka moe taua taria koe E tuku atu kia whai e kui i te ara ia Hine i whai ai E Tane Ka matua ko te po ia Tahukumuia i a Tahuwhakaero o Ka poki o mata au.



# APPENDIX THREE: STUDY PROTOCOL

## MĀORI SELF-HARM PREVENTION

### CASE CONTROL STUDY

### STUDY PROTOCOL

17 August 2000

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## INTRODUCTION

The relationship between suicide and attempted suicide indicates that for those individuals, who have already made one suicide attempt, there is a greater risk of completing suicide. Overseas studies have found that ~1% of suicide attempters will die within a year of their attempt as a result of completed suicide.<sup>3</sup> In New Zealand attempted suicide is the fourth leading cause of hospitalisation for young people under the age of 25 years.<sup>4,5</sup> There has been only one New Zealand study that has looked at the lifetime prevalence of suicidal behaviour<sup>6</sup>, concluding that 3% (95% CI 2.84-3.16) of the 954 members of the cohort had attempted suicide by the age of 16. Similar findings are reported in international data from the USA and Australia ranging from 0.2%<sup>7</sup>-7.5%<sup>8</sup>.

Māori have proportionately more hospitalisations for intentional injuries than all other population groups. For the year 1996/7 there were 433 hospital discharges involving suicide and self-inflicted injury, of those 248 were female. For Māori males' self-inflicted injury was less common than injuries inflicted by others (2% cf 7% respectively). However, for Māori females, injury related hospitalisations were equally common (5%). Māori youth (15-25 years) accounted for 158 of the 433. This is relative to the population structure of the Māori population.

Evidence from overseas suggests that attempted suicide is also likely to result in considerable use of emergency services.<sup>9</sup> The routinely collected data on suicide attempts underestimates the true numbers of attempters because records are only kept on those who are admitted to hospital as in-patients or day patients. Statistics are not collected on people treated in emergency departments as outpatients, people treated by GP's and those who do not seek medical treatment. Also improved treatments for overdose has meant more people are treated on an outpatient basis and therefore not included in attempted suicide hospitalisation data. Suicide attempted data include cases of deliberate self-harm where the intent was not death. Regional studies of emergency department's (ED's) have been undertaken however these have been restricted geographically to Christchurch and

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3 Hawton, K., & Flagg, J. (1988) Suicide and other causes of death following suicide. *British Journal of Psychiatry*, 152, 359-366.

4 NZHIS (1999) Mortality and Demographic Data 1996. Wellington: Ministry of Health. 1999

5 NZHIS (1999) Hospital and Selected Morbidity Data, 1996/97. Wellington: Ministry of Health, 1999.

6 Fergusson D. and Lynskey, M. (1995) Suicide attempts and suicidal ideation in a birth cohort of 16 year old New Zealanders. *Journal of the American Academy of Child and Adolescent Psychiatry*, 34, 1308-1317.

7 Patton, G. C., Harris, R., Carlin, J. B., Hibbert, M. E., Coffey, C., Schwartz, M., & Bowers, G. (1997) Adolescent suicidal behaviours: a population-based study of risk. *Psychological Medicine*, 27, 715-724.

8 Garrison C.Z., McKeown, R.E., Valois, R.F., & Vincent, M.L. (1993) Aggression, substance use, and suicidal behaviours in high school students. *American Journal of Public Health*, 83, 179-84.

9 Robicsek, F., Ribbeck, B., Walker, L.G., (1993) The cost of Violence: The economy of health care delivery for non-accidental trauma in urban southeastern community. *North Carolina Med J* 1993; 54(11): 578-82

poisoning.<sup>10,11</sup> This lack of data on emergency department presentations is a major handicap to planning of prevention strategies, which are then based on an incomplete picture of suicidal behaviours.

New Zealand rates are among the worst in the OECD<sup>12, 13</sup> countries in the 15-24 year age group and second only to Hungary in other age groups. Recent analysis of coronial files for 1996-7 for Māori aged between 10-80 years found that the greatest number of Māori deaths occurred between the ages of 15-44 years. Unlike other studies where older youth are at higher risk of death from self-harm,<sup>6</sup> Māori do not have distinct age groups who are at an increased risk of suicide. Māori males have always exceeded the Māori female suicides and since 1993 the difference is approximately 75 to 25 percent, respectively.

Suicide is a major public health problem in New Zealand<sup>14</sup>, with approximately 540 New Zealanders killing themselves each year<sup>15</sup>. Suicide is the leading cause of death for young people under the age of 25 years in New Zealand. The rates of Māori suicide have increased over the past 17 years (n=9 to n=105 for Māori males) and now exceeds the non-Māori suicide rate. In 1996 the Māori suicide rates/100,000 were 26.9 and 8.8 compared with 20.9 and 5.3 for non-Māori males and females, respectively. The figures for 1996 cannot be accurately compared with earlier figures, due to the change in ethnicity recording from the biological concept to self-identification and the under recording of ethnicity on death certificates.

## **OBJECTIVES**

### **Objectives of the study**

In an attempt to address the escalating attempted suicide rate among Māori in New Zealand, it is proposed to carry out a case control study by interviewing Māori who have recently been admitted for deliberate self-harm (DSH), in the Auckland region.

This study provides the opportunity to:

- Describe the population of Māori presenting with self-harm, self-inflicted injury or attempted suicide to emergency departments (Hospital based);
- Determine risk factors and their corresponding odds ratios (OR) for Māori who DSH;

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10 Buchanan WJ (1991). A year of self poisoning in Christchurch. NZMJ 104:470-2.

11 Hall, A. K., Curry C (1994). Changing epidemiology and management of deliberate self-poisoning in Christchurch. NZMJ 107:396-9

12 WHO (1996) World Health Annual Statistics. Geneva: Who.

13 Disley B, & Coggan CA, (1996). Youth Suicide in New Zealand. Crisis: 17: 116-122.

14 Coggan C. (1997). Suicide and attempted suicide in New Zealand: a growing problem for young males. The NZ Public Health Report; 4(7):49-51.

15 Rose J., Hatcher S., Koelmeyer T. (1999). Suicide in Auckland 1989-1997. NZ Med J 1999; 112:324-6.



- Identifying potential protective factors and corresponding (OR) from DSH;
- To test the hypothesis that Māori who attempt suicide are more likely to be culturally alienated;

This proposal is one branch of a wider research programme on suicide undertaken by IPRC. It is anticipated by all the researchers involved in this proposed research programme that although the proposals are submitted as independent applications that the projects will function, where appropriate in collaboration.

A prospective case control study design will be employed to collect information on risk factors for Māori who have deliberate self-harm. In an attempt to address the escalating suicide rate among Māori in New Zealand, a study of suicide attempters (16 > 50 years) that receive treatment at North Shore, Middlemore, and Auckland Public Hospitals is proposed. Controls will be drawn from eligible Māori who reside in the Auckland region. Both groups will be interviewed in a standardised manner to test a wide range of hypotheses. Responses will be entered into a computer database and odds ratio will be calculated for each risk factor, together with 95% confidence intervals.

## **CASE RECRUITMENT**

### **Case definition**

The study aims to include every notified case of DSH, occurring among Māori over the age of 16 years and under 51 years who:

- Usually reside in the Auckland region (Wellsford to Mercer) and
- Are in the Auckland region on the same day (or part of) as hospitalisation

By meeting these criteria, Māori would have been admitted to North Shore, Auckland, or Middlemore hospitals after their suicide attempt.

A case of DSH is defined as an external cause (E codes) beginning with E950 through to and ending at E959, including self-inflicted injuries specified as intentional. These will be detected by a self-harm incident, self-inflicted injury and or suicide attempt by the ED clinician assessing.

Excluded from this study are all cases that are

- Non-Māori
- younger than 16 and older than 51 years of age

- Fatal after the seventh day of admittance
- Multiply (>1) admitted for self-harm, self-inflicted injury or attempted suicide
- not DSH / attempted suicide
- Released back into prison custody

### **Geographical boundaries**

This study will include all cases who are normally resident in the Auckland region, as outlined in Statistics New Zealand maps. Cases that are usually resident in Auckland, but self-harm while away from Auckland and have been transferred to an Auckland hospital from a hospital outside the Auckland.

Cases will be excluded who are visiting Auckland (for less than a month) or who have been transferred to Auckland for treatment from another region.

### **Age limit**

The study includes only Māori who are over the age of 16 years and under 51 years at the time of hospitalisation.

### **Time limit**

The time in which the interview will be carried out depends entirely upon the case. After initial contact has been made the case will determine all the following contact with the interviewer.

Cases for which the date of hospitalisation was more than one month before the initial contact are excluded. A prompt response to notifications of DSH will reduce the number of cases excluded from the study for this reason. Because this time limit relates to the date of the interview, cases will need to be allocated to an interviewer well before the end of the one-month period. Cases should be initially contacted within 7 days of case hospitalisation (depending on the seriousness of the DSH) to ensure an interview time is scheduled.

### **Language requirements**

The interview with the case will be conducted in the language of their choice. A te reo Māori speaker will be available for all those who wish to be interviewed in te reo Māori. However if the case expresses a desire for an interview to be undertaken in another language a interpreter will be employed

### **Recording ethnicity**

All ethnic groups are eligible for the study as long as they are descended from Māori.

## **CONTACTING PROSPECTIVE CASES**

The prospective cases will be identified and invited to participate in the study in a standardised manner. The local study coordinator (LSC) will assign cases to interviewers. It will then be the interviewers job to promptly contact the case to schedule an interview.

### **Identifying cases**

All Māori cases of DSH occurring in the Auckland region that are admitted to North Shore, Auckland or Middlemore hospitals will be recruited. The LSC will contact each of the hospitals ED's and / or Psychiatric liaison teams to determine whether any cases have been admitted for self-harm. If there has been a cases reported research nurse will approach the case either in the hospital or at their stated residence by telephone or personally.

### **Assessing the eligibility of cases**

The LSC will record all cases of DSH occurring among Māori in a MEDICAL RECORD REVIEW FORM (Appendix), and in the *Master Book/database*. The LSC will then assess the eligibility for inclusion on the study, based on the case definition and home address at the time of the event. If the case is not eligible for either of these reasons, then the process will stop at this point, and the LSC will record this decision on the CASE LOG A form and in the *Master Book/database*.

The LSC will liaise with the ED staff and / or Psychiatric Liaison Team to establish case definition if required to establish that the case meets the necessary clinical criteria for inclusion as a case. If the case is eligible, the LCS will assign the case a *Study ID Number*, and will record it on the CASE LOG A form and the *Master Book/database*.

### **Assigning interviewers**

The LSC will assign the case to an interviewer and record the interviewers name on the CASE LOG A form.

Interviewers will be assigned to a case using a standard priority system (NZ standard classification of ethnicity 1993. Wellington: Department of Statistics, 1993)

- Māori interviewer unless otherwise requested
- Pacific Islander interviewer preferably of the same Pacific Island group if requested
- European / Pākehā interviewer if requested

If the Whānau indicates a preference for an interviewer to be of particular ethnic group, age, gender and or te reo Māori capability then attempts will be made to meet these requests.

The LSC will phone the interviewer, who will record the case details on the CASE LOG B form.

### **Arranging interviews with cases**

The interviewer allocated the case is responsible for arranging the interview with the case. The interviewer must attempt to make the first contact with the case face to face. E.g. The interviewer will locate the case and schedule an interview, from information supplied by the LSC. They may leave a letter of introduction if they visit the hospital or home and the case is not present. The interviewer may then use the contact telephone number to schedule if the number is available.

Every effort should be made to reach the case early. This process will be assisted by liaising with the ED / Psychiatric liaison team / Ward staff who will be managing the cases. A prompt response will improve the chances of accurate recall and minimise bias.

### **Approaching cases in person**

When the interviewer approaches the case in person, the interviewer should ask to speak with them, and should be prepared to show identification, and provide the letter of introduction. The interviewer should use the *Wording for approaching cases in person* (Appendix). If the case refuses to participate, the interviewer should thank them politely, and the interviewer should at all times encourage participation in the study. The reasons for the study should be emphasised.

### **Approaching cases by telephone**

When the interviewer approaches a case by telephone, the interviewer should ask to speak to the case. Once the case comes to the telephone the interviewer should use the *Wording for approaching cases by telephone* (Appendix).

The interviewer will confirm a time for the interview, and obtain directions for finding the residence (or preferred venue to have the interview). Alternatively, if the caregiver refuses to participate then this should be recorded on the CASE LOG C form. The interviewer should at all times encourage participation in the study. The reasons for the study should be emphasised. If a case still refuses, then the interviewer should leave them his/her contact details over the phone, in case they change their mind. They should also offer to send a copy of the letter of introduction (containing the study coordinators contact number), as well as a copy of the study information sheet.

## **IDENTIFYING POTENTIAL CONTROLS**

Locating suitable controls that are willing to be interviewed, will take considerable time and effort. Recruitment of controls will be performed by interviewers so that if a potential control is identified then if the opportunity arises to interview this can be performed immediately.



The aim of the control identification process is to recruit Māori who are representative of Māori in the Auckland region with the same age range as the cases (16-50 years). At the end of the study equal numbers of controls will be interviewed as the number of cases (250).

### **Rate of control recruitment**

The recruitment process aims to recruit eligible controls at the same rate as the cases are occurring. This means that steady recruitment will coincide with any decline and peak of case occurrence. The table below shows the number of cases of DSH for Māori that occurred each month over a year in North Shore, Auckland and Middlemore hospitals.

Month	NSH Cases	Auckland Cases	Middlemore Cases	Total
Jan				
Feb				
March				
April				
May				
June				
July				
Aug				
Sept				
Oct				
Nov				
Dec				

### **Starting points**

Statistics New Zealand will furnish the study with a set of geographical starting points scattered across the Auckland region (Wellsford to Mercer). Starting points will be based on mesh blocks, which are the smallest unit used by Statistics New Zealand. The probability that a particular mesh block is included will be proportional to the number of households in that mesh block. Within the selected mesh block, a starting point will be defined which will consist of randomly chosen selected street and street number.

### **Allocation of starting points**

The LSC will allocate the starting points to the interviewer/recruiters. Each starting point will consist of a street name and number, interviewers name, on the top of the STARTING POINT ADDRESS LOG form (Appendix)

### **Visiting starting points**

The interviewer/recruiter must complete each starting point within 14 days of its allocation. At the first address of each starting point the control interviewer/recruiter will go to the address listed and visit the dwelling identified. If the address includes more than one dwelling for example an

apartment block then the control interviewer/recruiter will select the middle number at the address. If there is an even number of dwellings/apartments/flats at a particular address, the interviewer/recruiter will go to the dwelling numbered one greater than the middle number. E.g. if there are 6 flats then go to the 4<sup>th</sup> and if there are 7a and 7b go to 7b.

If there is no private dwelling (i.e. excluding motels, hotels, and boarding houses) at the number, or exact address does not exist, the interviewer/recruiter would go to the next dwelling as described below (see: *selecting subsequent households*)

### **Starting points in non-residential areas**

A small number of starting points that are selected maybe in mostly non-residential areas e.g. commercial, retail and industrial areas. These starting points should be included in the recruitment process.

Interviewer/recruiters should make efforts to include households which are attached to commercial premises e.g. people living above shops. e.g. people living above shops

### **Selecting subsequent households**

The interviewer/recruiter will always move in the same direction from the each starting point. This direction has been arbitrarily set at **RIGHT**. After visiting the starting point the interviewer/recruiter will return to the street. S/he will move to the right based on the direction when facing the dwelling. The interviewer/recruiter will continue from dwelling to dwelling in this fashion until a series of households has been visited.

Town houses, flats, and caravan parks will be treated in the same way except that the common drive will be treated as the street.

A slight variation will be required for apartment blocks and buildings that are arranged vertically. Here the interviewer/recruiter will move through them in ascending order based on the number or letter

If the interviewer/recruiter gets to the start or end of a street then they will simply continue around the corner staying on the same side of the road. The same rule applies if the interviewer/recruiter hits the end of a dead end street.

In rare circumstance this process could bring the interviewer/recruiter back to a household that had already been visited. In this situation the interviewer/recruiter should go to the household immediately behind them, when facing the last house visited.

### **Properties that are excluded from the selection process**

Only three types of properties are excluded from the selection process

- Non-residential properties – commercial, retail and industrial
- Short-term residential properties – hotels, motels,

Institutions such as prisons, hospitals, retirement homes/villages and boarding schools.

Details of the properties including those that have been excluded should again be recorded on the STARTING POINT ADDRESS LOG form (Appendix). In such circumstances, the reasons for exclusion should also be recorded.

### **Completing the series**

The series will be completed when 15 households have been visited, including the starting point and households where access was denied and those where no one was home. Non-residential and short-term properties are excluded from this count. All eligible controls identified within these households will be included in the potential control group.

### **Multi potential control dwellings**

Occasionally interviewer/recruiters will locate a dwelling in which more than Māori between 16 and 50 years age resides. All eligible Māori from such dwellings should be considered as potential controls. Draw up a list of all potential controls and number them from the top at 1 to the bottom. Pull out the list of random numbers and select the random number on the list for that particular number that live in that household. Match this to the number on the list that the interviewer/recruiter has written. Ask that particular person if they would like to take part in the study. After you have explained to them the reasons for the study, the contribution that they would be making and the importance of their partaking.

### **Recording of dwellings visited**

The sequence of dwellings visited should be recorded on the STARTING POINTS ADDRESS LOG form (Appendix). The date and time of arrivals at each household should be noted. There is space to record whether this is a first or a follow up visit i.e. visit number 1, 2, or 3. Initially all visits will be first visits.

There is a range of possible outcomes from each visit. These outcomes are listed below and described in more detail in the following text.

**Property excluded** – record, but do not include in count of households visited.

- Non-residential properties – commercial, retail and industrial properties
- Short-term residential properties – hotels, motels,

If not a residential property record “NO” under “residtl” column in the STARTING POINT ADDRESS LOG form. Tick if it is a residential property.

No opportunity to discuss with the householder, because:

No access – record reasons, and return at a later visit

- Because of a refusal to communicate
- Because of a dog
- Because of another reason – record reason in comments field

Out – return at a later visit

Opportunity to discuss with household, resulting in one or more of the following outcomes:

Record number of Māori in household 16>50 inclusive years of age

- None – no need to return
- One or more – attempt to recruit as a potential controls including those who normally live here but are away when you called

Potential control present and study discussed with them

- Agree – record, fill in details on *CONTROL LOG A* form
- Decline – record, no need to return

Is this address the usual address?

- Yes – attempt to recruit as a potential control
- No – do not recruit

Has this person been at another address for at least the last month?

- Yes – attempt to recruit as a potential control
- No – do not recruit

No or poor English spoken by people in the household when visited – record language spoken and recruit if NZ Māori, Cook Island Māori, Tongan, Niuean, Samoan, Chinese or Korean. As long as one of the ethnicities pointed out by the potential control is NZ Māori. Exclude all other ethnic groups.

If a Whānau with no or poor English is one of the listed above – provide an information sheet in their language and if necessary provide the translator prompt sheet to help ask questions.



## **How to approach dwellings to recruit a control**

Every dwelling that an interviewer/recruiter approaches may require slightly different strategy. The first step is always to introduce you, show ID and briefly explain the study. Steps to take could be to:

- At least one resident is descended from NZ Māori
- Obtain a list of all Māori descendents
- Has lived for more than a month in the dwelling.
- Number anyone between 16-50 years of age
- randomly select the control from list

The interviewer/recruiter should use the *Wording approaching dwellings to recruit a control* (Appendix).

The interviewer should at all times encourage participation in the study. The reasons for the study should be emphasised. If a potential case still refuses, then the interviewer should leave them the information sheet, letter of introduction and provide their own phone number; if they change their mind.

The interviewer/recruiter should also leave the information sheet and letter of introduction with families who agree to participate, but are unable to complete a interview at that time, so they have some explanatory material and a contact name and number if they subsequently have any questions. Finally the interviewer/recruiter should explain to the subject that the LSC might contact them to find out how they thought the visit went.

## **Eligibility of potential control to be recruited**

The eligibility of a control is the same as the cases in terms of ethnicity, age, residence, availability and English language proficiency or other language spoken.

## **Normally resident in Auckland region**

Māori over the age of 16 > 50 years are eligible to be included as controls in the study only if they

- Usually reside in the Auckland region (Wellsford – Mercer) and
- Are in the Auckland region on the same day (or part there of) that the interviewer/recruiter knocks on the door of their residence

By meeting these two criteria the Māori would be admitted to the North Shore, Auckland or Middlemore hospitals if they DSH.

## Usual address

Māori may be recruited only from their usual address. For many people this will be simple.

- **The usual address** is the address where, under normal circumstances, they sleep most often provided they are not present at another address where they have been for at least the last month
- If they sleep at more than one address, the usual address is where they usually sleep most often. If this is 50/50 then the usual address is where they were most recently
- A temporary address becomes the usual address if they have been there for more than one month
- Door recruitment will not be undertaken at boarding schools (in or out of Auckland).
- Māori usually residing at boarding school are only eligible at their home caregivers address during summer holidays

Examples where Māori are eligible for recruitment

- **Māori who sleep at more than one residence** may be recruited as a control if the interviewer/recruiter visits the home the person sleeps at most frequently. E.g. Māori who spends Mon – Fri at House A and weekends at House B will only be eligible to be recruited at a visit to House A.
- **Māori sleeping at a extended Whānau house or permanently sleeping at friends home** may be recruited as a control from this address. In such cases permission to be recruited in to the study would be sought directly at this address.
- **Māori temporarily sleeping at another address** (less than one month) may be recruited as a control from their usual address provided they been at their present address less than a month. (E.g. where the Māori is away visiting friends or relatives in the Auckland region or on a trip,
- **Māori attending boarding school** and is home for the summer holidays is eligible for recruitment as a control from their home address, as is their usual address at the time of recruitment

Examples where Māori are not eligible for recruitment

- **Māori staying temporarily at another address (less than one month)** may not be recruited as a control from that temporary address (e.g. visiting friends or relatives for a weekend, or visiting Auckland from another region or overseas).

- **Māori who sleeps at more than one residence** may not be recruited as a control if the interviewer/recruiter visits the residence where they sleep less often than the other residence. E.g. Māori who sleep Mon – Fri at house A and the weekends at house B is not eligible for recruitment at a visit to house B.
- **Māori who attends boarding school** and is home for weekends and non-summer school holidays is not eligible for recruitment as a control from their home address, as they sleep most often at boarding school, therefore school is their usual address.

If there is confusion about control eligibility the interviewer/recruiter should enrol the Māori and collect all relevant details so the LSC can ultimately decide on inclusion.

### **Inclusion of controls who have DSH**

Controls who have DSH and been hospitalised for such an event, should not be included in the study.

### **Recording of eligibility**

If more than one eligible person is present and they agree to be included, as potential control details should be recorded about each one. These details are gender, age, and ethnicity. At this point the list of potential controls will be numbered and the random list of numbers will be pulled out and the random number chosen will be the one chosen to be potentially recruited on *CONTROL LOG A* form (Appendix). It is particularly important to record how they are contacted and whether they may need a te reo Māori speaker. Once recruited the control will could be interviewed, however if they are unable then a time could be arranged. If a time is unable to be arranged contact can be made later as more convenient to the potential control. If they do take part in an interview the interviewer/recruiter will assign them a *Study ID Number* and record on the *Master book/database*.

### **Information from neighbours**

Interviewer/recruiters should not take the word of the neighbours who may offer information regarding the question of whether an eligible Māori resides at a particular addresses. Māori may be quite mobile and Whānau composition may change quite regularly.

### **Making return visits**

Households where there is no access or no one home **MUST** be visited again. This step is essential to avoid selecting a sample of controls who spend more time than average at home. Up to two subsequent visits must be carried out for each of these households before the attempt is abandoned. All of these visits must be on different days and different times of the day than the initial visit as stated below under timing of visits.

Households where the potential control was not home also require a return visit. Ideally the timing for this visit would have been arranged with someone else in the household.

Households where no one spoke English also require a return visit unless those present clearly indicated that they were uninterested in discussing the study refused.

### **Timing of visits**

The timing of visits is designed to maximise efficiency, by visiting at times when people are most likely to be at home. It is also designed to reach people who have a range of work and recreational routines.

**If three visits are required to complete a start point, one of the three visits to the start must be midweek and one must be on a weekend.**

It is recommended that:

- One of the first two visits to each starting point should occur in a Saturday between 0900 and 1800 or a Sunday between 0900 and 1800
- Midweek visits should occur during the day, Mon through Fri between 0900 and 2000
- A third visit should occur on any day different to the previous two visits. It must be at a different time of the day to the previous midweek visit or weekend visit e.g. if the previous week day visit was in the morning, the next week day visit should be either in the afternoon or early evening.

If a visit is made in the dark for their own safety control interviewer/recruiters should leave this to their last visit to a start point so that the number of such visits are minimised. Potential subjects may also be less inclined to open their doors and provide information to strangers at night.

In practice most starting points will need to be visited 2-3 times. Interviewer/recruiters should try to minimise their travelling time by grouping start points and return visits that are in the same area together and by visiting them all at the same time.

### **Record of start point door knocking**

Control interviewer/recruiters should record all the time they spend door knocking within a start point on the STARTING POINT (SP) ADDRESS LOG (Appendix). The interviewer/recruiter should complete a new line for each address visited while they are at that address.



## **Record of time expended travelling to start points**

Control interviewer/recruiters should record all of the time and number of kilometres they spend travelling to each visit to a start point on the *STARTING POINT TIME* and *TRAVEL LOG* form (Appendix).

The interviewer/recruiter should fill out a new row on this form whenever they start work on a particular starting point. The time record should begin from when they leave another starting point they have been visiting or leave home. It should cease as soon as they leave the area to visit another starting point. This record will be used to work out how much travelling time is needed to identify each potential control.

The amount of travel to reach a starting point should also be recorded. Travelling home at the end of each session should be assigned to the last starting point visited.

## **An example**

Lets say Mere is a control interviewer/recruiter. She has been assigned several starting points, including one that reads, “44 Spenser St.” her first visit to the area is at 3pm on a Saturday. Mere drives to 44 Spenser St and locates a house at number 44. She knocks and finds no one at home. She records the outcome there as ‘out’ on the *STARTING POINT OUT LOG* form. She then moves down the street to her right when facing the house. She visits number 42 Spenser St. At that house the elderly man at the door tells you that no Māori between the age of 16 and 50 years lives here. Mere tick the column headed up ‘none’ under “Māori 16 – 50 years”.

The next house number 40. There is a big dog there, which barks ferociously as Mere approaches the gate. Mere is safety smart and tick the “no access” column under “dog”

Next is a group of flats at number 38. These are numbered A, B, and C. Mere visits A, then B, then C. A middle aged women comes to the door at Flat A. Mere is happy. But it soon becomes apparent that the woman does speak English well, and that she is from Turkey. She marks the column headed “Poor English” – other on the form and records how many Māori she can ascertain are at the address. At Flat B the residents slam the door in her face assuming she is a WINZ inspectors. She tick the column marked “Refuse to discuss” on her form.

Finally at Flat C he finds a pleasant young man who says “Yes I’m the only Māori living here and in your age group and I’ll take part in your study, but not today”. Mere carefully records his details and contact information on the *CONTROL LOG A* form. She puts a “1” in the column marked “Māori 16 – 50 years” on the *STARTING POINT ADDRESS LOG* form. The next address moving along the street is a petrol station at 36. There is no one there so he clearly marks “No” in the “residtl column” on his *STARTING POINT ADDRESS LOG* form and writes “retail” in the comments column. She

then continues along the street until he has visited a total of 15 households (including refusals and those not home but excluding the dairy which is a non-residential property and therefore not included in the count).

She is not finished with this starting point. The following Mon at 1100 she returns to Flat A at number 38. This time a man answers the door. He speaks good English and agrees to take part in the study then and there. Mere carefully records details about him and contact information on the *CONTROL LOG A* form. She puts a “1” in the column marked “Māori 16 – 50 years” on the *STARTING POINT ADDRESS LOG* form. Mere then goes back to 44 Spenser St. A man opens the door says he is the boyfriend of the owner. Yes owner is between the age group and he doesn’t think she is Māori. He says she will be back tomorrow after 1700. Mere puts a mark in column marked “Potential control out – appointment” column on her *STARTING POINT ADDRESS LOG* form, puts “?” in the column marked “Māori 16 – 50 years” and records details about the time for the return visit in the comments field. Next she will walk past the house number 42 to house number 40 for a second visit. The dog still growls as she approaches so he ticks the “no access – dog” column a second time.

The next is Tuesday. Mere returns to the starting point at 1700 for her third visit. Her first call is to 44 Spenser St. this time the woman comes to the door. Mere explains the study, but she explains she is simply too busy to consent to an interview even though she does identify as Māori. She marks “decline to participate” on the form. He skips houses 44 and 42, which he has already visited and discovers no dog at number 40. When he knocks on the front door two people of appropriate age come to the door. Yes they both live here and yes they would like to be in the study. Mere collects the information she needs to enrol both of them as potential controls and records the information on the *CONTROL LOG A* form. She writes “2” in the column marked “Māori 16 – 50 years” on his *STARTING POINT ADDRESS LOG* form. At this point she looks to her random list of numbers and recruits the number on the list.

Please note that Mere persisted in making up to three visits to each dwelling where the resident was out or access to the residents was initially denied. Mere did not discuss what he was doing with others who approached her on the street. Bob had already discovered that Māori on the street liked to help him find other Māori. Mere knew she had to resist the temptation to recruit a child found for her this way, and she vowed to follow the steps in this protocol exactly.

### **Selecting Controls for an Interview**

The eligibility criteria for controls will be the same as for the cases in terms of ethnicity, age, and residence, English spoken proficiently in the household.

If the interview is not carried out at time of recruitment the interviewer will return at the time selected for an interview during recruitment. If a time could not be negotiated during recruitment then using the contact details given phone contact will be made to confirm.

Multiple potential controls at a single residence will be assigned numbers starting at the top of the page from 1 upwards. A random number list will be consulted and the number corresponding to the potential control will be the choice for this residence. Only one control can be selected for interview.

At this point the chosen control will be asked to take part if the control is

- Available they will be interviewed at their convenience
- Not available their contact details will be obtained to contact them at a later date
- Not available without contact details, the interviewer/recruiter will leave an information sheet and the letter of introduction, or the interviewer/recruiter will return at another time

### **Contacting controls**

The interviewer/recruiter will contact the control selected by the method above. The interviewer should contact the control within seven days of their original door-to-door recruitment, and must interview them within the month of their door recruitment. The interviewer should attempt to make an interview time on the telephone if a time was not pre arranged at the recruitment.

When the interviewer approaches the control by telephone the interviewer should ask to speak to the control by name. Once the control comes to the telephone the interviewer should use the wording *Approaching potential controls by telephone* (Appendix). The interviewer will confirm the time, and obtain directions for finding the residence or other location where the interview is to be carried out. The interviewer may need to verify the need for an interpreter and may require help arranging an interview time with the interpreter.

If repeated efforts to contact the control by telephone are unsuccessful, or caregivers do not have a telephone the interviewer should approach the control in person. Again the interviewer should ask to speak to the named control and should be prepared to show identification. Once the control comes to the door the interviewer should provide ID the letter of introduction and use the *Wording approaching controls in person*.

The interviewer should note if the control refuses to participate at this point record the details on the CONTROL LOG form and pass this information on to the LSC. The interviewer at all times encourages participation in the study. The reasons for the study should be emphasised. If a control still refuses, then the interviewer should leave them the contact details in case they change their mind.

## **CONDUCT OF THE INTERVIEWS**

Interviews with some cases and controls will take place at their homes. In many instances the interview time will be arranged in advance face to face contact with cases, or by telephone for controls. In such situations it is important that the interviewer arrives on time. In some instances, where controls haven't been contacted by telephone it will be necessary to visit them at home without prior warning to arrange a suitable interview time

At the door the interviewer/recruiter will introduce themselves, show their ID, present the letter of introduction and wait to be invited in the dwelling. Interviewers will carry a badge issued by the University of Auckland and/or hospital board, which should be on hand. If the case or control is not at home a letter of introduction should be left with the family. The interviewers must try contact the family again themselves.

The interview/recruiter will proceed most easily if the interviewer and the subject can sit together at a table or near each other in chairs. Once seated, the interviewer will give a copy of the consent form to the subject and read it aloud. The interviewer will ask if they have any questions about what is written on the consent form. Following this, the interviewer and subject will sign two copies of the form. One copy will remain with the subject the other will be returned to the LSC who will keep it in a locked cabinet.

The interviewer/recruiter will proceed with the questionnaire, posing questions exactly as written in the order provided. Most of the questions are self-explanatory. If clarification of the question is needed, the interviewer should not lead the subject, or suggest answers but should explain what the question is asking in simple words. The training of interviewers should help them understand why the questions are being asked but if further clarification is needed the interviewer should seek help from the LSC.

The interviewer/recruiter should note if the subject refuses to undertake or complete the interview (or part of it) and record this information on the *CASE LOG C* form or *CONTROL LOG FORM*. The interviewer should at all times encourage participation in the study. The reasons for the study should be emphasised. If a caregiver still refuses, then the interviewer should leave them their contact details in case they change their mind.

### **Interviews using an interpreter**

If the door interviewer/recruiter or LSC has indicated that an interpreter that an interpreter is or may be necessary, the interviewer should confirm this with the LSC and check with the subject when first



arranging the interview time. The interpreter may need to help confirm the interview time with the Whānau to ensure they have understood the arrangements.

The same procedure as above should be followed for the interview except the interpreter must also be introduced. The interpreter must ask the question as close as possible to the way they are written on the questionnaire.

The LSC will send a letter of thanks to all subjects who are interviewed.

## **CONFIDENTIALITY ISSUES**

In conducting this study it will be necessary to protect the confidentiality of both the cases that have been notified and all data collected through interviews. The LSC, the local interviewers and the interviewer/recruiters must understand the importance of keeping this information confidential. It will be the LCS's obligation to restrict access to personal information about case patients and controls only to the interviewers who will be arranging and conducting the home interviews. Confidentiality issues will comprise a large part of interviewer/recruiter training. Our concern for confidentiality must be communicated clearly to subjects and no breach in confidentiality must occur for the duration of the study.

To protect the confidentiality of the questionnaire data we collect, the LSC will tear the top sheet off the questionnaire separate it from the information collected and place it in a locked cabinet. Only the LSC will have access to those sheets.

## **SAFETY ISSUES**

Interviewers and control interviewer/recruiters are being asked to go to the homes of persons they don't know to collect data. Training of interviewers and interviewer/recruiters must include advice about personal safety.

Specific measures to protect interviewer/recruiters and interviewers include:

- Control recruitment to occur during daylight hours as much as possible
- Provision of personal alarms for staff to carry in the field
- The option for recruiters to go in pairs if they believe this is necessary in certain circumstances.

## **AUDIT PROCEDURES**

### **Control recruitment**

For each interviewer/recruiter; Within 12 weeks of a interviewer/recruiter starting field work, a second person, either another interviewer/recruiter or LSC will complete visits two or three of a start point. These visits may include revisiting houses already contacted. Thereafter audits of each interviewer/recruiter will be carried out at regularly (at least 6 month intervals). The LSC will audit log sheets and recruit rates making comparisons between interviewer/recruiters mileage, hours and recruitment rates as well as against the pilot study results.

### **Interview**

For each interviewer: one of the first five interviews will be contacted by the LSC to verify a number of interview details. Thereafter, one in ten interviews will be audited.

### **Overall study**

The LSC will provide weekly and quarterly summary reports to the Principal Investigator.

The weekly and quarterly reports, which will include

1. Cases eligible for interview
  - No. (% of eligible) interviewed
  - No. (%) interviews fully completed
2. Controls eligible for interview
  - No. (% of eligible) interviewed
  - No. (%) interviews fully completed
3. Control recruitment performance
  - Households successfully contacted (No. % of houses visited)
  - Households with eligible subjects (No. % of these contacted)
  - Households consenting (No. % of these with eligible)
4. Significant issues and how managed

## **APPENDICES**

Medical Record Review Forms

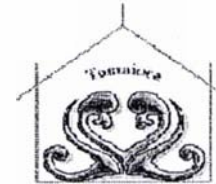
Case / control logging forms

- CASE LOG forms A, B, C.

- CONTROL LOG forms

Resource use record forms

- Starting point time and travel log
1. Information sheet
    - About the study (English version; available in other languages)
    - Advising of the visit to the house (English version; available in other languages)
    - Prompts for door recruitment for Whānau with poor English (English version; available in other languages)
  2. Standard wording
    - Wording for approaching case in person to arrange an interview
    - Wording for approaching case by telephone to arrange an interview
    - Wording for approaching dwellings to recruit a control
    - Wording for approaching controls by telephone to arrange an interview
    - Wording for approaching controls in person to arrange an interview
  3. Standard letters
    - Letter of introduction for interviewer/recruiters for the first meeting with control
    - Letter of introduction for interviewers at time of interview with case or control
    - Letter for interviewers to leave at the home/hospital of case / control who was not at home when visited
    - Letter to leave at home of control who has been selected for an interview but cannot be contacted by phone
    - Letter of thanks to cases or controls who were interviewed
    - Letter of thanks to cases who agreed to be interviewed but more than a month since the hospitalisation has gone by before interview could be scheduled
  4. Consent form (English version; Māori version in other languages).
  5. Showcards
  6. Questionnaires



*An invitation for Māori to participate  
in the*

## Māori Self-Harm Prevention Study

**Ms Nikki Coupe  
(Kai Tahu, Te Atiawa)**

Tomaiora: Māori Health Research Centre  
& Injury Prevention Research Centre Faculty of  
Medical & Health Science

**Free Ph: 0800 119933**



*This study has received ethical approval from the Auckland Ethics Committee in April  
2000 for a period of 2 years from May 2001. Reference: 2000/066*

Tomaiora: Māori Health  
Research Centre  
Faculty of Medical and Health  
Sciences  
University of Auckland  
Private Bag 92019  
Auckland

*Thank you very much for your time and help in  
making this study possible. If you have any queries  
or wish to know more please phone Nikki Coupe at  
0800 119933 or write to us at:*

### **Results:**

The information that you give will be used to increase knowledge about the perceptions of Māori about future Māori suicide prevention and well-being following an episode of distress and self-harm.

Findings from this survey will be discussed with you. If you would like to receive them, copies of all written reports and publications resulting from this study will be given to you.

If you have any queries or concerns regarding your rights as a participant in this research you may contact the Health Advocates Trust, phone 0800 555 050. In the unlikely event of a physical injury as a result of your participation in this study, you will be covered by the accident compensation legislation with its limitations. If you have any questions about ACC please feel free to ask the researcher for more information before you agree to take part in this trial.



### ***About the study:***

Our names are Ms Nikki Coupe (Kai Tahu), Prof. Mason Durie (Ngāti Rangitane, Ngāti Raukawa) & Prof. Colin Mantell (Kai Tahu). We are staff members at the University of Auckland and Massey University conducting research to identify protective factors, changeable risk factors, and create a culturally appropriate prevention strategy, following an episode of distress and self-harm. The main aim of the research is to explore Māori views about what sorts of things will support Māori following times of distress. We are also interested in the sorts of things that help Māori 'bounce back'

You are invited to take part in this research project because you were one of the first Māori to visit the emergency department within the study period. We would like to interview you and talk about some of the things you think are

important to support the Whānau following times of distress.

### ***Participation:***

We would like to interview you once. The interview would take approximately one hour and thirty minutes if you would like to talk to us further we are more than happy to listen. The amount of time we spend with you is up to you. The interview would be arranged at a time and place suitable to you. The answers you give will be written onto a questionnaire and you can withdraw information. The research is not part of your routine healthcare and is for research purposes only.

It is entirely up to you whether or not to take part in this survey. You do not have to take part in this study. If you do agree to take part you are free to **withdraw** from the research up to two months after taking part in the interview, without

having to give a reason. You do not have to answer all the questions during the interview, and you may stop answering questions at any time.

### ***Will my GP be told I am in the study?***

Yes, with your agreement we would like to tell your GP that you are taking part in this study.

### ***Confidentiality:***

If you decide to take part in the interviews you can be sure that no material, which can personally identify you, will be used in any reports on this study. All information from interviews with you will be securely stored at all times. After the study is finished, all information will be securely kept for a minimum of ten years, and then professionally destroyed.

**STARTING POINT (SP) ADDRESS LOG**

Address		Starting point number			Starting point address										Recruiter name		Outcome		Comments
Street name and number	H/hold	Visit	Date	Time	Resdtl	No access		Out	Refuse To Discuss	Poor Eng		Maori 16-50		Usual address AKI		In Akld Region Today	Participate		
	Seg No	No.				Dog	Other			PI, Ch, K	Other	None	Number	Sleeps here most/not away at least 1 a month	OR if this addr tem/here at least 1 a month		Agree	Decline	
		1	/ /	am pm															
		2	/ /	am pm															
		3	/ /	am pm															
		1	/ /	am pm															
		2	/ /	am pm															
		3	/ /	am pm															
		1	/ /	am pm															
		2	/ /	am pm															
		3	/ /	am pm															
		1	/ /	am pm															
		2	/ /	am pm															
		3	/ /	am pm															

**STARTING POINT TIME and TRAVEL LOG**

**Record the travel time & distance to reach the start point, within the start point, and to return home for each of the three visits.**

Recruiter: \_\_\_\_\_

Start point number	Travel					Comments
	To this start point		Within this start point	To home if this is the point days last start point		
	Minutes	Kilometres	Kilometres	Minutes	Kilometres	
Visit 1 Date: ___/___/___						
Visit 1 Date: ___/___/___						
Visit 1 Date: ___/___/___						
<b>TOTAL</b>	mins	km	km	mins	km	

I work for the Auckland Healthcare or Tomaiora Māori Health Research Unit

1. Can you help us with this study?
2. Do any Māori within 16 – 50 years of age live here?

**IF NO**

Thank you for your help, but we only need to talk to Māori family members who are 16 – 50 years of age.

**IF YES**

3. How many Māori within 16 – 50 years of age live here?
4. What are their names?
5. How old is each.....

Finally

6. What is your name?
7. What is your phone number at home?
8. What is your phone number at work?

Thank you. We will contact you in a few days if your family is chosen for an interview.



## **WORDING FOR APPROACHING CASES BY TELEPHONE FOR INTERVIEW**

When the interviewer approaches the case by telephone, the interviewer should ask to speak with case. Once the case comes to the telephone, the interviewer should use the following wording:

**"Hello. My name is \_\_\_\_\_ . I work for Auckland Health care or (Tomaiora Māori Health Research Group). I am ringing because you were hospitalised recently for an intentional injury. Is this right? *(wait for answer)*. We are trying to learn more about why Māori like yourself who has experience of this.**

**"If you are willing, I would like to come to your home, *(or hospital room)* and go through a questionnaire. This questionnaire will help us learn about the causes of this? The interview will take about one hour. We can do the interview anywhere you choose. If you wish you may have a family member or friend with you. Everything you say will be strictly confidential, and will be used only for the purposes of this study. Would that be OK? *(Wait for answer. If they don't mind, continue. Otherwise, thank them for their time)*.**

**"First of all let me make sure I have all the information on \_\_\_\_\_ correct. *(Review the information you have on the case report form regarding the date of birth/age, sex, ethnicity, home address, and date of hospitalisation or death for the case-patient. If any information is incorrect or missing – especially the ethnicity of the child – update this on the case report form. If the age given or the date of hospitalisation given makes the child ineligible for the study, explain that the child is not eligible for the study, and thank them for their time. Otherwise, continue)*.**

**"Can you suggest a time what would be convenient for me to visit you for and interview? When I visit I will have photo identification and a letter of introduction to show that I am from Auckland Health care and / or Tomaiora Māori Health Research Centre"**

**"If you have any queries about this study before I visit, please phone me on \_\_\_\_\_ or please feel free to contact the local study co-ordinator, Nicole Coupe at Tomaiora Māori Health Research Centre. Her phone number is 373 7599 x 5642.**

The interviewer will confirm the time, and obtain directions for finding the residence (or hospital room).

## **WORDING FOR APPROACHING CASES IN PERSON FOR INTERVIEW**

When the interviewer approaches the case in person, the interviewer should ask to speak with the person and should be prepared to show identification, and provide a letter of introduction. The interviewer should use the following wording:

**"Hello. My name is \_\_\_\_\_ I work for Auckland Healthcare or (Tomaiora Māori Health Research Centre). Here is my ID, and a letter explaining who I work for. I am making this visit because you were \_\_\_\_\_ recently admitted to hospital for an intentional injury. Is this right? (Wait for answer) We are trying to learn more about why Māori do this.**

**"If you are willing, I would like to go through a questionnaire. This will help us learn about the causes of this disease. If you wish, you may have a family member or friend with you. Everything you say will be strictly confidential, and will be used only for the purposes of this study. Would that be OK? (Wait for answer. If they don't mind, continue. Otherwise, thank them for their time.)**

**"First of all let me make sure I have all the information on \_\_\_\_\_ correct. (Review the information you have on the case report form regarding the age, sex, ethnicity, home address, telephone number, and date of hospitalisation or death for the case-patient. If any information is incorrect or missing – especially the ethnicity of the child – update this on the case report form. If the age given or the date of hospitalisation given makes the child ineligible for the study, explain that the child is not eligible for the study, and thank them for their time.)**

**Can you do the interview? (Wait for an answer. If yes proceed with the interview)  
(If no)**

**"If this is not a good time, I can come back at another time that suits you better. Can you suggest a time that would be convenient for me to return for an interview?**

**Here is a information sheet about a study we are doing. If you have any queries about this study before I visit, please contact me on \_\_\_\_\_ or please feel free to contact the local study co-ordinator, Nicole Coupe at Tomaiora. Her phone number is on the letter I have given you. (Confirm the time of the interview by writing it on the letter and adding your own contact phone number).**

## **WORDING FOR APPROACHING CAREGIVERS OF CONTROLS BY TELEPHONE FOR INTERVIEW**

When the interviewer approaches a control by telephone, the interviewer should ask to speak with the control. Once the control comes to the telephone, the interviewer should use the following wording:

**"Hello. My name is \_\_\_\_\_ . I work for Auckland Healthcare and or (Tomaiora Māori Health Research Centre). As you probably remember, a member of our staff visited you recently regarding a study of Intentional Injury Prevention. You agreed that you \_\_\_\_\_ could be included in this study. Is this right? (Wait for answer)**

**"If you are willing, I would like to come to your home and go through a questionnaire. This questionnaire will help us learn about how to prevent intentional injury. The interview will take about one hour. We can do the interview at your home or anywhere you choose. If you wish you may have a family member or friend with you. Everything you say will be strictly confidential, and will be used only for the purposes of this study. Would that be OK? (Wait for answer. If they don't mind, continue. Otherwise, thank them for their time).**

**"First of all let me make sure I have all the information on \_\_\_\_\_ correct. (Review the information you have on the control logging form regarding the date of birth/age, sex, ethnicity, and home address for the control. If any information is incorrect or missing – especially the ethnicity of the child – update this on the form. If the age given makes the child ineligible for the study, explain that the child is not eligible for the study, and thank them for their time. Otherwise, continue.**

**"Can you suggest a time that would be convenient for me to visit you for an interview? When I visit I will have a photo identification and a letter of introduction to show that I am from Auckland Healthcare or Tomaiora."**

**"If you have any queries about this study before I visit, please phone me on \_\_\_\_\_ or please feel free to contact the local study co-ordinator, Nicole Coupe at Tomaiora Māori Health Research Group. Her phone number is 373 7599 x5642.**

The interviewer will confirm the time, and obtain for finding the residence.

## **WORDING FOR APPROACHING DWELLINGS OF A POTENTIAL CONTROL FOR RECRUITMENT.**

After knocking on the front door, the recruiter should be prepared to show identification, and provide a letter of introduction. The recruiter then may say:

"Hello. My name is \_\_\_\_\_. I am from Auckland Health care and/or (Tomaioira Māori Health Research Group). Here is a letter explaining who I work for, and here is my photo ID. We are doing a study into Self-harm or Suicide Prevention (Intentional Injury Prevention) on Māori 16 – 50yrs of age. Do any Māori live here between 16 – 50 years of age.

"To help find households with Māori 16 – 50, we are visiting fifteen houses in your area. These houses have been randomly chosen, along with many others across Auckland.

Sometime, (in the next week or two) would you be willing to go through a questionnaire. The interview will take about one hour. We can do the interview here at home or anywhere you choose. If you wish you may have a family member or friend with you. Everything you say will be strictly confidential, and will be used only for the purposes of this study. Would that be OK? (*Wait for answer. If they don't mind, continue. Otherwise, thank them for their time.*)

Would it be possible to make a time to do this interview with you.

"Thank you. We just need to know a few more things: What is persons name? What is their date of birth? Is this where they usually lives? *Record these on the CONTROL LOG A form (Appendix). Also collect the name of the child, the names of all caregivers, and all possible contact telephone numbers – home, work, relatives, etc.*

"Here is information sheet about the study. If you have any queries about this study, please contact me on \_\_\_\_\_ or please feel free to contact the local study co-ordinator – Nicole Coupe, Tomaioira Māori Health Research Group. Her phone number is on the letter I have given you. She may also contact you herself, to find out how you thought this visit went".



## **WORDING FOR APPROACHING CONTROLS IN PERSON FOR INTERVIEW**

When the interviewer approaches a control in person, the interviewer should again ask to speak with the control and should be prepared to show identification, and provide a letter of introduction. Once the control comes to the door, the interviewer should use the following wording:

**"Hello. My name is \_\_\_\_\_ . I am from Auckland Health care and/or Tomaiora: Māori health Research Centre. Here is my ID and a letter explaining who I work for. As you probably remember, a member of our staff visited you recently regarding a study of self-harm (suicide) prevention. You agreed that you could be included in this study. Is this right? (Wait for answer).**

**"If you are willing, I would like to go through a questionnaire. This questionnaire will help us learn about the causes of self-harm. The interview will take about one hour. We can do the interview at your home or anywhere you choose. If you wish you may have family member or friend with you. If this is not a good time, I can come back at another time that suits you better. Everything you say will be strictly confidential, and will be used only for the purposes of this study. Would that be OK? (Wait for answer. If they don't mind, continue. Otherwise, thank them for their time).**

**"Can you do the interview now? (Wait for an answer. If yes proceed with the interview)**

**"First of all let me make sure I have all the information on \_\_\_\_\_ correct. (Review the information you have on the control logging form regarding the date of birth/age, sex, ethnicity, and home address for the control. If any information is incorrect or missing – especially the ethnicity of the person – update this on the form. If the age given makes the person ineligible for the study, explain that he/she is not eligible for the study, and thank them for their time. Otherwise, continue).**

*(If you can't do interview now)*

**"If this is not a good time, I can come back at another time that suits you better. Can you suggest a time that would be convenient for me to visit you for an interview?**

**"If you have any queries about this study before I visit, you can contact me on \_\_\_\_\_ or please feel free to contact the local study co-ordinator, Nicole Coupe at Tomaiora. Her phone number is on the letter I have given you.**

The interviewer will confirm the time and place of interview by writing the details on the letter, and adding their own contact number.

**LETTER OF INTRODUCTION FOR INTERVIEWERS TO LEAVE AT  
CASE HOME OR AT HOSPITAL IF UNABLE TO CONTACT THEM AT  
EITHER PLACE.**

University of Auckland Letterhead

Date

Dear

**Māori Self-harm Prevention Study**

This letter is to introduce \_\_\_\_\_, a member of the study team who would like to contact you about a research study of Māori Self-harm Prevention.

Your name has been provided by the Auckland Healthcare, as they understand that you have been to hospital for an intentional injury.

We have been trying to contact you over the last few days to see if you would be able to help us with this study. If you agreed to be in the study you would only need to answer a questionnaire.

Would you please phone \_\_\_\_\_ on \_\_\_\_\_ to arrange a time when we come and discuss the study, and see if you would like to take part.

If you have any concerns about the study that you would like to discuss, please telephone me on 09 373 7599 x5642.

Yours sincerely

**Nicole Coupe**

(Kai Tahu, Te Atiawa, Ngāti Rangitane, Ngāti Raukawa, Ngāti Toa)

**Principle Investigator**

**Tomaiora Māori Health Research Centre**

Faculty of Medical & Health Sciences

UNIVERSITY OF AUCKLAND

Phone 09 373 7599 ext 5642

**LETTER OF INTRODUCTION FOR RECRUITERS TO GIVE  
CONTROLS AT THE FIRST RECRUITMENT VISIT.**

University of Auckland Letterhead

Date

Dear

**Māori Self-harm Prevention Study**

This letter is to introduce \_\_\_\_\_, a member of the study team for the Māori Self-harm Prevention research.

This is an important study and we would appreciate it if you agreed to take part. If you have any concerns about the study that you would like to discuss, please telephone me on 09 373 7599 x5642.

Yours sincerely

**Nicole Coupe**

(Kai Tahu, Te Atiawa, Ngāti Rangitane, Ngāti Raukawa, Ngāti Toa)

**Principle Investigator**

**Tomaioa Māori Health Research Centre**

Faculty of Medical & Health Sciences

UNIVERSITY OF AUCKLAND

Phone 09 373 7599 ext 5642

**LETTER OF INTRODUCTION FOR INTERVIEWERS TO LEAVE AT CONTROL IF UNABLE TO CONTACT THEM BY PHONE TO ORGANISE THE INTERVIEW.**

University of Auckland Letterhead

Date

Dear

**Māori Self-harm Prevention Study**

This letter is to introduce \_\_\_\_\_, a member of the study team, who would like to contact you about the research study of Māori Self-harm Prevention.

As you probably remember, a member of our staff visited you recently, and you agreed that you could be included in the study.

We have been trying to contact you over the last few days to see if you still agree to be in the study. If you agree you would only need to answer a questionnaire.

Would you please phone \_\_\_\_\_ on \_\_\_\_\_ to arrange a time when we can come and explain the interview, and see if you would like to take part.

If you have any concerns about the study that you would like to discuss, please telephone me on 09 373 7599 x5642.

Yours sincerely

**Nicole Coupe**

(Kai Tahu, Te Atiawa, Ngāti Rangitane, Ngāti Raukawa, Ngāti Toa)

**Principle Investigator**

**Tomaioa Māori Health Research Centre**

Faculty of Medical & Health Sciences

UNIVERSITY OF AUCKLAND

Phone 09 373 7599 ext 5642



**LETTER OF INTRODUCTION FOR INTERVIEWERS TO LEAVE AT  
CONTROL IF UNABLE TO CONTACT THEM BY PHONE TO  
ORGANISE THE INTERVIEW.**

University of Auckland Letterhead

Date:

Kia ora

**Māori Self-harm Prevention Study**

This letter is to introduce \_\_\_\_\_, a member of the study team, who would like to contact you about the research study of Māori Self-harm Prevention.

As you probably remember, a member of our staff visited you recently, and you agreed that you could be included in the study.

We have been trying to contact you over the last few days to see if you still agree to be in the study. If you agree you would only need to answer a questionnaire.

Would you please phone \_\_\_\_\_ on **0800 119933** to arrange a time when we can come and explain the interview, and see if you would like to take part.

If you have any concerns about the study that you would like to discuss, please telephone me on 0800 119933.

Noho ora mai ra

**Nikki Coupe**

(Kai Tahu, Te Atiawa, Ngati Rangitane, Ngati Raukawa, Ngati Toa)  
**Principle Investigator**

**Tomaioa Māori Health Research Centre**

Faculty of Medical & Health Sciences  
UNIVERSITY OF AUCKLAND  
Phone 0800 119933

**LETTER OF INTRODUCTION FOR INTERVIEWERS AT THE TIME  
OF INTERVIEW FOR CASES AND CONTROLS.**

University of Auckland Letterhead

Date

Dear

**Māori Self-Harm Prevention Study**

This letter is to introduce \_\_\_\_\_, a member of the study team, who would like to interview you as part of the research study of Māori Self-harm Prevention.

We would like to thank you for agreeing to completing this interview. If you have any concerns about the study that you would like to discuss, please telephone me on 09 373 7599 x5642.

Yours sincerely

**Nicole Coupe**

(Kai Tahu, Te Atiawa, Ngāti Rangitane, Ngāti Raukawa, Ngāti Toa)

**Principle Investigator**

**Tomaiora Māori Health Research Centre**

Faculty of Medical & Health Sciences

UNIVERSITY OF AUCKLAND

Phone 09 373 7599 ext 5642

**LETTER OF THANKS TO CASE OR CONTROLS WHO WERE INTERVIEWED**

University of Auckland Letterhead

Date

Dear

Māori Self-harm Prevention Study

Recently you were visited by a member of the team investigating Māori Self-harm Prevention. You kindly completed an interview for this study.

Thank you for taking part in the study. Your assistance will help us understand why Māori are suffering from intentional injuries.

If you have any questions or concerns about this study, please contact me on 09 373 7599 x 5642.

Once again, thank you for your time.

Yours sincerely

Nicole Coupe  
(Kai Tahu, Te Atiawa, Ngāti Rangitane, Ngāti Raukawa, Ngāti Toa)  
Principle Investigator

Tomaiora Māori Health Research Centre  
Faculty of Medical & Health Sciences  
UNIVERSITY OF AUCKLAND

Phone 09 373 7599 ext 5642

**Prompts from {        } families**

**CONSENT FORM (ENGLISH VERSION)**

# Consent Form

**For Māori**

This consent form will be held for a period of ten years

Study number:                   

Title of project:                **Māori Self-Harm Prevention Study**

Principal investigator:  
Ms Nikki Coupe (Kai Tahu, Te Atiawa)  
Tomaioa Māori Health Research Group  
Division of Māori & Pacific Health  
Faculty of Medical & Health Science  
University of Auckland  
0800 119933

**Name of participant:** \_\_\_\_\_

**Address** \_\_\_\_\_  
\_\_\_\_\_

**Phone No** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

I have read and understand the information sheet dated January 2001 asking for volunteers to take part in the research designed to investigate Māori suicide prevention, paths to health and wellbeing. I have had the opportunity to discuss this study. I am satisfied with the answers I have been given.

I understand that taking part in this research is my choice (voluntary). I may withdraw from the research at any time and this will in no way affect my future health care. I understand that my participation in this study is confidential and that no material which could identify me will be used in any reports on this study. I have had time to consider whether to take part. I know who to contact if I have any questions about the research.





CONSENT FORM (MĀORI VERSION)

# Pepa Whakāe

**Mo te iwi Māori**

Ka pupuri I te tari ēnei pepa whakāe mo ngā tau tekau

**Te Akoranga Whakakorehia te Whakamomori mo te iwi Māori**

Tumuaki Rangahau:

Ko Nikki Coupe toku ingoa

(Ko Kai Tahu ratou ko Te Atiawa, Ngati Toa, Rangitane, Raukawa oku iwi)

Kai Whakatōhu

Tomaiora: Roopu Rangahau Hauora

Te Wananga o te Rongoa me te Hauora Putaiao

Whare Wananga o Tamaki Makaurau

0800 991133

**Ingoa o te tangata:**

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Kua panuitia , kua marama hoki ki ahau nga korero o tenei pepa i tuhi mai I te tau 2000 o te marama o Haratua. Ko enei tuhinga hei hapai i nga rangahau o te roopu hauora. Kia kore tatou te iwi Māori e mahi I tenei o nga mate te whakamomori, ara te whakakore i tou ake oranga. Kua whai wā ahau ki te korero mo tenei akoranga ara, e mātau ana ahau ki nga whakautu, kua whakahokia mai.

E marama ana ahau e naku ano te whakaetanga kia uru atu ahau ki roto i tenei tumomo rangahau. Kei te mohio tonu hoki ahau mehemea kore ahau e whakāe. Kei te pai tonu toku turanga i raro i te maru o te tari Hauora.

E marama ana ahau ahakoa te aha. Kore rawa tetahi atu tangata e mohio ki oku mahi toku ingoa me oku tuhinga i roto o tenei akoranga kore hoki tetahi o oku whakautu e mahia ki

roto i tetahi atu akoranga. Kua whai wā ahau ki te whakaaro mea na ka mahia ahau tenei mahi kahore ra nei.

E mohio ana ahau ko wai toku kaiwhakautu mehemea he patai oku mo tenei rangahau.

- E whakāe ana ahau kia mohio taku tākuta, e mahi ana ahau i roto tenei rangahau. AE / Kahore
- E hiahia ana kia whiwhi ahau tetahi kape o te whakaotinga AE / Kahore
- Consent given to access medical records pertaining to your hospitalisation YES / NO
- E whakāe ana ahau kia putanga taku hauora tuhia, mo tō toro ki te hohipera. AE / Kahore

Ko (ingoa)..... E whakāe ana ahau kia uru atu ahau ki roto i tēnei rangahau.

Te Ra .....

Waitohu .....

Ingoa o te Kairangahau .....

Nama waea .....

Kai whakamarama .....

Waitohu .....

Te Ra.....

## **SHOWCARDS**

### **Showcard 1**

1. not at all
2. once
3. a few times (2-4)
4. several times (5-12)
5. more than once a month (12+)

### **Showcard 3**

1. very satisfied
2. satisfied
3. neutral
4. dissatisfied
5. very dissatisfied

### **Showcard 5**

1. extremely important
2. important
3. unimportant
4. extremely unimportant

### **Showcard 2**

1. marae tangihanga
2. funeral chapel service
3. house service
4. service in church
5. other

### **Showcard 4**

1. it doesn't apply
2. never
3. hardly ever
4. sometimes
5. often

### **Showcard 6**

1. Not at all
2. No more than usual
3. Rather more than usual
4. Much more than usual



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**Showcard 7**

1. You have no ability with te reo Māori
2. You know some Māori at a very basic level
3. You have a good understanding but do not speak Māori
4. You are a learner who's knowledge is basic
5. You have been learning Māori for sometime and have an advanced knowledge
6. You are fluent in Māori having learnt it as a second language
7. You are a native speaker

**Showcard 9**

1. You cannot understand any Māori
2. you can understand a few words or short greeting in Māori
3. you can understand a few basic sentences in Māori using different words and sentences in some situations
4. you can understand Māori using different words and sentences in some situations
5. you can confidently understand Māori for long periods in many situations
6. you can confidently understand Māori in any situation

**Showcard 8**

1. You cannot speak any Māori
2. You can speak a few words or short greeting in Māori
3. You can speak a few basic sentences in Māori using different words and sentences in some situations
4. You can speak Māori using different words and sentences in some situations
5. You can confidently speak Māori for long periods in many situations
6. You can confidently speak fluent Māori in any situation

**Showcard 10**

1. A Māori group or organisation
2. A hospital
3. A community health centre
4. A community social service centre
5. A private organisation
6. Don't know

**Showcard 11a**

1. receive treatment from a GP
2. receive treatment from/see a medical specialist
3. visit a naturopath
4. receive advice or treatment from a nurse
5. visit a community health centre
6. receive advice or treatment from a community health worker
7. see a Māori healer

**Showcard 12**

1. cost
2. distance
3. cultural factors
4. not knowing of the service
5. no confidence that the service will help me
6. other, please specify

8. receive dental treatment
9. attend a health hui
10. attend a health seminar
11. have a prescription filled

**Showcard 11b**

1. Very satisfied
2. Satisfied
3. Dissatisfied
4. Very dissatisfied

**Showcard 13**

1. Not at all
2. daily
3. weekly
4. monthly

**Showcard 14**

94	I feel tense or wound up	Most of the time	A lot of the time	Time to time, occasionally	Not at all
95	I still enjoy the things I used to enjoy	Definitely as much	Not quite as much	Only a little	Hardly at all
96	I get a sort of frightened feeling as if something awful is going to happen	Very definitely & quite badly	Yes, but not badly	A little, but it doesn't worry me	Not at all
97	I can laugh & see the funny side of things	As much as I always could	Not quite as much now	Definitely not as much now	Not at all
98	Worrying thoughts go through my mind	A great deal of the time	A lot of the time	Not too often	Very little
99	I feel cheerful	Never	Not often	Sometimes	Most of the time
100	I can sit at ease & feel relaxed	Definitely	Usually	Not often	Not at all
101	I feel as if I am slowed down	Nearly all the time	Very often	Sometimes	Not at all
102	I get sort of frightened feeling like butterflies in the stomach	Not at all	Occasionally	Quite often	Very often
103	I have lost interest in my appearance	Definitely	I don't take as much care as I should	I may not take quite as much care	I take just as much care as ever
104	I feel restless as if I have to be on the move	Very much indeed	Quite a lot	Not very much	Not at all
105	I look forward with enjoyment to things	As much as I ever did	Rather less than I used to	Definitely less than I used to	Hardly at all
106	I get sudden feelings of panic	Very often indeed	Quite often	Not very often	Not at all
107	I can enjoy a good book or radio or television programme	Often	Sometimes	Not often	Very Seldom

**Showcard 15**

<p><b>Beer</b></p> <p><b>1 can = 1 drink</b></p> <p><b>1 small bottle = 1 drink</b></p> <p><b>1 handle = 1 drink</b></p> <p><b>1 quart = 2 drinks</b></p> <p><b>1 jug = 2 drinks</b></p> <p><b>1 flagon = 6 drinks</b></p>	<p><b>Spirits</b></p> <p><b>1 double nip = 1 drink</b></p> <p><b>Wine</b></p> <p><b>1 glass = 1 drink</b></p> <p><b>1 bottle = 6 drinks</b></p> <p><b>Sherry or (similar)</b></p> <p><b>1 Glass = 1 drink</b></p>
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**Showcard 16**

- A. Thought about taking your life
- B. Made plans to take you life
- C. Made an attempt on you life
- 1. I made a serious attempt to kill myself and it was only luck that I did not succeed.
- 2. I tried to kill myself but knew that the method was not fool proof.
- 3. My attempt was a cry for help I did not intend to die.
- 4. Don't know





# Self-Harm Prevention Study 2000-2003

Tomaiora Māori Health Research Centre  
&  
Injury Prevention Research Centre  
Faculty of Medical & Health Sciences  
University of Auckland

## Introduction

This questionnaire relates to you personally and contains a series of questions that relate to you and your views on a range of topics.

I will ask you some questions and provide a list of answers from which you can choose an answer. Many of the questions will relate to *SHOWCARDS*, others I will read out and you can choose from a range of answers.

I would like to remind you that all the information that you provide will be treated as strictly confidential and in no way can you be identified in any of the reports from the study. The project coordinator and I will be the only ones who will know who you are. Later all the information will be coded for security and confidentiality. Also, at any time during the interview you may choose not to answer a particular question or withdraw from the interview.

## Part 1: CULTURAL INDICATORS

*Our study involves people who are of Māori descent i.e. people who are descended from Māori ancestor. The first set of questions relates to culture.*

### 2. Do you identify as Māori?

Yes

No

### 3. Which **one** of these options would best describe you?

a)  A Kiwi

f)  a Polynesian

b)  A New Zealander

g)  a Māori

c)  Māori/Pākehā

h)  other

d)  Part Pākehā

please specify: \_\_\_\_\_

e)  Part Māori

### 4. How many generations of your Māori ancestry can you name? (e.g. actually knows at this point in time, does not have to refer elsewhere)

a)  1 generation (parents)

c)  3 generations (great grandparents)

b)  2 generations (grandparents)

d)  more than 3 generations

### 5. Do you know the name(s) of your iwi/tribe?

Yes  No

If yes, please state the name(s) of your iwi/tribe \_\_\_\_\_

a) Do you know the name(s) of your hapū/sub-tribe?

Yes  No

If yes, please state the names of your hapū/sub-tribe \_\_\_\_\_

b) Do you know the name(s) of your waka/canoe?

Yes  No

If yes, please state the names of your waka/canoe \_\_\_\_\_

### 6. Have you ever been to a marae?

Yes  No (go to Q8.2)

### SHOWCARD 1

### 7. Over the past 12 months, how often did you go to a marae?

Not at all

once

few times

several times

>once/month

### 8. Is there at least one marae that you regard as **your** marae?

Yes  No

If no, go to Q8.2, if yes, please name: \_\_\_\_\_

**SHOWCARD 1**

- 8.1 Over the past 12 months, how often did you go to your marae? (e.g. to attend tangi, weddings, 21<sup>st</sup>, committee, hapū, iwi meetings, access courses, maintenance)
- Not at all      once      few times      several times      >once/month
- 
- 8.2 How would you rate your knowledge of marae tikanga/protocol?
- excellent      very good      good      fair
- 
- 8.3 When you are at a marae for hui/meetings how comfortable do you feel?
- v. comfortable      comfortable      uncomfortable      v. uncomfortable
- 
- 8.4 When you are at a marae for tangi/funeral how comfortable do you feel?
- v. comfortable      comfortable      uncomfortable      v. uncomfortable
- 

**SHOWCARD 2**

- 8.5 From your own personal point of view, what type of funeral arrangement is preferable. Please rank the following in order of importance to you. (i.e. 1=most important 5=least important)
- a)  marae tangihanga      d)  service in church
- b)  funeral chapel service      e)  other: \_\_\_\_\_
- c)  house service      f)  refuse
- 8.6 Generally, does your whānau prefer to use urupa or a town/city cemetery?
- 1  urupa      2  town/city cemetery

The next set of questions is to do with whānau (blood relations) outside of this household.

**SHOWCARD 1**

**9. Over the past 12 months how often have you:**

- a) Made contact with your whānau      not at all      once      few      several      >once/month
- b) Stayed with your whānau
- c) Had your whānau stay with you
- d) Attended a conference/hui with your whānau

- 9.1 Would you say that your whānau has links with each other that are:
- v. strong       strong       weak       v. weak
- 9.2 Would you say that your whānau is:
- v. supportive       supportive       unsupportive       v. unsupportive
- 9.3 In terms of your relationship with your whānau, would you say that your whānau expects \_\_\_\_\_ of you:
- Too much       a lot       something       nothing
- 9.4 In terms of your relationship with your whānau, would you say that your whānau plays \_\_\_\_\_ part in your life:
- v. large       large       small       v. small

This question considers other types of whānau/family

- 9.5 Do you have other whānau/family in the wider community?
- Yes, please describe       No

**10. Do you have an interest in Māori land i.e. as an owner/part owner or beneficiary?**

- a)  Yes      c)  not sure/don't know
- b)  No (go to Q10.3C)      d)  refuse (go to Q10.3)
- 10.1 If you have an interest in Māori land, is the land ownership:
- a)  solely by you      d)  owned by a trust and you are a beneficiary
- b)  ownership shared with other members of your family/whānau      e)  ownership, something you don't know about
- c)  owned by an incorporation,      f)  currently the subject of a claim



that you have shares in.

- 10.2 If you have an interest in Māori land, do you:**
- |   | Yes                                 | No                                  |
|---|-------------------------------------|-------------------------------------|
| a) attend owners meetings                         | <input type="checkbox"/>            | <input type="checkbox"/>            |
| b) visit the land                                 | <input type="checkbox"/>            | <input type="checkbox"/>            |
| c) attend Māori land court/Waitangi Tribunal (WT) | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| d) keep well informed about your land             | <input type="checkbox"/>            | <input type="checkbox"/>            |
| e) live on the land                               | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

**SHOWCARD 3**

**10.3 Over the past 12 months have you received any of the following, and if so how satisfied were you?**

- |   | Yes                      | No                       | very satisfied           | satisfied                | neutral                  | dis-satisfied                       | very dis-satisfied                  |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------|-------------------------------------|
| (a) monies from Māori land                    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |
| (b) benefit from Māori land                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |
| (c) monies from Māori fisheries               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |
| (d) benefit from Māori fisheries              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |
| (e) monies from Māori forestry                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |
| (f) monies from minerals/geothermal resources | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

**11. Over the past 12 months, did you have contact with any of the following Māori organisations? If so, how satisfied were you?**

- |                                       | Yes                      | No                       | very satisfied           | satisfied                           | neutral                             | dis-satisfied            | very dis-satisfied                  |
|---------------------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------|-------------------------------------|--------------------------|-------------------------------------|
| a) Iwi authority/Māori Trust Board/WT | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| b) Te Puni Kokiri/Māori Affairs       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/>            |
| c) Māori Land Court                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/>            |
| d) Māori Women's Welfare League       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/>            |
| e) Māori wardens                      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/>            |
| f) Māori congress                     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| g) NZ Māori Council                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/>            |
| h) Marae committee                    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/>            |
| i) Hahi Māori/Māori church/mission    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/>            |
| j) Māori District Council             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

**SHOWCARD 1**

**12. Over the past 12 months, did you do any of the following, and how often?**

- |                                       | no                       | once                     | few                      | several                             | >than once a month       |
|---------------------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------|--------------------------|
| a) go to a beach to gather shell-fish | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
| b) go to a beach to gather kina       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
| c) go out to pick puha                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
| d) make rewena bread                  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| e) preserve kanga-piro; karengo       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
| f) help prepare a hangi               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |

**13. Would you like to have more contact with Māori?**

- Yes       No       don't know/not worried

**Part 2: TE REO MĀORI - MĀORI LANGUAGE**

Now I would like to ask you some questions about you and Māori language.

**14. In which language(s) could you have a conversation about a lot of everyday things? (tick as many as appropriate)**

- |   |  |
|---|--|
| a) <input type="checkbox"/> English     | d) <input type="checkbox"/> NZ sign language         |
| b) <input type="checkbox"/> Māori       | e) <input type="checkbox"/> Other, please name _____ |
| c) <input type="checkbox"/> Pacific Is. |  |

**SHOWCARD 7**

**15. Appropriate to your age, what is your overall ability with Māori?**

- 1       2       3       4       5       6       7

**SHOWCARD 8**

16. Appropriate to your age, what is your ability at speaking Māori?

1  2  3  4  5  6

**SHOWCARD 9**

17. Appropriate to your age, how well do you understand Māori?

1  2  3  4  5  6

**SHOWCARD 3**

18. Are you satisfied with your level of te reo Māori?

1  2  3  4  5

**SHOWCARD 4**

19. How often do you use te reo Māori as your main language of communication in the following situations?

	1	2	3	4	5
a) at a marae	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) at home	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) at work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) around children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) with kaumātua	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) with family/whānau	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) at school/kōhanga, university, etc	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**SHOWCARD 5**

20. Is being able to speak / understand te reo Māori important to you?

1  2  3  4

20.1 How important do you think it is for te reo Māori to be used during these occasions.

	1	2	3	4
a) in Māori ceremonies eg. on marae	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) in public or civic ceremonies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) in public institutions eg. libraries, banks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

21. If you wanted to personally increase your ability to speak or understand te reo Māori, what would you do? (Tick as many as appropriate)

a) <input type="checkbox"/> enrol in a Māori language course	d) <input type="checkbox"/> talk to uncles, aunts, ext. whānau
b) <input type="checkbox"/> visit and learn from kaumātua and elders	e) <input type="checkbox"/> continue your present learning of te reo Māori
c) <input type="checkbox"/> pursue more opportunities to be around Māori speakers	f) <input type="checkbox"/> other, please explain

22. Over the past 12 months have you been learning to reo Māori/Māori language?

Yes  No (If No, go to Q.23)

**SHOWCARD 3**

22.1 Where were you learning te reo Māori during those 12 months and how satisfied were you with this form of learning?

	1	2	3	4	5
a) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**SHOWCARD 4**

23. How often do you read the following material written in Māori?

	1	2	3	4	5
a) children's books	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) work related material	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) bulletins e.g. He Muka, Toi Te Kupu	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

please describe: \_\_\_\_\_



**24. How often do you write in te reo Māori/Māori language for these purposes?**

	1	2	3	4	5
a) Assignments in Māori language courses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Assignments in other courses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Corresponding with friends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Other please describe:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**24.1 How often do you listen to and/or watch:** 1 2 3 4 5

a) Te Karere	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Waka Huia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Other Māori language television	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Local Māori radio station	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**SHOWCARD 3**

**25. In general, how satisfied are you with the amount of Māori language broadcasting available to you?**

1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
v. satisfied	satisfied	neutral	dissatisfied	v. dissatisfied

**25.1 In general, how satisfied are you with the quality of Māori language broadcasting available to you?**

1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
v. satisfied	satisfied	neutral	dissatisfied	v. dissatisfied

**26. In your household, is Māori spoken \_\_\_\_\_ than 12 months ago**

a) <input type="checkbox"/> not at all	c) <input type="checkbox"/> less often now
b) <input type="checkbox"/> more often now	d) <input type="checkbox"/> about the same

**27. Up until you were 15 years old, what language did adults in your home mostly use when talking amongst themselves? (Choose one only)**

a) <input type="checkbox"/> English	c) <input type="checkbox"/> both
b) <input type="checkbox"/> Māori	b) <input type="checkbox"/> other

**27.1 Up until you were 15 years old, what language did adults in your home mostly use when talking to you? (Choose one only)**

a) <input type="checkbox"/> English	c) <input type="checkbox"/> both
b) <input type="checkbox"/> Māori	d) <input type="checkbox"/> other

**28. Do you think there is enough opportunity now for people who wish to learn te reo Māori/Māori language?**

a) <input type="checkbox"/> Yes	c) <input type="checkbox"/> don't know
b) <input type="checkbox"/> No please explain why not: _____	

**28.1 Do you think there is enough opportunity now for people to use te reo Māori?**

a) <input type="checkbox"/> Yes	c) <input type="checkbox"/> don't know
b) <input type="checkbox"/> No please explain: _____	

**Part 3: DEMOGRAPHICS** *I would like to ask you a few questions about yourself.*

29.  Male  Female  Other please specify \_\_\_\_\_

30. What is your birthdate? \_\_\_\_\_ dd/mm/yy

31. Do other people live with you usually? (By usually I mean people who live with you more than 3 nights per week).  Yes  No

**If Yes, who are they?**

a) <input type="checkbox"/> Husband/Wife/Partner	<b>Numbers</b>	<input type="checkbox"/>
b) <input type="checkbox"/> Your children		
c) <input type="checkbox"/> How many of your children live with you?		<input type="checkbox"/>
d) <input type="checkbox"/> Other relatives (other than your children, but including your grandchildren)		<input type="checkbox"/>
e) <input type="checkbox"/> How many other relatives live with you?		<input type="checkbox"/>
f) <input type="checkbox"/> People other than your relatives		
h) <input type="checkbox"/> How many of these other people live with you?		<input type="checkbox"/>



- a) **How often do you use your card?** (Prompt if required. Do you use it)
- more than once a week     once a month     never
- once a week     every few months
- every few weeks     less than every 6 months

44. **Do you have private medical insurance?** (e.g. Southern Cross, Aetna, National Mutual)

Yes     No

Now I would like to ask you some questions about your childhood.

45. **How many adults and children were in your household?**

Adults      Children

46. **What was your father's occupation?** \_\_\_\_\_

47. **What was your mother's occupation?** \_\_\_\_\_

48. **Who was your main caregiver?** \_\_\_\_\_

48.1 **If not mother or father, what was their occupation?** \_\_\_\_\_

49. **Before you went to high school, did your family own:**

- a) Car     Yes     No     Don't know
- b) TV     Yes     No     Don't know
- c) Telephone     Yes     No     Don't know
- d) Washing machine     Yes     No     Don't know

50. **Do you feel better off than your parents in terms of:**

- a) position in the community     Yes     No     Don't know     Refuse
- b) wealth (material standards)     Yes     No     Don't know     Refuse

**Part 4: General Health Questionnaire** (self administered)

Have you recently?

	1	2	3	4
	Better than usual	Same as usual	Worse than usual	Much worse than usual
	Not at all	No more than usual	Rather more than usual	Much more than usual
51. Been feeling perfectly well	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>SHOWCARD 6</b>				
52. Been feeling in need of a good tonic (drink)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
53. Been feeling run down and out of sorts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
54. Felt like you are ill	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
55. Been getting pains in your head	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
56. Been getting a feeling of tightness or pressure in your head	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
57. Been having hot or cold spells	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
58. Lost much sleep over worry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
59. Had difficulty in staying asleep once you are off	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
60. Felt constantly under strain	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
61. Been getting edgy and bad tempered	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
62. Been getting scared or panicky for no good reason	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
63. Found everything getting on top of you	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
64. Been feeling nervous and strung up all the time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



65. Been managing to keep yourself busy and occupied	More than usual <input type="checkbox"/>	Same as usual <input type="checkbox"/>	Rather less than usual <input type="checkbox"/>	Much less than usual <input type="checkbox"/>
66. Been taking longer over the things you do	Quicker than usual <input type="checkbox"/>	Same as usual <input type="checkbox"/>	Longer than usual <input type="checkbox"/>	Much longer than usual <input type="checkbox"/>
67. Felt on the whole you were doing things well	Better than usual <input type="checkbox"/>	About the same <input type="checkbox"/>	Less well than usual <input type="checkbox"/>	Much less well <input type="checkbox"/>
68. Been satisfied with the way you've carried out your tasks	More satisfied <input type="checkbox"/>	About same as usual <input type="checkbox"/>	Less satisfied than usual <input type="checkbox"/>	Much less satisfied <input type="checkbox"/>
69. Felt that you are playing a useful part in things	More so than usual <input type="checkbox"/>	Same as usual <input type="checkbox"/>	Less so than usual <input type="checkbox"/>	Much less than usual <input type="checkbox"/>
70. Felt capable of making decisions about things	More so than usual <input type="checkbox"/>	Same as usual <input type="checkbox"/>	Less so than usual <input type="checkbox"/>	Much less capable <input type="checkbox"/>
71. Been able to enjoy your normal day to day activities	More so than usual <input type="checkbox"/>	Same as usual <input type="checkbox"/>	Less so than usual <input type="checkbox"/>	Much less than usual <input type="checkbox"/>
<i>Have you recently:</i>	Not at all	No more than usual	Rather more than usual	Much more than usual
72. Been thinking of yourself as a worthless person	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
73. Felt that life is entirely hopeless	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
74. Felt that life isn't worth living	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
75. Thought of the possibility that you might do away with yourself	Definitely not <input type="checkbox"/>	I don't think so <input type="checkbox"/>	Has crossed my mind <input type="checkbox"/>	Definitely have <input type="checkbox"/>
76. Found at times you couldn't do anything because your nerves were too bad	Not at all <input type="checkbox"/>	No more than usual <input type="checkbox"/>	Rather more than usual <input type="checkbox"/>	Much more than usual <input type="checkbox"/>
77. Found yourself wishing you were dead and away from it all	Not at all <input type="checkbox"/>	No more than usual <input type="checkbox"/>	Rather more than usual <input type="checkbox"/>	Much more than usual <input type="checkbox"/>
78. Found that the idea of taking your own life kept coming into your mind	Definitely not <input type="checkbox"/>	I don't think so <input type="checkbox"/>	Has crossed my mind <input type="checkbox"/>	Definitely has <input type="checkbox"/>

## Part 5: HEALTH SERVICES

Now I would like to talk about what you think about the Health Services

**SHOWCARD 10** (tick as many as apply)

79. Of the following groups who, if any, is/are responsible for the health and social services you use?

- a)  A Māori group or organisation
- b)  a hospital
- c)  a community health centre
- d)  a community social service centre
- e)  a private organisation
- f)  don't know

79.1 Are you registered with a GP (i.e. have a family doctor)?

- Yes       No       Don't know



**SHOWCARD 11a & 11b**

80. Over the past 12 months how often did you \_\_\_\_\_, how satisfied were you with that treatment? **Frequency Number** **Satisfaction Number**

- |   |                          |                          |                          |
|---|--------------------------|--------------------------|--------------------------|
| 1) receive treatment from a GP                                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2) receive treatment from/see a medical specialist            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3) visit a naturopath   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4) receive advice or treatment from a nurse                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5) visit a community health centre                            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6) receive advice or treatment from a community health worker | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7) see a Māori healer   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8) receive dental treatment                                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 9) attend a health hui  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 10) attend a health seminar                                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 11) have a prescription filled                                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

81. During the past month, have you visited \_\_\_\_\_ for a health-related incident?

- |  | Yes                                 | No                                  |
|--|-------------------------------------|-------------------------------------|
| <b>81.1 GP</b>                               | <input type="checkbox"/>            | <input type="checkbox"/>            |
| <b>81.2 What for:</b>                        |                                     |                                     |
| a) injury                                    | <input type="checkbox"/>            | <input type="checkbox"/>            |
| b) illness                                   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| c) mental health                             | <input type="checkbox"/>            | <input type="checkbox"/>            |
| d) other (please specify): _____             |                                     |                                     |
| <b>81.3 Emergency Department (Hospital):</b> | <input type="checkbox"/>            | <input type="checkbox"/>            |
| a) injury                                    | <input type="checkbox"/>            | <input type="checkbox"/>            |
| b) illness                                   | <input type="checkbox"/>            | <input type="checkbox"/>            |
| c) mental health                             | <input type="checkbox"/>            | <input type="checkbox"/>            |
| d) other (please specify): _____             |                                     |                                     |
| <b>81.4 Māori Health Service</b>             | <input type="checkbox"/>            | <input type="checkbox"/>            |
| <b>81.5 What for?</b>                        |                                     |                                     |
| a) injury                                    | <input type="checkbox"/>            | <input type="checkbox"/>            |
| b) illness                                   | <input type="checkbox"/>            | <input type="checkbox"/>            |
| c) mental health                             | <input type="checkbox"/>            | <input type="checkbox"/>            |
| d) other (please specify): _____             |                                     |                                     |
| <b>81.6 24 Hour Accident &amp; Emergency</b> | <input type="checkbox"/>            | <input type="checkbox"/>            |
| <b>81.7 What for?</b>                        |                                     |                                     |
| a) injury                                    | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| b) illness                                   | <input type="checkbox"/>            | <input type="checkbox"/>            |
| c) mental health                             | <input type="checkbox"/>            | <input type="checkbox"/>            |
| d) other (please specify): _____             |                                     |                                     |
| <b>81.8 Other (please specify): _____</b>    |                                     |                                     |
| <b>What for?</b>                             |                                     |                                     |
| a) injury                                    | <input type="checkbox"/>            | <input type="checkbox"/>            |
| b) illness                                   | <input type="checkbox"/>            | <input type="checkbox"/>            |
| c) mental health                             | <input type="checkbox"/>            | <input type="checkbox"/>            |
| d) other (please specify): _____             |                                     |                                     |

**SHOWCARD 12**

82. Does anything stop you from using health services?  Yes  No (go to Q. 83)

82.1 Is it because of (Tick as many as possible):

- |   |  |
|---|--|
| 1 <input type="checkbox"/> cost                       | 5 <input checked="" type="checkbox"/> no confidence that the service will help me? |
| 2 <input type="checkbox"/> distance                   | 6 <input type="checkbox"/> Other, specify: _____                                   |
| 3 <input type="checkbox"/> cultural factors           |  |
| 4 <input type="checkbox"/> not knowing of the service |  |

**Part 6: SOCIAL SUPPORT** Please tick ONE BOX for EACH question in this section

83. How many close friends do you have?  
 None (go to Q86)  1  2  3  4  More
84. How many of these friends do you see at least once a month?  
 1  2  3  4  More
85. How much of your free time (outside of work or classes) do you spend with one or more of your close friends?  
 a)  all most all of it c)  some of it  
 b)  most of it d)  only a little bit of it
86. How often do you go to religious meetings / services?  
 a)  more than once a week d)  less than once a month  
 b)  once a week e)  never or almost never  
 c)  1 to 3 times a month
87. How many hours EACH WEEK do you participate in any groups such as social/work, church-connected, self-help, public service or community groups?
88. How many children do you have? (if none go to Q. 91)
89. How many children are living?
90. How many of your children do you see at least once a month?
91. Apart from children how many relatives do you have that you feel close to?
92. How many close relatives do you see at least once a month?
93. Is there anyone special you know that you feel very close to; someone you feel you can share confidences and feelings with?  Yes  No (if no go to Q.95)
94. How often do you see or talk with this person?  
 daily  monthly  once a year or less  
 weekly  several times a year
95. Would you say that the neighbourhood you live in has a strong, very little sense of community or something in between? ('Community' means people are actively involved in community affairs, and that they tend to trust one another). Please tick one box only.  
 strong sense of community  something in between  
 very little sense of community

**Part 7: BACKGROUND ISSUES**

**SHOWCARD 13**

96. During the past 12 months, have you been:
- |                       | 1                                   | 2                        | 3                        | 4                        | once                     | refused                             |
|-----------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) Physically abused  | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| b) Verbally abused    | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| c) Emotionally abused | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) Sexually abused    | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
97. As a child were you ever:
- |                       | 1                                   | 2                                   | 3                                   | 4                        | once                     | refused                  |
|-----------------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|
| a) Physically abused  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b) Verbally abused    | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c) Emotionally abused | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d) Sexually abused    | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
98. Have you been in trouble with the law (police)?  Yes  No  Refused  
 If yes, when were you last in trouble? \_\_\_\_\_
99. Have you ever been in trouble with any other authoritative figure?  
 Yes  No  
 If yes, with whom? \_\_\_\_\_
100. During the past month, have there been any changes in your personal relationships?  
 Yes  No

Please specify \_\_\_\_\_

## Part 8: MENTAL HEALTH SHOWCARD 14

101.	I feel tense or wound up	Most of the time	A lot of the time	Time to time, occasionally	Not at all
102.	I still enjoy the things I used to enjoy	Definitely as much	Not quite as much	Only a little	Hardly at all
103.	I get a sort of frightened feeling as if something awful is going to happen	Very definitely & quite badly	Yes, but not badly	A little, but it doesn't worry me	Not at all
104.	I can laugh & see the funny side of things	As much as I always could	Not quite as much now	Definitely not as much now	Not at all
105.	Worrying thoughts go through my mind	A great deal of the time	A lot of the time	Not too often	Very little
106.	I feel cheerful	Never	Not often	Sometimes	Most of the time
107.	I can sit at ease & feel relaxed	Definitely	Usually	Not often	Not at all
108.	I feel as if I am slowed down	Nearly all the time	Very often	Sometimes	Not at all
109.	I get sort of frightened feeling like butterflies in the stomach	Not at all	Occasionally	Quite often	Very often
110.	I have lost interest in my appearance	Definitely	I don't take as much care as I should	I may not take quite as much care	I take just as much care as ever
111.	I feel restless as if I have to be on the move	Very much indeed	Quite a lot	Not very much	Not at all
112.	I look forward with enjoyment to things	As much as I ever did	Rather less than I used to	Definitely less than I used to	Hardly at all
113.	I get sudden feelings of panic	Very often indeed	Quite often	Not very often	Not at all
114.	I can enjoy a good book or radio or television program	Often	Sometimes	Not often	Very Seldom

115. Have you ever been diagnosed with a mental health or psychiatric disorder?

Yes                       No                       Don't know

If yes, please specify \_\_\_\_\_

116. Have you ever been under the care of mental health services?

Yes                       No                       Don't know

If yes, please specify \_\_\_\_\_

117. Are you currently under the care of a mental health service?

Yes                       No                       Don't know

If yes, please specify \_\_\_\_\_

118. Have you ever taken medication for a mental disorder?

Yes                       No                       Don't know

If yes, please specify \_\_\_\_\_

119. Are you currently taking any medication?

Yes                       No                       Don't know

If yes, please specify \_\_\_\_\_

120. Is there a whānau/family history of mental disorder? (1: Mum/Dad/Sibling/G.parent)

Yes                       No                       Don't know

121. Did you ever grow up with someone with a mental disorder?

Yes                       No                       Don't know

122. Is there a family history of self-harm?

Yes                       No                       Don't know

123. Did you ever grow up with someone who self harmed?

Yes                       No                       Don't know



**Part 9: SUBSTANCE USE** *Alcohol and Other Drugs*

124. Have you ever drunk alcohol once a month or more?  
 Yes  No (if no, go to Q. 133)
125. Do you currently drink alcohol once a month or more?  
 Yes  No (if no, go to Q. 133)
126. About how often do you drink alcohol?  
 6 - 7 days a week  2 - 3 days a week  once every 2 weeks  
 4 - 5 days a week  once a week  once a month

**SHOWCARD 15**

For the next 2 questions please refer to the following guide

127. On an average day when you drink alcohol how many drinks would you usually have in total?   drinks  refused
128. In the past 3 months, what is the largest number of drinks that you have had in one day.   Drinks  refused
129. Have you ever felt you should cut down on your drinking?  Yes  No  Refused
130. Have people annoyed you by criticising your drinking?  Yes  No  Refused
131. Have you felt bad or guilty about your drinking?  Yes  No  Refused
132. Have you ever had a drink first thing in the morning to steady your nerves or get rid of a hangover?  Yes  No  Refuse
133. During the past 12 months how often did you use marijuana (grass, pot, cannabis, hashish, oil or cookies)?  did not use  once a month  
 once a week  more than once a week  
 less than once a month  once every 2 weeks  daily
134. During the past 12 months, how often did you use other illegal drugs (drugs not prescribed by your doctor, bought from a chemist) e.g. mushrooms, cocaine, LSD, uppers, downers, heroine, morphine.  did not use  once a month  
 once a week  less than once a month  once every 2 weeks  
 daily  more than once a week

**Part 10: SUICIDALITY**

Please look at SHOWCARD 16. Experiences are listed at the top of this page ABC.

135. Did experience A ever happen to you?  Yes  No  Don't know  
(If no, skip to Q 137)

a) How old were you the first time this happened? \_\_\_\_\_ Yrs old

136. Did experience A happen to you in the past 12 months?

Yes  No (If no, go to Q137)  don't know

a) How old were you the last time this experience happened to you? \_\_\_\_\_ Yrs old

Now look at the second of the three experiences on the list, Experience B.

137. Did experience B ever happen to you?  Yes  No  Don't know  
(If no, go to Q 139)

a) How old were you the first time this happened? \_\_\_\_\_ Yrs old

138. Did experience B happen to you in the past 12 months?

Yes  No (If no, go to Q 139)  Don't know

a) how old were you the last time this experience happened to you? \_\_\_\_\_ Yrs old

Look at the third of the three experiences on the list, Experience C (If no skip to Q 145)

139. Did experience C ever happen to you?  Yes  No  Don't know

a) if no, can you explain the events that led to your hospitalisation.

\_\_\_\_\_

b) how many times did Experience C happen to you in your lifetime? \_\_\_\_\_ Times.

c) how old were you the first time this happened? \_\_\_\_\_ Yrs old



Please look at the bottom of the SHOWCARD 16. There are statements 1, 2, 3, 4.

140. Which of these statements best describes your situation when Experience C happened to you the *first* time?

1  2  3  4  refuse

141. Did experience C happen to you in the past 12 months?

Yes  No  Don't know

a) How old were you (when/the last time) Experience C happened to you? \_\_\_\_\_

142. Did it result in an injury or poisoning?

Yes  No  Don't know  refuse

143. Did it require medical attention?

Yes  No  Don't know  refuse

144. Did it require overnight hospitalisation?

Yes  No  Don't know  refuse

This section refers to your self-harm/attempt/hospitalisation.

### Part 11: SELF HARM EVENT

<p><b>145. Was anyone there at the time?</b></p> <p>0. present 1. nearby or in visual or vocal contact (telephone). 2. no one nearby or in visual vocal contact</p> <p><b>147. Did you make any precautions against being discovered and/or interrupted?</b></p> <p>0. none 1. avoiding others but doing nothing to prevent their involvement (e.g. alone in room with unlocked door) 2. Yes (e.g. locking door)</p> <p><b>149. Did you take any last steps in expectation of death?</b></p> <p>0. none 1. probable or certain</p> <p><b>151. Did you leave a note?</b></p> <p>0. no 1. yes but destroyed it 2. yes</p> <p><b>153. What was the purpose of the self-harm?</b></p> <p>0. to change your environment, revenge and/or get attention. 1. to escape, solve problems 2. components of 0 and 1</p> <p><b>155. How serious were you to self harm?</b></p> <p>0. didn't seriously attempt to end life 1. not sure about seriousness to end life. 2. seriously attempted to end life</p> <p><b>157. Did you think that medical attention could save you?</b></p> <p>0. yes 1. uncertain 2. no</p>	<p><b>146. Could anyone have stopped you?</b></p> <p>0. probably 1. not likely 2. highly unlikely</p> <p><b>148. Did you try to gain help during or after the self harm?</b></p> <p>0. told someone about the self harm 1. Made contact but didn't specially tell them about the self harm. 2. Didn't contact anyone</p> <p><b>150. How much preparation did you do for the self harm?</b></p> <p>0. none 1. minimal 2. extensive</p> <p><b>152. Did you tell anyone about the intentions you had prior to the self-harm?</b></p> <p>0. none 1. unclear communication 2. clear communication</p> <p><b>154. Your thoughts of the methods</b></p> <p>0. did less that thought would be lethal. 1. was unsure if act would be lethal 2. equaled or exceeded what you thought would be lethal</p> <p><b>156. Which statement is most correct.</b></p> <p>0. did not want to live 1. wanted to die 2. components of 0 and 1</p> <p><b>158. How long did you think about the self-harm?</b></p> <p>0. none, impulsive 1. thought for 3 hours or less before self harm. 2. thought for more than 3 hours before self harm.</p>
<p>159. Had you taken any substances up to 12 hours prior? <input type="checkbox"/> Yes <input type="checkbox"/> No What were they? _____</p> <p>160. What method did you use? _____</p> <p>161. Is this your first self harm? _____</p> <p>162. During the month before your self harm, were there any changes in your personal relationships? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, please describe : _____</p>	



## APPENDIX FOUR CASE QUESTIONNAIRE







# Self-Harm Prevention Study 2000-2003

Tomaiora Māori Health Research Centre  
&  
Injury Prevention Research Centre  
Faculty of Medical & Health Sciences  
University of Auckland

## Introduction

This questionnaire relates to you personally and contains a series of questions that relate to you and your views on a range of topics.

I will ask you some questions and provide a list of answers from which you can choose an answer. Many of the questions will relate to SHOWCARDS, others I will read out and you can choose from a range of answers.

I would like to remind you that all the information that you provide will be treated as strictly confidential and in no way can you be identified in any of the reports from the study. The project coordinator and I will be the only ones who will know who you are. Later all the information will be coded for security and confidentiality. Also, at any time during the interview you may choose not to answer a particular question or withdraw from the interview.

## Part 1: CULTURAL INDICATORS

*Our study involves people who are of Māori descent i.e. people who are descended from Māori ancestor. The first set of questions relates to culture.*

### 2. Do you identify as Māori?

Yes

No

### 3. Which one of these options would best describe you?

a)  A Kiwi

f)  a Polynesian

b)  A New Zealander

g)  a Māori

c)  Māori/Pākehā

h)  other

d)  Part Pākehā

please specify: \_\_\_\_\_

e)  Part Māori

### 4. How many generations of your Māori ancestry can you name? (e.g. actually knows at this point in time, does not have to refer elsewhere)

a)  1 generation (parents)

c)  3 generations (great grandparents)

b)  2 generations (grandparents)

d)  more than 3 generations

### 5. Do you know the name(s) of your iwi/tribe?

Yes  No

If yes, please state the name(s) of your iwi/tribe \_\_\_\_\_

a) Do you know the name(s) of your hapū/sub-tribe?

Yes  No

If yes, please state the names of your hapū/sub-tribe \_\_\_\_\_

b) Do you know the name(s) of your waka/canoe?

Yes  No

If yes, please state the names of your waka/canoe \_\_\_\_\_

### 6. Have you ever been to a marae?

Yes  No (go to Q8.2)

### SHOWCARD 1

### 7. Over the past 12 months, how often did you go to a marae?

Not at all

once

few times

several times

>once/month

### 8. Is there at least one marae that you regard as your marae?

Yes  No

If no, go to Q8.2, if yes, please name: \_\_\_\_\_

**SHOWCARD 1**

- 8.1 Over the past 12 months, how often did you go to your marae? (e.g. to attend tangi, weddings, 21<sup>st</sup>, committee, hapū, iwi meetings, access courses, maintenance)
- Not at all      once      few times      several times      >once/month
- 
- 8.2 How would you rate your knowledge of marae tikanga/protocol?
- excellent      very good      good      fair
- 
- 8.3 When you are at a marae for hui/meetings how comfortable do you feel?
- v. comfortable      comfortable      uncomfortable      v. uncomfortable
- 
- 8.4 When you are at a marae for tangi/funeral how comfortable do you feel?
- v. comfortable      comfortable      uncomfortable      v. uncomfortable
- 

**SHOWCARD 2**

- 8.5 From your own personal point of view, what type of funeral arrangement is preferable. Please rank the following in order of importance to you. (i.e. 1=most important 5=least important)
- a)  marae tangihanga      d)  service in church
- b)  funeral chapel service      e)  other: \_\_\_\_\_
- c)  house service      f)  refuse
- 8.6 Generally, does your whānau prefer to use urupa or a town/city cemetery?
- 1  urupa      2  town/city cemetery

The next set of questions is to do with whānau (blood relations) outside of this household.

**SHOWCARD 1**

9. Over the past 12 months how often have you:
- a) Made contact with your whānau      not at all      once      few      several      >once/month
- b) Stayed with your whānau
- c) Had your whānau stay with you
- d) Attended a conference/hui with your whānau
- 9.1 Would you say that your whānau has links with each other that are:
- v. strong       strong       weak       v. weak
- 9.2 Would you say that your whānau is:
- v. supportive       supportive       unsupportive       v. unsupportive
- 9.3 In terms of your relationship with your whānau, would you say that your whānau expects \_\_\_\_\_ of you:
- Too much       a lot       something       nothing
- 9.4 In terms of your relationship with your whānau, would you say that your whānau plays \_\_\_\_\_ part in your life:
- v. large       large       small       v. small

This question considers other types of whānau/family

- 9.5 Do you have other whānau/family in the wider community?
- Yes, please describe       No

**10. Do you have an interest in Māori land i.e. as an owner/part owner or beneficiary?**

- a)  Yes      c)  not sure/don't know
- b)  No (go to Q10.3C)      d)  refuse (go to Q10.3)
- 10.1 If you have an interest in Māori land, is the land ownership:
- a)  solely by you      d)  owned by a trust and you are a beneficiary
- b)  ownership shared with other members of your family/whānau      e)  ownership, something you don't know about
- c)  owned by an incorporation, that you have shares in.      f)  currently the subject of a claim



- 10.2 If you have an interest in Māori land, do you:**
- |   | Yes                      | No                       |
|---|--------------------------|--------------------------|
| a) attend owners meetings                         | <input type="checkbox"/> | <input type="checkbox"/> |
| b) visit the land                                 | <input type="checkbox"/> | <input type="checkbox"/> |
| c) attend Māori land court/Waitangi Tribunal (WT) | <input type="checkbox"/> | <input type="checkbox"/> |
| d) keep well informed about your land             | <input type="checkbox"/> | <input type="checkbox"/> |
| e) live on the land                               | <input type="checkbox"/> | <input type="checkbox"/> |

**SHOWCARD 3**

**10.3 Over the past 12 months have you received any of the following, and if so how satisfied were you?**

- |   | Yes                      | No                       | very satisfied           | satisfied                | neutral                             | dis-satisfied                       | very dis-satisfied                  |
|---|--------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| (a) monies from Māori land                    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |
| (b) benefit from Māori land                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| (c) monies from Māori fisheries               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            |
| (d) benefit from Māori fisheries              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            |
| (e) monies from Māori forestry                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            |
| (f) monies from minerals/geothermal resources | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |

**11. Over the past 12 months, did you have contact with any of the following Māori organisations? If so, how satisfied were you?**

- |                                       | Yes                      | No                       | very satisfied           | satisfied                | neutral                  | dis-satisfied            | very dis-satisfied       |
|---------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| a) Iwi authority/Māori Trust Board/WT | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b) Te Puni Kokiri/Māori Affairs       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c) Māori Land Court                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d) Māori Women's Welfare League       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e) Māori wardens                      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| f) Māori congress                     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| g) NZ Māori Council                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| h) Marae committee                    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| i) Hahi Māori/Māori church/mission    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| j) Māori District Council             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**SHOWCARD 1**

**12. Over the past 12 months, did you do any of the following, and how often?**

- |                                       | no                       | once                                | few                      | several                  | >than once a month       |
|---------------------------------------|--------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|
| a) go to a beach to gather shell-fish | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b) go to a beach to gather kina       | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c) go out to pick puha                | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d) make rewena bread                  | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e) preserve kanga-piro; karengo       | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| f) help prepare a hangi               | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**13. Would you like to have more contact with Māori?**

- Yes       No       don't know/not worried

**Part 2: TE REO MĀORI - MĀORI LANGUAGE**

Now I would like to ask you some questions about you and Māori language.

**14. In which language(s) could you have a conversation about a lot of everyday things?**  
(tick as many as appropriate)

- a)  English      d)  NZ sign language  
 b)  Māori      e)  Other, please name \_\_\_\_\_  
 c)  Pacific Is. \_\_\_\_\_

**SHOWCARD 7**

**15. Appropriate to your age, what is your overall ability with Māori?**

- 1       2       3       4       5       6       7



**SHOWCARD 8**

16. Appropriate to your age, what is your ability at speaking Māori?

1  2  3  4  5  6

**SHOWCARD 9**

17. Appropriate to your age, how well do you understand Māori?

1  2  3  4  5  6

**SHOWCARD 3**

18. Are you satisfied with your level of te reo Māori?

1  2  3  4  5

**SHOWCARD 4**

19. How often do you use te reo Māori as your main language of communication in the following situations?

	1	2	3	4	5
a) at a marae	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) at home	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) at work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) around children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) with kaumātua	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) with family/whānau	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) at school/kōhanga, university, etc	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**SHOWCARD 5**

20. Is being able to speak / understand te reo Māori important to you?

1  2  3  4

20.1 How important do you think it is for te reo Māori to be used during these occasions.

	1	2	3	4
a) in Māori ceremonies eg. on marae	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) in public or civic ceremonies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) in public institutions eg. libraries, banks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

21. If you wanted to personally increase your ability to speak or understand te reo Māori, what would you do? (Tick as many as appropriate)

a) <input type="checkbox"/> enrol in a Māori language course	d) <input type="checkbox"/> talk to uncles, aunts, ext. whānau
b) <input type="checkbox"/> visit and learn from kaumātua and elders	e) <input type="checkbox"/> continue your present learning of te reo Māori
c) <input type="checkbox"/> pursue more opportunities to be around Māori speakers	f) <input type="checkbox"/> other, please explain

22. Over the past 12 months have you been learning to reo Māori/Māori language?

Yes  No (If No, go to Q.23)

**SHOWCARD 3**

22.1 Where were you learning te reo Māori during those 12 months and how satisfied were you with this form of learning?

	1	2	3	4	5
a) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**SHOWCARD 4**

23. How often do you read the following material written in Māori?

	1	2	3	4	5
a) children's books	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) work related material	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) bulletins e.g. He Muka, Toi Te Kupu	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

please describe: \_\_\_\_\_

**24. How often do you write in te reo Māori/Māori language for these purposes?**

- |  | 1                        | 2                        | 3                        | 4                        | 5                        |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| a) Assignments in Māori language courses | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b) Assignments in other courses          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c) Corresponding with friends            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d) Work                                  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e) Other please describe:                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**24.1 How often do you listen to and/or watch: 1 2 3 4 5**

- |                                    |                          |                          |                          |                          |                          |
|------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| a) Te Karere                       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b) Waka Huia                       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c) Other Māori language television | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d) Local Māori radio station       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**SHOWCARD 3**

**25. In general, how satisfied are you with the amount of Māori language broadcasting available to you?**

- |                            |                            |                            |                            |                            |
|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| 1 <input type="checkbox"/> | 2 <input type="checkbox"/> | 3 <input type="checkbox"/> | 4 <input type="checkbox"/> | 5 <input type="checkbox"/> |
| v. satisfied               | satisfied                  | neutral                    | dissatisfied               | v. dissatisfied            |

**25.1 In general, how satisfied are you with the quality of Māori language broadcasting available to you?**

- |                            |                            |                            |                            |                            |
|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| 1 <input type="checkbox"/> | 2 <input type="checkbox"/> | 3 <input type="checkbox"/> | 4 <input type="checkbox"/> | 5 <input type="checkbox"/> |
| v. satisfied               | satisfied                  | neutral                    | dissatisfied               | v. dissatisfied            |

**26. In your household, is Māori spoken \_\_\_\_\_ than 12 months ago**

- |  |  |
|--|--|
| a) <input type="checkbox"/> not at all     | c) <input type="checkbox"/> less often now |
| b) <input type="checkbox"/> more often now | d) <input type="checkbox"/> about the same |

**27. Up until you were 15 years old, what language did adults in your home mostly use when talking amongst themselves? (Choose one only)**

- |                                     |                                   |
|-------------------------------------|-----------------------------------|
| a) <input type="checkbox"/> English | c) <input type="checkbox"/> both  |
| b) <input type="checkbox"/> Māori   | d) <input type="checkbox"/> other |

**27.1 Up until you were 15 years old, what language did adults in your home mostly use when talking to you? (Choose one only)**

- |                                     |                                   |
|-------------------------------------|-----------------------------------|
| a) <input type="checkbox"/> English | c) <input type="checkbox"/> both  |
| b) <input type="checkbox"/> Māori   | d) <input type="checkbox"/> other |

**28. Do you think there is enough opportunity now for people who wish to learn te reo Māori/Māori language?**

- |  |  |
|--|--|
| a) <input type="checkbox"/> Yes                              | c) <input type="checkbox"/> don't know |
| b) <input type="checkbox"/> No please explain why not: _____ |  |

**28.1 Do you think there is enough opportunity now for people to use te reo Māori?**

- |  |  |
|--|--|
| a) <input type="checkbox"/> Yes                      | c) <input type="checkbox"/> don't know |
| b) <input type="checkbox"/> No please explain: _____ |  |

**Part 3: DEMOGRAPHICS** *I would like to ask you a few questions about yourself.*

**29.**  Male  Female  Other please specify \_\_\_\_\_

**30. What is your birthdate?**

dd/mm/yy

**31. Do other people live with you usually? (By usually I mean people who live with you more than 3 nights per week).**  Yes  No

**If Yes, who are they?**

- |  |                          |
|--|--------------------------|
| a) <input type="checkbox"/> Husband/Wife/Partner   | <input type="checkbox"/> |
| b) <input type="checkbox"/> Your children  | <input type="checkbox"/> |
| c) <input type="checkbox"/> How many of your children live with you?                                     | <input type="checkbox"/> |
| d) <input type="checkbox"/> Other relatives (other than your children, but including your grandchildren) | <input type="checkbox"/> |
| e) <input type="checkbox"/> How many other relatives live with you?                                      | <input type="checkbox"/> |
| f) <input type="checkbox"/> People other than your relatives   | <input type="checkbox"/> |
| h) <input type="checkbox"/> How many of these other people live with you?                                | <input type="checkbox"/> |

32. What is your marital status? (Please tick a box)
- a)  married d)  widowed  
 b)  divorced e)  single/never married  
 c)  separated
33. Are you currently in any paid employment?  Yes  No  
 33.1 How many hours do you USUALLY work each DAY?   hours
34. Which of the following categories best describe your CURRENT situation?
- 34.1  Paid worker  
 a) What is your main job? \_\_\_\_\_
- 34.2  A homemaker  
 a) What was your main paid job before becoming a homemaker? \_\_\_\_\_  
 b) What is your spouse/partner's main job? \_\_\_\_\_
- 34.3  A student  
 a) What is or was your parent's main job? Father \_\_\_\_\_ Mother \_\_\_\_\_
- 34.4  Unemployed  
 a) What was your main job before unemployment? \_\_\_\_\_
- 34.5  Retired  
 a) What was your main job before retiring? \_\_\_\_\_
- 34.6  Voluntary work  
 a) Please specify \_\_\_\_\_
- 34.7  Other  
 a) Please specify \_\_\_\_\_
35. How old were you when you left school?
36. What is the highest level of education that you have received? \_\_\_\_\_  
 Please tick **one** box only if you are currently attending one of these institutions.
- a) primary school, intermediate school   
 b) high school/secondary school   
 b.1) how many years have you spent at high school (form 3 onwards) years   
 c) polytechnic or similar   
 d) university
37. How many different schools have you ever attended?  
 Primary School   Secondary School
38. Do you or your family own the home you live in?  Yes  No  
 38a. Do you or your family rent the home you live in?  Yes  No
39. Do you own a car, van, truck or similar vehicle?  Yes  No
40. Do you receive an income from: (tick as many as apply)
- a)  wages / salary h)  dividends from Māori forests  
 b)  self employment i)  Treaty of Waitangi settlements  
 c)  government benefits (specify \_\_\_\_\_) j)  shares and dividends from personal investments  
 d)  Māori land  
 e)  Rents  
 f)  grants from whānau/hapū or iwi k)  Other, please specify: \_\_\_\_\_  
 g)  dividends from Māori fisheries l)  Refuse
41. If you are in paid employment or self-employed, is this employment:
- a)  full time c)  does not apply  
 b)  part-time d)   hours e)  refused
42. What was your total income for the last 12 months?
- Zero income  30,001 – 40,000  70,001 - 80,000  
 1 – 10,000  40,001 - 50,000  80,001 or more  
 10,001 – 20,000  50,001 - 60,000  Don't know  
 20,001 – 30,000  60,001 - 70,000  Refused
43. Do you have a community services card?  Yes  No, if no go to Q 44



- a) **How often do you use your card?** (*Prompt if required. Do you use it*)
- more than once a week     once a month     never
- once a week     every few months
- every few weeks     less than every 6 months

44. **Do you have private medical insurance?** (*e.g. Southern Cross, Aetna, National Mutual*)
- Yes     No

*Now I would like to ask you some questions about your childhood.*

45. **How many adults and children were in your household?**

Adults      Children

46. **What was you father's occupation?** \_\_\_\_\_

47. **What was your mother's occupation?** \_\_\_\_\_

48. **Who was your main caregiver?** \_\_\_\_\_

48.1 **If not mother or father, what was their occupation?** \_\_\_\_\_

49. **Before you went to high school, did your family own:**

- a) Car     Yes     No     Don't know
- b) TV     Yes     No     Don't know
- c) Telephone     Yes     No     Don't know
- d) Washing machine     Yes     No     Don't know

50. **Do you feel better off than your parents in terms of:**

- a) position in the community     Yes     No     Don't know     Refuse
- b) wealth (material standards)     Yes     No     Don't know     Refuse

#### Part 4: General Health Questionnaire (*self administered*)

*Have you recently?*

	1	2	3	4
	Better than usual	Same as usual	Worse than usual	Much worse than usual
51. Been feeling perfectly well	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>SHOWCARD 6</b>	Not at all	No more than usual	Rather more than usual	Much more than usual
52. Been feeling in need of a good tonic (drink)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
53. Been feeling run down and out of sorts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
54. Felt like you are ill	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
55. Been getting pains in your head	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
56. Been getting a feeling of tightness or pressure in your head	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
57. Been having hot or cold spells	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
58. Lost much sleep over worry	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
59. Had difficulty in staying asleep once you are off	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
60. Felt constantly under strain	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
61. Been getting edgy and bad tempered	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
62. Been getting scared or panicky for no good reason	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
63. Found everything getting on top of you	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
64. Been feeling nervous and strung up all the time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



65. Been managing to keep yourself busy and occupied	More than usual <input type="checkbox"/>	Same as usual <input type="checkbox"/>	Rather less than usual <input type="checkbox"/>	Much less than usual <input type="checkbox"/>
66. Been taking longer over the things you do	Quicker than usual <input type="checkbox"/>	Same as usual <input type="checkbox"/>	Longer than usual <input type="checkbox"/>	Much longer than usual <input type="checkbox"/>
67. Felt on the whole you were doing things well	Better than usual <input type="checkbox"/>	About the same <input type="checkbox"/>	Less well than usual <input type="checkbox"/>	Much less well <input type="checkbox"/>
68. Been satisfied with the way you've carried out your tasks	More satisfied <input type="checkbox"/>	About same as usual <input type="checkbox"/>	Less satisfied than usual <input type="checkbox"/>	Much less satisfied <input type="checkbox"/>
69. Felt that you are playing a useful part in things	More so than usual <input type="checkbox"/>	Same as usual <input type="checkbox"/>	Less so than usual <input type="checkbox"/>	Much less than usual <input type="checkbox"/>
70. Felt capable of making decisions about things	More so than usual <input type="checkbox"/>	Same as usual <input type="checkbox"/>	Less so than usual <input type="checkbox"/>	Much less capable <input type="checkbox"/>
71. Been able to enjoy your normal day to day activities	More so than usual <input type="checkbox"/>	Same as usual <input type="checkbox"/>	Less so than usual <input type="checkbox"/>	Much less than usual <input type="checkbox"/>
Have you recently:	Not at all	No more than usual	Rather more than usual	Much more than usual
72. Been thinking of yourself as a worthless person	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
73. Felt that life is entirely hopeless	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
74. Felt that life isn't worth living	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
75. Thought of the possibility that you might do away with yourself	Definitely not <input type="checkbox"/>	I don't think so <input type="checkbox"/>	Has crossed my mind <input type="checkbox"/>	Definitely have <input type="checkbox"/>
76. Found at times you couldn't do anything because your nerves were too bad	Not at all <input type="checkbox"/>	No more than usual <input type="checkbox"/>	Rather more than usual <input type="checkbox"/>	Much more than usual <input type="checkbox"/>
77. Found yourself wishing you were dead and away from it all	Not at all <input type="checkbox"/>	No more than usual <input type="checkbox"/>	Rather more than usual <input type="checkbox"/>	Much more than usual <input type="checkbox"/>
78. Found that the idea of taking your own life kept coming into your mind	Definitely not <input type="checkbox"/>	I don't think so <input type="checkbox"/>	Has crossed my mind <input type="checkbox"/>	Definitely has <input type="checkbox"/>

## Part 5: HEALTH SERVICES

Now I would like to talk about what you think about the Health Services

**SHOWCARD 10** (tick as many as apply)

79. Of the following groups who, if any, is/are responsible for the health and social services you use?

- |   |   |
|---|---|
| a) <input type="checkbox"/> A Māori group or organisation | d) <input type="checkbox"/> a community social service centre |
| b) <input type="checkbox"/> a hospital                    | e) <input checked="" type="checkbox"/> a private organisation |
| c) <input type="checkbox"/> a community health centre     | f) <input type="checkbox"/> don't know                        |

79.1 Are you registered with a GP (i.e. have a family doctor)?

- Yes       No       Don't know

**SHOWCARD 11a & 11b**

**80. Over the past 12 months how often did you \_\_\_\_\_, how satisfied were you with that treatment? *Frequency Number* *Satisfaction Number***

- |   |                          |                                     |                                     |
|---|--------------------------|-------------------------------------|-------------------------------------|
| 1) receive treatment from a GP                                | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |
| 2) receive treatment from/see a medical specialist            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 3) visit a naturopath   | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 4) receive advice or treatment from a nurse                   | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 5) visit a community health centre                            | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |
| 6) receive advice or treatment from a community health worker | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |
| 7) see a Māori healer   | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |
| 8) receive dental treatment                                   | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |
| 9) attend a health hui  | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |
| 10) attend a health seminar                                   | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |
| 11) have a prescription filled                                | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |

**81. During the past month, have you visited \_\_\_\_\_ for a health-related incident?**

- |  |                                     |                                     |
|--|-------------------------------------|-------------------------------------|
|  | <b>Yes</b>                          | <b>No</b>                           |
| <b>81.1 GP</b>                               | <input type="checkbox"/>            | <input type="checkbox"/>            |
| <b>81.2 What for:</b>                        |                                     |                                     |
| a) injury                                    | <input type="checkbox"/>            | <input type="checkbox"/>            |
| b) illness                                   | <input type="checkbox"/>            | <input type="checkbox"/>            |
| c) mental health                             | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| d) other (please specify): _____             |                                     |                                     |
| <b>81.3 Emergency Department (Hospital):</b> | <input type="checkbox"/>            | <input type="checkbox"/>            |
| a) injury                                    | <input type="checkbox"/>            | <input type="checkbox"/>            |
| b) illness                                   | <input type="checkbox"/>            | <input type="checkbox"/>            |
| c) mental health                             | <input type="checkbox"/>            | <input type="checkbox"/>            |
| d) other (please specify): _____             |                                     |                                     |
| <b>81.4 Māori Health Service</b>             | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| <b>81.5 What for?</b>                        |                                     |                                     |
| a) injury                                    | <input type="checkbox"/>            | <input type="checkbox"/>            |
| b) illness                                   | <input type="checkbox"/>            | <input type="checkbox"/>            |
| c) mental health                             | <input type="checkbox"/>            | <input type="checkbox"/>            |
| d) other (please specify): _____             |                                     |                                     |
| <b>81.6 24 Hour Accident &amp; Emergency</b> | <input type="checkbox"/>            | <input type="checkbox"/>            |
| <b>81.7 What for?</b>                        |                                     |                                     |
| a) injury                                    | <input type="checkbox"/>            | <input type="checkbox"/>            |
| b) illness                                   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) mental health                             | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| d) other (please specify): _____             |                                     |                                     |
| <b>81.8 Other (please specify): _____</b>    |                                     |                                     |
| <b>What for?</b>                             |                                     |                                     |
| a) injury                                    | <input type="checkbox"/>            | <input type="checkbox"/>            |
| b) illness                                   | <input type="checkbox"/>            | <input type="checkbox"/>            |
| c) mental health                             | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) other (please specify): _____             |                                     |                                     |

**SHOWCARD 12**

**82. Does anything stop you from using health services?  Yes  No (go to Q. 83)**

**82.1 Is it because of (Tick as many as possible):**

- |  |   |
|--|---|
| 1 <input checked="" type="checkbox"/> cost                       | 5 <input type="checkbox"/> no confidence that the service will help me? |
| 2 <input checked="" type="checkbox"/> distance                   | 6 <input checked="" type="checkbox"/> Other, specify: _____             |
| 3 <input checked="" type="checkbox"/> cultural factors           |   |
| 4 <input checked="" type="checkbox"/> not knowing of the service |   |



**Part 6: SOCIAL SUPPORT** Please tick ONE BOX for EACH question in this section

83. How many close friends do you have?  
 None (go to Q86)  1  2  3  4  More
84. How many of these friends do you see at least once a month?  
 1  2  3  4  More
85. How much of your free time (outside of work or classes) do you spend with one or more of your close friends?  
 a)  all most all of it c)  some of it  
 b)  most of it d)  only a little bit of it
86. How often do you go to religious meetings / services?  
 a)  more than once a week d)  less than once a month  
 b)  once a week e)  never or almost never  
 c)  1 to 3 times a month
87. How many hours EACH WEEK do you participate in any groups such as social/work, church-connected, self-help, public service or community groups?
88. How many children do you have? (if none go to Q. 91)
89. How many children are living?
90. How many of your children do you see at least once a month?
91. Apart from children how many relatives do you have that you feel close to?
92. How many close relatives do you see at least once a month?
93. Is there anyone special you know that you feel very close to; someone you feel you can share confidences and feelings with?  Yes  No (if no go to Q.95)
94. How often do you see or talk with this person?  
 daily  monthly  once a year or less  
 weekly  several times a year
95. Would you say that the neighbourhood you live in has a strong, very little sense of community or something in between? ('Community' means people are actively involved in community affairs, and that they tend to trust one another). Please tick one box only.  
 strong sense of community  something in between  
 very little sense of community

**Part 7: BACKGROUND ISSUES**

**SHOWCARD 13**

96. During the past 12 months, have you been:
- |                       | 1                        | 2                        | 3                        | 4                        | 5                        | refused                  |
|-----------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| a) Physically abused  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b) Verbally abused    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c) Emotionally abused | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d) Sexually abused    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
97. As a child were you ever:
- |                       | 1                        | 2                        | 3                        | 4                        | 5                        | refused                  |
|-----------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| a) Physically abused  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b) Verbally abused    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c) Emotionally abused | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d) Sexually abused    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
98. Have you been in trouble with the law (police)?  Yes  No  Refused  
 If yes, when were you last in trouble? \_\_\_\_\_
99. Have you ever been in trouble with any other authoritative figure?  
 Yes  No  
 If yes, with whom? \_\_\_\_\_
100. During the past month, have there been any changes in your personal relationships?  
 Yes  No

Please specify \_\_\_\_\_

## Part 8: MENTAL HEALTH SHOWCARD 14

101.	I feel tense or wound up	Most of the time	A lot of the time	Time to time, occasionally	Not at all
102.	I still enjoy the things I used to enjoy	Definitely as much	Not quite as much	Only a little	Hardly at all
103.	I get a sort of frightened feeling as if something awful is going to happen	Very definitely & quite badly	Yes, but not badly	A little, but it doesn't worry me	Not at all
104.	I can laugh & see the funny side of things	As much as I always could	Not quite as much now	Definitely not as much now	Not at all
105.	Worrying thoughts go through my mind	A great deal of the time	A lot of the time	Not too often	Very little
106.	I feel cheerful	Never	Not often	Sometimes	Most of the time
107.	I can sit at ease & feel relaxed	Definitely	Usually	Not often	Not at all
108.	I feel as if I am slowed down	Nearly all the time	Very often	Sometimes	Not at all
109.	I get sort of frightened feeling like butterflies in the stomach	Not at all	Occasionally	Quite often	Very often
110.	I have lost interest in my appearance	Definitely	I don't take as much care as I should	I may not take quite as much care	I take just as much care as ever
111.	I feel restless as if I have to be on the move	Very much indeed	Quite a lot	Not very much	Not at all
112.	I look forward with enjoyment to things	As much as I ever did	Rather less than I used to	Definitely less than I used to	Hardly at all
113.	I get sudden feelings of panic	Very often indeed	Quite often	Not very often	Not at all
114.	I can enjoy a good book or radio or television program	Often	Sometimes	Not often	Very Seldom

115. Have you ever been diagnosed with a mental health or psychiatric disorder?

Yes                       No                       Don't know

If yes, please specify \_\_\_\_\_

116. Have you ever been under the care of mental health services?

Yes                       No                       Don't know

If yes, please specify \_\_\_\_\_

117. Are you currently under the care of a mental health service?

Yes                       No                       Don't know

If yes, please specify \_\_\_\_\_

118. Have you ever taken medication for a mental disorder?

Yes                       No                       Don't know

If yes, please specify \_\_\_\_\_

119. Are you currently taking any medication?

Yes                       No                       Don't know

If yes, please specify \_\_\_\_\_

120. Is there a whānau/family history of mental disorder? (1: Mum/Dad/Sibling/G.parent)

Yes                       No                       Don't know

121. Did you ever grow up with someone with a mental disorder?

Yes                       No                       Don't know

122. Is there a family history of self-harm?

Yes                       No                       Don't know

123. Did you ever grow up with someone who self harmed?

Yes                       No                       Don't know



## Part 9: SUBSTANCE USE *Alcohol and Other Drugs*

124. Have you ever drunk alcohol once a month or more?  
 Yes  No (if no, go to Q. 133)
125. Do you currently drink alcohol once a month or more?  
 Yes  No (if no, go to Q. 133)
126. About how often do you drink alcohol?  
 6 - 7 days a week  2 - 3 days a week  once every 2 weeks  
 4 - 5 days a week  once a week  once a month

### SHOWCARD 15

For the next 2 questions please refer to the following guide

127. On an average day when you drink alcohol how many drinks would you usually have in total?   drinks  refused
128. In the past 3 months, what is the largest number of drinks that you have had in one day.   Drinks  refused
129. Have you ever felt you should cut down on your drinking?  Yes  No  Refused
130. Have people annoyed you by criticising your drinking?  Yes  No  Refused
131. Have you felt bad or guilty about your drinking?  Yes  No  Refused
132. Have you ever had a drink first thing in the morning to steady your nerves or get rid of a hangover?  Yes  No  Refuse
133. During the past 12 months how often did you use marijuana (grass, pot, cannabis, hashish, oil or cookies)?  did not use  once a month  
 once a week  more than once a week  
 less than once a month  once every 2 weeks  daily
134. During the past 12 months, how often did you use other illegal drugs (drugs not prescribed by your doctor, bought from a chemist) e.g. mushrooms, cocaine, LSD, uppers, downers, heroine, morphine.  did not use  once a month  
 once a week  less than once a month  once every 2 weeks  
 daily  more than once a week

## Part 10: SUICIDALITY

Please look at SHOWCARD 16. Experiences are listed at the top of this page ABC.

135. Did experience A ever happen to you?  Yes  No  Don't know  
(If no, skip to Q 137)  
a) How old were you the first time this happened? \_\_\_\_\_ Yrs old
136. Did experience A happen to you in the past 12 months?  
 Yes  No (If no, go to Q137)  don't know  
a) How old were you the last time this experience happened to you? \_\_\_ Yrs old
- Now look at the second of the three experiences on the list, Experience B.
137. Did experience B ever happen to you?  Yes  No  Don't know  
(If no, go to Q 139)  
a) How old were you the first time this happened? \_\_\_\_\_ Yrs old
138. Did experience B happen to you in the past 12 months?  
 Yes  No (If no, go to Q 139)  Don't know  
a) how old were you the last time this experience happened to you? \_\_\_\_\_ Yrs old
- Look at the third of the three experiences on the list, Experience C (If no skip to Q 145)
139. Did experience C ever happen to you?  Yes  No  Don't know  
b) how many times did Experience C happen to you in your lifetime? \_\_\_ Times.  
c) how old were you the first time this happened? \_\_\_\_\_ Yrs old



## APPENDIX FIVE CONTROL QUESTIONNAIRE

## BIBLIOGRAPHY

- Adams, D M, J C Overholser & K L Lehnert (1994). Perceived family functioning and adolescent suicidal behaviour. *Journal of the American Academy of Child & Adolescent Psychiatry* 33: 498-507.
- Aghanwa, H S (2000). The characteristics of suicide attempters admitted to the main general hospital in Fiji-Islands. *Journal Psychosomatic Research* 49: 439-445.
- Aghanwa, H S (2001). Attempted suicide by drug overdose and by poison-ingestion methods seen at the main general hospital in the Fiji islands: A comparative study. *General Hospital Psychiatry* 23(5): 266-271.
- Aiyappan, A, & C J Jayadev (1958). *Society in India*. Madras: Social Science Publication.
- Ajwani S, Blakely T, Robson B, Tobias M, Bonne M. 2003. Decades of Disparity: Ethnic mortality trends in New Zealand 1980-1999. Wellington: Ministry of Health and University of Otago.
- Alderidge, D, & K St John (1991). Adolescent and pre-adolescent suicide in Newfoundland and Labrador. *Canadian Journal of Psychiatry* 36: 432-436.
- Alderson MR. (1974). Self-poisoning--what is the future? *Lancet*;1(7865):1040-3.
- Alderson P, S Green, & JPT Higgins, editors. (2004). Assessment of Study Quality. *Cochrane Reviewers' Handbook* 4.2.2 [updated March 2004]; Section 6. In: *The Cochrane Library*, Issue 1, 2004. Chichester, UK: John Wiley & Sons, Ltd.
- American Association of Suicidology (1998). USA Suicide. Accessed 5 February 2001, <http://www.suicidology.org/index.htm>.
- Andrews, J A, & P M Lewinsohn (1992). Suicidal attempts among older adolescents: prevalence and co-occurrence with psychiatric symptoms. *Journal of the American Academy of Child & Adolescent Psychiatry* 31: 655-662.
- Arango, V, M D Underwood, A V Gubbi & J J Mann (1995). Localized alterations in pre- and post-synaptic serotonin binding sites in the ventrolateral prefrontal cortex of suicide victims. *Brain Research* 688: 121-133.
- Arensman E, A J Kerkhof, M W Hengeveld, & J D Mulder. (1995). Medically treated suicide attempts: a four year monitoring study of the epidemiology in The Netherlands. *J Epidemiol Community Health*; 49(3):285-9.
- Asarnow, J R, & D Guthrie (1989). Suicidal behaviour, depression and hopelessness in child psychiatric inpatients: A replication and extension. *Journal of Clinical Child Psychology* 18: 129-136.
- Asberg, M, P Nordstrom & L Traskman-Bendz (1986). Cerebrospinal fluid studies. In J J Mann & M Stanley (Eds), *Psychobiology of Suicidal Behaviour*. New York: New York Academy of Sciences.
- Assembly of First Nations (1996). *First Nations Health Bulletin*, 5.
- Australian Bureau of Statistics (1994). *Suicides, Australia 1982-1992*. ABS Catalogue No 3309.0.
- Australian Bureau of Statistics (1999). *Causes of Death, Australia*. ABS Catalogue No 3303.0.
- Australian Bureau of Statistics (2001). *Hospital Statistics: Aboriginal and Torres Strait Islander Australians 1999-2000*.
- Australian Government Publishing Service. *Royal Commission into Aboriginal Deaths in Custody. National report, vol 2*. Canberra. Accessed January 2003, <http://www.austlii.edu.au/au/special/rsjproject/rsjlibrary/rciadic/national/vol2/index.html>
- Bagley, C, & P Tremblay (1997). Suicidal behaviours in homosexual and bisexual males. *Crisis* 18: 24-34.
- Bagley, C, F Bolitho & L Bertrand (1995). Mental health profiles, suicidal behaviour, and community sexual assault in 2,112 Canadian adolescents. *Crisis* 16: 126-131.
- Barracrough, B M (1972). Are the Scottish and English suicide rates really different? *British Journal of Psychiatry* 120(556): 267-273.
- Barwick, H (1992). *Youth Suicide Prevention Project: Workshop Report and Literature Review*. Wellington: Department of Health.



- Batt A, Depoivre C, Eudier F, Tron I, Trehony A. (1994) The epidemiology of parasuicide in Brittany, France 1990. In: Kerkhof A, Schmidtke A, Bille-Brahe U, De Leo D, Lönnqvist J, editors. *Attempted Suicide in Europe*. Leiden: DSWO Press:246-252.
- Baume, P J M., C H Cantor & P G McTaggart (1997). *Suicides in Queensland: A Comprehensive Study 1990-1995*. Australian Institute for Suicide Research and Prevention.
- Beautrais, A L (2003). Suicide in New Zealand II: a review of risk factors and prevention. *New Zealand Medical Journal* 116 (1175): 1-13.
- Beautrais, A L (2000). Risk factors for suicide and attempted suicide among young people. *Australian & New Zealand Journal of Psychiatry* 34(3): 420-436.
- Beautrais, A L (2001). Suicides and serious suicide attempts: Two populations or one? *Psychological Medicine* 31(5): 837-845.
- Beautrais, A L, C A Coggan, D M Fergusson & L Rivers (1997). *The Prevention, Recognition and Management of Young People at Risk of Suicide: Development of Guidelines for Schools*. Wellington: National Health Committee, Ministry of Health.
- Beautrais, A L, P R Joyce & R T Mulder (1994). Childhood sexual abuse and risks of suicidal behaviour. In P R Joyce, R T Mulder, M A Oakley-Browne, J D Sellman & W G A Watkins (Eds), *Development of Personality & Psychopathology*. Christchurch: Department of Psychological Medicine, Christchurch School of Medicine, 141-148.
- Beautrais, A L, P R Joyce & R T Mulder (1996). Access to firearms and the risk of suicide: A case control study. *Australian & New Zealand Journal of Psychiatry* 30: 741-748.
- Beautrais, A L, P R Joyce & R T Mulder (1996). Risk factors for serious suicide attempts among youth aged 13 through 24 years. *Journal of the American Academy of Child & Adolescent Psychiatry* 35: 1174-1182.
- Beautrais, A L, P R Joyce & R T Mulder (1997). Precipitating factors and life events in serious suicide attempts among youth aged 13 through 24 years. *Journal of the American Academy of Child & Adolescent Psychiatry* 36: 1543-1551.
- Beautrais, A L, P R Joyce & R T Mulder (1998). Youth suicide attempts: A social and demographic profile. *Australian & New Zealand Journal of Psychiatry* 32: 349-357.
- Beautrais, A L, P R Joyce & R T Mulder (1998a). Cannabis abuse and serious suicide attempts. *Psychological Medicine* 28: 209-218.
- Beautrais, A L, P R Joyce & R T Mulder (1998b). Personality traits and cognitive styles as risk factors for serious suicide attempts among young people. *Suicide & Life-Threatening Behavior* 32: 349-357.
- Beautrais, A L, P R Joyce & R T Mulder (1998c). Psychiatric illness in a New Zealand sample of young people making serious suicide attempts. *New Zealand Medical Journal* 111: 44-48.
- Beautrais, A L, P R Joyce & R T Mulder (1998d). Unemployment and serious suicide attempts. *Psychological Medicine* 28(1): 209-218.
- Beautrais, A L, P R Joyce & R T Mulder (1999). Cannabis abuse and serious suicide attempts. *Addiction* 94: 1155-1164.
- Beautrais, A L, P R Joyce, R T Mulder, D M Fergusson, B J Deavoll & S K Nightingale (1996). Prevalence and comorbidity of mental disorders in persons making serious suicide attempts: A case control study. *American Journal of Psychiatry* 153(8): 1009-1014.
- Bechtold, D W (1994). Indians adolescent suicide: Clinical and developmental considerations. *Calling from the Rim: Suicidal Behavior among American Indian and Alaska Native Adolescents*. American Indian & Alaska Native Mental Health Research Monograph Series 4: 71-80
- Beck, A T & R A Steer (1991). *Beck Scale for Suicide Ideation (BSI)*. USA: The Psychological Corporation.
- Beck, A T, J H Davis, C J Frederick, S Perlin, A D Pokorny, R E Schulman, R H Seiden & B J Wittlin (1972). Classification and nomenclature. In H L P Resnik & B C Hathorne (Eds), *Suicide Prevention in the Seventies*. Washington: Government Printing Office, 7-12.
- Bertolote, J M & A Fleischmann (2002) A global perspective on the epidemiology of suicide. *Suicidologi* årgang 7, Nr.2. <http://www.med.uio.no/iasp/bertolote.pdf>. Accessed 6 January 2005.
- Beck, A T, R Beck & M Kovacs (1975). Classification of suicidal behaviours: Quantifying intent and medical lethality. *American Journal of Psychiatry* 132: 285-287.
- Beck, A, D Schuyler & I Herman (1974). Development of suicidal intent scales. In A Beck, H Resnik & D Lettieri (Eds), *The Prediction of Suicide*. Bowie, Maryland: Charles Press.

- Befrienders International (1995). Study of Suicide Prevention within the European Community. London: European Commission.
- Bell, C C (1986). Impaired black health professionals: Vulnerabilities and treatment approaches. *Journal of National Medical Association* 78(10): 925-930.
- Bell, C C, & D C Clark (1998). Adolescent suicide. *Paediatric Clinics of North America* 45(2): 365-380.
- Benjaminsen, S, G Krarup & R Layritsen (1990). Personality, parental rearing behaviour and parental loss in attempted suicide: A comparative study. *Acta Psychiatrica Scandinavica* 82: 389-397.
- Berlin, I N (1987). Suicide among American Indian adolescents: An overview. *Suicide & Life Threatening Behaviour* 17(3): 218-231.
- Berry, J W, & U Kim (1988). Acculturation and mental health. In P Dasen, J W Berry & N Sartorius (Eds), *Health and Cross-Cultural Psychology: Towards Application*. London: Sage, 207-236.
- Best, E (1899). Notes on Māori mythology. *Journal of Polynesian Society* (VIII): 93-121.
- Bille-Brahe U, Schmidtke A, Kerkhof A, De Leo D, Lönnqvist J, Platt S. Background and introduction to the study. In: Kerkhof A, Schmidtke A, Bille-Brahe U, De Leo D, Lönnqvist J, editors. *Attempted Suicide in Europe*. Leiden: DSWO Press, 1984:3-15.
- Biles, D, & D McDonald (1992). Deaths in Custody, Australia, 1980-1989. Canberra: Australian Institute of Criminology.
- Birkmayer, J, & D Hemenway (1999). Minimum-age drinking laws and youth suicide, 1970-1990. *American Journal of Public Health* 89: 1365-1368.
- Bjelland, I, A A Dahl, T T Haug & D Neckelmann (2002). The validity of the Hospital Anxiety and Depression Scale: An updated literature review. *Journal of Psychosomatic Research* 52(2): 69-77.
- Bland, R C, R J Dyck, S C Newman & H Orn (1998). Attempted suicide in Edmonton. In A A Leenaars, S Wenckstern, I Sakinofsky, R J Dyck, M J Kral & R C Bland (Eds), *Suicide in Canada*. Toronto: University of Toronto Press.
- Bostwick, J M, & V S Pankratz (2000). Affective disorders and suicide risk: A re-examination. *American Journal Psychiatry* 157: 1925-1932.
- Boyce, P, M A Oakley-Brown & S Hatcher (2001). The problem of deliberate self-harm. *Current Opinion in Psychiatry* 14: 107-111.
- Boykin, A W (1983). The academic performance of Afro-American children. In J Spence (Ed), *Achievement and Achievement Motives*. San Francisco: Freeman, 324-371.
- Boykin, A W (1986). The triple quandary and the schooling of Afro-American children. In U Neisser (Ed), *The School Achievement of Minority Children*. Hillsdale, New Jersey: Erlbaum, 57-92.
- Boykin, A W, & C M Ellison (2001). The multiple ecologies of black youth socialization: An Afrigraphic analysis. In R Taylor (Ed), *African American Youth: Their Social and Economic Status in the United States*. Westport, Connecticut: Greenwood Press.
- Brennan, A (2001) The Epidemiology of Parasuicide in the EU. EUROSAVE Technical Report #4.
- Brennan, A (2001a). Data sources for Parasuicide. EUROSAVE Technical Report #3.
- Brennan, A (2001b). Parasuicide in Europe. EUROSAVE Technical Report #2.
- Brent, D A, D J Kolko, M E Wartella, M B Boylan, G Moritz, M Baugher & J P Zelenak (1993). Adolescent psychiatric inpatients' risk of suicide attempt at 6-month follow-up. *Journal of the American Academy of Child & Adolescent Psychiatry* 32(1): 95-105.
- Brent, D A, J Bridge, B Johnson & J Connolly (1996). Suicidal behaviour runs in families. *Archives of General Psychiatry* 53: 1145-1152.
- Brent, D A, J A Perper, C E Goldstein, D J Kolko, M J Allan, C J Allman & J P Zelenak (1988). Risk factors for adolescent suicide: A comparison of adolescent suicide victims with suicidal inpatients. *Archives of General Psychiatry* 45: 581-588.
- Brent, D A, J A Perper, D J Kolko & J P Zelenak (1988). The psychological autopsy: Methodological considerations for the study of adolescent suicide. *Journal of the American Academy of Child & Adolescent Psychiatry* 27(3): 362-366.
- Brent, D A, J A Perper, G Moritz, C Allman, S A Friend, C Roth, J Schweers, L Balach & M Baugher (1993). Psychiatric risk factors for adolescent suicide: A case control study. *Journal of the American Academy of Child & Adolescent Psychiatry* 32: 521-529.
- Brent, D A, J A Perper, G Moritz, L Liotus, J Schweers, L Balach & C Roth (1994). Familial risk factors for adolescent suicide: A case-control study. *Acta Psychiatrica Scandinavica* 89: 52-58.

- Bronisch T, & HU Wittchen. (1994) Suicidal ideation and suicide attempts: comorbidity with depression, anxiety disorders, and substance abuse disorder. *Eur Arch Psychiatry Clin Neurosci*;244(2):93-8.
- Brown, D R, & L E Gary (1987). Stressful life events, social support networks, and the physical and mental health of urban Black adults. *Journal of Human Stress* (Winter): 165-174.
- Brown, G L, & F K Goodwin (1986). Cerebrospinal fluid correlates of suicide attempts and aggression. *Annals of the New York Academy of Sciences* 487: 175-188.
- Brown, L, J Overholser, A Spirito & G Fritz (1991). The correlates of planning in adolescent suicide attempts. *Journal of the American Academy of Child & Adolescent Psychiatry* 30: 95-99.
- Brown, P (1997). No way out. *New Scientist* 153(2074): 34.
- Bucca, M, M Ceppi, P Peloso, M Archellasi, D Mussi & P Fele (1994). Social variables and suicide in the population of Genoa, Italy. *Comprehensive Psychiatry* 35: 64-69.
- Buchanan, W J. (1991). A year of intentional poisoning in Christchurch. *New Zealand Medical Journal*. 104(923): 470-472.
- Bureau of Health Statistics (2001). Suicide and Self-inflicted Injury in Massachusetts: 1996-1998. Massachusetts: Research & Evaluation Bureau of Family and Community Health, Department of Public Health.
- Bureau of Justice Statistics (2001). Homicide Victimization, 1950-1999. US Department of Justice. Accessed 12 October 2001, <http://www.ojp.usdoj.gov/bjs>.
- Burville, P W (1975). Attempted suicide in the Perth statistical division 1971-1972. *Australian & New Zealand Journal of Psychiatry* 9: 273-279.
- Bush, J A (1976). Suicide and Blacks. *Suicide & Life-Threatening Behavior* 6: 216-222.
- Butcher, M. (2003) "What is Māori? Who is Pākehā?" *North and South*, August, pp. 37-47.
- Butler, G C, (1965). Incidence of suicide among ethnic groups of the Northwest Territories and Yukon Territory. *Medical Services Journal of Canada* 21(4): 252-256.
- Cairns J. (1978). *Cancer: Science and Society*. San Francisco: WH Freeman and Co.
- Callister, P. (2003) "Ethnicity measures, intermarriage and social policy", paper presented at the Connecting Policy, Research and Practice Conference, Wellington, 29-30 April.
- Campos, J J, D L Mumme, R Kermoian & R G Campos (1994). A functionalist perspective on the nature of emotion. In N A Fox (Ed), *The Development of Emotion Regulation*. Monographs of the Society for Research in Child Development 59(2-3, Serial No 240).
- Canino, G, & P Guamaccia (1997). Methodological challenges in the assessment of Hispanic children and adolescents. *Applied Development Science* 1: 124-134.
- Canino, G, & R E Roberts (2001). Suicidal behaviour among Latino youth. *Suicide & Life-Threatening Behavior* 31 (National Suicide Prevention Conference Background Papers): 122-131.
- Canto, C, & K Neulinger (2000). The epidemiology of suicide and attempted suicide among young Australians. *Australian & New Zealand Journal of Psychiatry* 34(3): 370-387.
- Cantor, C H, & P G McTaggart (1997). Under-reporting of Suicide: Ambiguity and Ambivalence., <http://www.health.vic.gov.au/mentalhealth/publications/suicide/chapt3.pdf> Accessed February 2003 (under submission).
- Cantor, C H, & P J Slater (1997). A regional profile of suicide in Queensland. *Australian & New Zealand Journal of Public Health* 21: 181-186.
- Caracciolo S, Abbati L, Casoli R, Conti V, Fabbri D, Jonus A, Tomelli A, Tugnoli S, & Crepet P. (1994). Parasuicide in Emilia-Romagna, Italy 1989-1992. In: Kerkhof A, Schmidtke A, Bille-Brahe U, De Leo D, Lönnqvist J, editors. *Attempted suicide in Europe*. Leiden: DSWO press, 1994:121-136.
- Carlson, G, & D Cantwell (1982). Suicidal behaviour and depression in children and adolescents. *Journal of the American Academy of Child & Adolescent Psychiatry* 21: 361-368.
- Cavan, R S (1965) *Suicide*. New York: Russell & Russell. The University of Chicago Sociological Series.
- Cawte, J (1964). Australian ethnopsychiatry in the field: A sampling in North Kimberley. *Medical Journal of Australia* 1: 467-472.
- Center for Disease Control and Prevention, National Center for Injury Prevention & Control (2001). Fact Sheet: Nonfatal Self-Inflicted Injuries. *Morbidity & Mortality Weekly Report*. Atlanta. <http://www.cdc.gov/od/oc/media/pressrel/fs020524b.htm>.

- Centers for Disease Control and Prevention (1998). Suicide prevention evaluation in a Western Athabaskan American Indian Tribe: New Mexico, 1988-1997. *Morbidity & Mortality Weekly Report* 47(13): 257-261.
- Chapple, S. (2000) "Māori Socio-economic Disparity", paper for the Ministry of Social Policy seminar, 15 September.
- Chen, L, A Kleinman & N Ware (1994). *Health and Social Change in International Perspective*, Boston: Harvard School of Public Health.
- Cheng, A T A, & C Lee (2000). Suicide in Asia and the Far East. In K Hawton & K Van Heeringen (Eds), *The International Handbook of Suicide and Attempted Suicide*. England: John Wiley & Sons.
- Chishti, P (2001). Suicide and Parasuicide: An Overview of the Published Literature: Epidemiology, Causes and Prevention. EUROSAVE Technical report #1.
- Chishti, P (2001a). Suicide: The Epidemiology of suicide in Europe. EUROSAVE Technical report #5.
- Chishti, P (2001b). Suicide: The effects of unemployment and alcohol consumption. EUROSAVE Technical report #6.
- Chishti, P (2001c). Key sources for suicide mortality data. EUROSAVE Technical report #7.
- Clarke, D C, & A E Goebel-Fabbri (1998). Lifetime risk of suicide in major affective disorders. In D Jacobs (Ed), *Harvard Medical School Guide to Assessment and Intervention in Suicide*. San Francisco, California: Jossey-Bass, 270-286.
- Clarke, D C, & S L Horton-Deutsch (1992). Assessment in absentia: The value of the psychological autopsy method for studying antecedents of suicide and predicting future suicides. In R W Maris, A L Berman, J T Maltzberger & R I Yufit (Eds), *Assessment and Prediction of Suicide*. New York: Guilford Press, 144-182.
- Clarke, V A, C J Frankish & L W Green (1997). Understanding suicide among indigenous adolescents: a review using the PRECEDE model. *Injury Prevention* 3(2): 126-134.
- Clayer, J R, & A S Czechowicz (1991). Suicide by Aboriginal people in South Australia: Comparison with suicide deaths in the total urban and rural populations. *Medical Journal of Australia* 154: 683-685.
- Clayton, D. & M Hills (1993) *Statistical Models in Epidemiology*. Oxford Science Publication. Oxford.
- Cocarro, E F, L J Siever, H M Klar, G Maurer, K Cochrane, T B Cooper, R C Mohs & K L Davis (1989). Serotonergic studies in patients with affective and personality disorders: correlates with suicidal and impulsive aggressive behaviour. *Archives of General Psychiatry* 46: 587-599.
- Coggan, C (1997). Risk taking behaviours among a sample of New Zealand adolescents. Paper presented at the Public Health Association Conference, Hamilton, New Zealand.
- Coggan, C (1997). Suicide and attempted suicide in New Zealand: A growing problem for young males. *NZ Public Health Report* 4(7): 49-51.
- Coggan, C A, J L Fanslow & R N Norton (1995). *Intentional Injury in New Zealand: Analysis and Monitoring*. Report No 4. Wellington: Public Health Commission: Rangapu Hauora Tumatanui and Injury Prevention Research Centre: Te Pu Taki Aukati Whara.
- Coggan, C, & R Norton (1994). Reducing self-directed harm (suicide and attempted-suicide) among young people: A public health approach? *Community Mental Health in New Zealand* 8(2): 26-31.
- Coggan, C, B Disley, P Patterson & R Norton (1997). Risk taking behaviours among a sample of New Zealand adolescents. *Australian & New Zealand Journal of Public Health* 21: 455-461.
- Coggan, C, P Patterson & J Fill (1997). Suicide: Qualitative data from focus group interviews with youth. *Social Science Medicine* 45(10): 1563-1570.
- Colson, C (1972). Neuroticism, extraversion and repression-sensitization in suicidal college students. *British Journal of Social & Clinical Psychology* 11: 88-89.
- Comer, J P (1973). Black suicide: A hidden crisis. *Urban Health* 2: 41-44.
- Commonwealth Department of Health & Family Services, (1997). *Youth suicide in Australia: a background monograph*, 2nd Edition. AGPS.
- Conwell, Y, & R E Henderson (1996). Neuropsychiatry of suicide. In B S Fogel, R B Schiffer & S M Rao (Eds), *Neuropsychiatry*. Baltimore, Maryland: Williams & Wilkins, 485-521.
- Cooper, B, & H G Morgan (1973). *Epidemiological Psychiatry*. Springfield: Thomas.
- Cooper, J (1999). Ethical issues and their practical application in a psychological autopsy study of suicide. *Journal of Clinical Nursing* 8(4): 467-475.



- Coupe, N M (1993). The variability of zooplankton at Leigh Marine Reserve. Masters of Science Thesis, University of Auckland.
- Coupe, N M (1999). Tamariki me Rangatāhi Whakamomori. A report prepared for the Ministry of Health. Wellington.
- Coupe, N M (2000a). Māori Attempted Suicide: A Case Control Study in Auckland, New Zealand. Tomaiora Seminar Series. Auckland: Department of Māori & Pacific Health, University of Auckland.
- Coupe, N M (2000b). Māori suicide prevention in Aotearoa/New Zealand. *Pacific Health Dialogue: Journal of Community Health & Clinical Medicine for the Pacific* 7(1): 25-28.
- Coupe, N M (2000c). The epidemiology of Māori suicide in Aotearoa/New Zealand. *South Pacific Journal of Psychology* 12(1): 1-12.
- Coupe, N M (2001). Keeping your supervisors HAPPY: Māori epidemiological PhD. Paper presented at Hui Whakapiripiri, 10 September 2001, Ohinemutu Marae, Rotorua.
- Cram, F (1993). Ethics in Māori research. In L W Nikora (Ed), *Cultural Justice and Ethics. Proceedings of a symposium held at the Annual Conference of the New Zealand Psychological Society, University of Victoria, Wellington, 23-24 August 1993*, 31-33.
- Crombie, I K (1990). Can changes in the unemployment rates explain the recent changes in suicide rates in developed countries? *International Journal of Epidemiology* 19: 412-416.
- Crombie, I K (1990). Suicide in England and Wales and in Scotland: An examination of divergent trends. *British Journal of Psychiatry* 157: 529-532.
- Crosby, A E, M P Cheltenham & J J Sacks (1999). Incidence of suicidal ideation and behaviour in the US, 1994. *Suicide & Life Threatening Behaviour* 29: 131-140.
- Cunningham, C., M. Durie, D. Fergusson et al. (2002) "Living standards of older Māori", Ministry of Social Development, Wellington.
- Davis, A T, & R J Kosky (1991). Attempted suicide in Adelaide and Perth: Changing rates for males and females, 1971-1987. *Medical Journal of Australia* 154: 666-670.
- De Leo D, Fantinato S. (1994). The epidemiology of attempted suicide in Padua, Italy 1989-1991. In: Kerkhof A, Schmidtke A, Bille-Brahe U, De Leo D, Lönnqvist J, editors. *Attempted suicide in Europe*. Leiden: DSWO Press, 107-119.
- de Wilde, E J, C W M Kienhorst, R F W Diekstra & W H G Wolters (1992). The relationship between adolescent suicidal behaviour and life events in childhood and adolescence. *American Journal of Psychiatry* 149: 45-51.
- de Wilde, E J, C W M Kienhorst, R F W Diekstra & W H G Wolters (1993). The specificity of psychological characteristics of adolescent suicide attempters. *Journal of the American Academy of Child & Adolescent Psychiatry* 32: 51-59.
- de Wilde, E J, I C Kienhorst, R F W Diekstra & W H G Wolters (1992). The relationship between adolescent suicidal behavior and life events in childhood and adolescence. *American Journal of Psychiatry* 149: 45-51.
- Deavoll, B J, R T Mulder, A L Beautrais & P R Joyce (1993). One hundred years of suicide in New Zealand. *Acta Psychiatrica Scandinavica* 87(2): 81-85.
- Department of Corrections and Te Puni Kokiri (1996). Report of the Māori Suicide Review Group. Wellington.
- Department of Health and Aged Care (1999). *National Youth Suicide Prevention Strategy: Setting the Evidence-based Research Agenda for Australia (A Literature Review)*. Canberra: Department of Health and Aged Care, Commonwealth of Australia. <http://www.nhmrc.health.gov.au/publicat/synposes/mh12syn/htm>. Accessed December 2002.
- Detsky, A S, C D Naylor, K O'Rourke, A J McGreer & K A L'Abbe (1992). Incorporating variations in the quality of individual randomized trials into meta-analysis. *Journal Clinical Epidemiology* 45: 255-265.
- Devanesen, D, M Furber, D Hampton, M Honari, N Kinmonth & H G Peach (1986). *Health Indicators in the Northern Territory*. Northern Territory, Australia: Department of Health.
- Deykin, E Y, & S L Buka (1994). Suicidal ideation and attempts among chemically dependent adolescents. *American Journal of Public Health* 84: 634-639.
- Diekstra R F W (1996). The epidemiology of suicide and parasuicide. *Archives of Suicide Research* 2: 1-29.

- Diekstra, R F W (1989). Suicidal behaviour in children and young adults: the international picture. *Crisis* 10: 16-35.
- Diekstra, R F W. (1982). Epidemiology of attempted suicide in the EEC. *Bibl Psychiatr*; 162:1-16.
- Diekstra, R F W (1993). Epidemiology of suicide and parasuicide. *Acta Psychiatrica Scandinavica* 371(supplement): 9-20.
- Diekstra R F W, & M van Egmond. (1989). Suicide and attempted suicide in general practice, 1979-1986. *Acta Psychiatr Scand* 1989;79(3):268-75.
- Diekstra, R F W, C W M Kienhorst & E J de Wilde (1995). Suicide and suicidal behaviour among adolescents. In M Rutter & D J Smith (Eds), *Psychosocial Disorders in Young People: Time Trends and their Causes*. Chichester: John Wiley, 686-761.
- Dieserud G, M Loeb & O Ekeberg. (2000). Suicidal behavior in the municipality of Baerum, Norway: a 12-year prospective study of parasuicide and suicide. *Suicide Life Threat Behav*;30(1):61-73.
- Disley, B (1997). An overview of mental health in New Zealand. In *Mental Health in New Zealand from a Mental Public Health Perspective*. Wellington: Ministry of Health.
- Disley, B, & C Coggan (1996). Youth suicide in New Zealand. *Crisis* 17(3): 116-122.
- Dubow, E F, D F Kausch, M C Blum, J Reed & E Bush (1989). Correlates of suicidal ideation and attempts in a community sample of junior high and high school students. *Journal of Clinical Child Psychology* 18: 158-166.
- Dubow, E F, D F Kausch, M C Blum, J Reed & E Bush (1989). Correlates of suicidal ideation and attempts in a community sample of junior high and high school students. *Journal of Clinical Child Psychology* 18: 158-166.
- Durie, M H (1998). *Whaiora* (2nd ed). Auckland: Oxford University Press.
- Durie, M. (2001) "What is a Māori?" interview, *Radio New Zealand*, 4 March.
- Durie, M H (2001). *Mauri Ora: The Dynamics of Māori Health*. Auckland: Oxford University Press.
- Durie, M H, T E Black, I Christensen, A E Durie, E Fitzgerald, J T Taiapa, E Tinirau & J Apatu (1996). *Māori Profiles: An Integrated Approach to Policy and Planning*. A report prepared for Te Puni Kōkiri. Wellington.
- Durie, M H, T E Black, I S Christensen, A E Durie, E D Fitzgerald & J T Taiapa (1995). Te Hoe Nuku Roa framework: A Māori identity measure. *Journal of the Polynesian Society* 104(4).
- Durkheim, E. (1897/1951). Translated by J A Spaulding and G Simpson. *Suicide: A Study in Sociology*. New York: Free Press.
- Durkheim, E (1897, translated 1952). *Suicide: A Study in Sociology*. London: Routledge.
- Durkheim, E (1951). *Suicide*. J A Spaulding & A G Simpson (Trans), original work published 1897. New York: Free Press.
- Eastwell, H D (1988). The low risk of suicide among the Yolngu of the Northern Territory: The traditional Aboriginal pattern. *Medical Journal of Australia* 148: 338-340.
- Echohawk, M (1997). Suicide: The scourge of Native American people. *Suicide & Life-Threatening Behavior* 27(1): 60-67.
- Eddleston, M, M H R Sheriff & K Hawton (1998). Deliberate self-harm in Sri Lanka: An overlooked tragedy in the developing world. *British Medical Journal* 317: 133-135.
- Edwall, G E, N G Hoffman & P A Harrison (1989). Psychological correlates of sexual abuse in adolescent girls in chemical dependency treatment. *Adolescence* 24: 279-288.
- Ellis, J B, & L M Range (1989). Characteristics of suicidal individuals: A review. *Death Studies* 13: 485-500.
- Enns, M W, M Inayatulla, B Cox & L Cheyne (1997). Prediction of suicide intent in Aboriginal and non-Aboriginal adolescent inpatients: A research note. *Suicide & Life-Threatening Behavior* 27(2): 218-224.
- European Commission (2000). *Report of the State of Young People's Health in the European Union*. A commission services working paper.
- Ewing, J A, & B A Rouse (1970). *Identifying the Hidden Alcoholic*. Twenty-ninth International Congress on Alcoholism and Drug Dependence, Sydney, Australia. 2-6 February 1970.
- Expert Working Group (1994). *Suicide in Canada: Update of the Report of the Task Force on Suicide in Canada*. Ottawa: Minister of National Health and Welfare.
- Fanslow, J L, & R A Norton (1994). Status report of suicide and parasuicide in the Auckland region. *Community Mental Health in New Zealand* 8(2): 12-25.

- Farberow, N L, & D MacKinnon (1975). Prediction of suicide: A replication study. *Journal of Personality Assessment* 39: 497-501.
- Faulkner, A H, & K Cranston (1998). Correlates of same sex sexual behaviour in a random sample of Massachusetts high school students. *American Journal of Public Health*, 88(2): 262-266.
- Fergusson, D M & M T Lynskey (1995a). Antisocial behaviour, unintentional and intentional injuries during adolescence. *Criminal Behaviour & Mental Health* 5(4): 312-329.
- Fergusson, D M & M T Lynskey (1995b). Childhood circumstances, adolescent adjustment, and suicide attempts in a New Zealand birth cohort. *Journal of the American Academy of Child & Adolescent Psychiatry* 34(5): 612-622.
- Fergusson, D M & M T Lynskey (1995c). Suicide attempts and suicidal ideation in a birth cohort of 16-year-old New Zealanders. *Journal of the American Academy of Child & Adolescent Psychiatry* 34(10): 1308-1317.
- Fergusson D M, L J Horwood, & M T Lynskey (1996). Childhood sexual abuse and psychiatric disorder in young adulthood: II. Psychiatric outcomes of child sexual abuse. *Journal of the American Academy of Child & Adolescent Psychiatry* 34: 1365-74.
- Fergusson, D M, L J Horwood, & A L Beautrais. (1999). Is sexual orientation related to mental health problems and suicidality in young people? *Archives of General Psychiatry*, 56(10): 876-880.
- Fitzsimons M M, Kelleher M J, Keeley H S, Corcoran P, Byrne S, Williamson E, & Burke U. (1997). Parasuicide and general practice: a pilot study. *Ir Med J*;90(5):190, 192.
- Forbes, N E (1994). The state's role in suicide prevention programs for Alaska Native youth. *Calling from the Rim: Suicidal Behaviour among American Indian and Alaska Native Adolescents. American Indian and Alaska Native Mental Health Research Monograph Series 4: 234-249.*
- Forbes, N E, & V Van Der Hyde (1988). Suicide in Alaska from 1978 to 1985: Updated data from state files. *American Indian & Alaska Native Mental Health Research* 1(3): 36-55.
- Foster, T., K. Gillespie & R. McClelland (1997). Mental disorders and suicide in Northern Ireland. *British Journal of Psychiatry*, 170: 447-452.
- Freud, S (1957). *Mourning and melancholia*. 1917. Reprint. Strachey J, Editor and Translator. Standard Edition of the Complete Psychological Works of Sigmund Freud. 14(258): 239-258. London: The Hogarth Press.
- Fuller G N, Rea A J, Payne J F, & A F Lant. (1989). Parasuicide in central London 1984-1988. *J R Soc Med*;82(11):653-6.
- Fuso T. (1985). *Suicide and Culture*. Tokyo: Shincho-sha. (in Japanese)
- Ganeshvaran, T, & R Rajarajaswaran (1988). Fatal deliberate self-harm in a Sri Lankan hospital. *British Journal of Psychiatry* 152: 420-423.
- Garfinkel, B D, A Froese & J Hood (1982). Suicide attempts in children and adolescents. *American Journal of Psychiatry* 139: 1257-1261.
- Garnefski, N, & R F W Diekstra (1997). Child sexual abuse and emotional and behavioural problems in adolescence: gender differences. *Journal of the American Academy of Child & Adolescent Psychiatry* 36: 323-329.
- Garnefski, N, R F W Diekstra & P de Heus (1992). A population-based survey of the characteristics of high school students with and without a history of suicidal behaviour. *Acta Psychiatrica Scandinavica* 86(3): 189-196.
- Garrison, C Z (1989). The study of suicidal behaviour in the schools. *Suicide & Life-Threatening Behavior* 19: 120-130.
- Garrison, C Z, P M Lewinsohn, F Marsteller, J Langhinrichsen & I Lann (1991). The assessment of suicidal behaviour in adolescents. *Suicide & Life-Threatening Behavior* 21: 217-230.
- Garrison, C Z, R E McKeown, R F Valois & M L Vincent (1993). Aggression, substance use, and suicidal behaviours in high school students. *American Journal of Public Health* 83: 179-184.
- Garro, L C (1988). Suicides by status Indians in Manitoba. *Arctic Medical Research* 47: 590-592.
- Gibbs, J T (1988). Conceptual, methodological, and socio-cultural issues in black youth suicide: Implications for assessment and early intervention. *Suicide & Life-Threatening Behavior* 18: 73-89.
- Gibson, P (1989). *Gay Male and Lesbian Youth Suicide: Report of the Secretary's Task Force on Youth Suicide vol 3*. Washington: US Government Printing Office, 115-142.
- Glover, M (1993). *Te Puna Roimata: Māori women's experience of male partner violence*. Master of Arts thesis, Waikato University.

- Goldberg, D P (1972). *The Detection of Psychiatric Illness by Questionnaire*. Maudsley Monograph No 21. Oxford: Oxford University Press.
- Goldberg, D P (1978). *Manual of the General Health Questionnaire*. Windsor, England: NFER Publishing.
- Goldberg, D P, & V F Hillier (1979). A scaled version of the General Health Questionnaire. *Psychological Medicine* 9: 139-145.
- Goldney, R D (1981). Parental loss and reported childhood stress in young women who attempt suicide. *Acta Psychiatrica Scandinavica* 64: 34-59.
- Goldney, R D (1982). Locus of control in young women who have attempted suicide. *Journal of Nervous & Mental Disease* 170: 198-201.
- Goldney, R D (2000). Prediction of suicide and attempted suicide. In K Hawton & K van Heeringen (Eds), *The International Handbook of Suicide and Attempted Suicide*. England: John Wiley & Sons, 585-595.
- Goldney, R D, & N D Spence (1987). Is suicide predictable? *Australian & New Zealand Journal of Psychiatry* 21: 3-4.
- Goldney, R D, A H Winefield, M Tiggemann & H R Winefield (1995). Persistent suicidal ideation and its enduring morbidity. In M L Mishara (Ed), *The Impact of Suicide*. New York: Springer, 123-129.
- Goldney, R D, S Smith, A H Winefield, M Tiggemann & H R Winefield (1991). Suicidal ideation: Its enduring nature and associated morbidity. *Acta Psychiatrica Scandinavica* 83: 115-120.
- Goldsmith S K, T C Pellmar, A M Kleinman & W E Bunney (Committee on Pathophysiology and Prevention of Adolescent and Adult Suicide, Board on Neuroscience and Behavioural Health, Institute of Medicine) (Eds) (2002). *Reducing Suicide: A National Imperative*. Washington: National Academy of Sciences.
- Goldstein, R B, D W Black, A Nasrallah, G Winokur (1991). The prediction of suicide: Sensitivity, specificity, and predictive value of a multivariate model applied to suicide among 1906 patients with affective disorders. *Archives of General Psychiatry* 48: 418-422.
- Goldston, D B (2000). *Assessment of Suicidal Behaviours and Risk among Children and Adolescents*. Technical report submitted to the National Institute of Mental Health under Contract No 263-MD-909995.
- Goldston, D B, S Daniel, D M Reboussin, A Kelley, C Levers & R Brunstetter (1996). First time suicide attempters, repeat attempters, and previous attempters on an adolescent inpatient psychiatry unit. *Journal of the American Academy of Child & Adolescent Psychiatry* 35: 631-639.
- Gotowiec, A, & M Beiser (1994). Aboriginal children's mental health: Unique challenges. *Canada's Mental Health (Winter)*: 7-11.
- Gould, J. (2000) Counting Māori? *New Zealand Population Review*, 6(2):1-19.
- Gould, M S, D Shaffer, P Fisher & R Garfinkel (1998). Separation/divorce and child and adolescent suicide. *Journal of the American Academy of Child & Adolescent Psychiatry* 37: 155-162.
- Gould, M S, P Fisher, M Parides, M Flory & D Shaffer (1996). Psychosocial risk factors of child and adolescent completed suicide. *Archives of General Psychiatry* 53: 1155-1162.
- Grant, C (1991). Suicide and intervention and prevention among Northern Native Youth. *Journal of Child Youth Care* 6: 11-17.
- Graunt, J (1939). *Natural and Political Observations Made Upon the Bills of Mortality*: London, 1662. Baltimore: Johns Hopkins Press.
- Gregory, R J (1994). Grief and loss among Eskimos attempting suicide in Western Alaska. *American Journal of Psychiatry* 151: 1815-1816.
- Grossman, D C, C Milligan & R A Deyo (1991). Risk factors for suicide attempts among Navajo adolescents. *American Journal of Public Health* 81: 870-874.
- Guarnaccia, P J, L M Guevara, G Gonzalez, G Canino & H R Bird (1992). Cross-cultural aspects of psychotic symptoms in Puerto Rico. *Research Community Mental Health* 7: 99-110.
- Gunnell, D, & S Frankel (1994). Prevention of suicide: aspirations and evidence. *British Medical Journal* 308: 1227-1233.
- Gunnell, D, H Wehner & S Frankel (1999). Sex differences in suicide trends in England and Wales. *The Lancet* 353: 556-557.



- Gunnell, D, M Shepherd & M Evans (2000). Are recent increases in deliberate self-harm associated with changes in socio-economic conditions? An ecological analysis of patterns of deliberate self-harm in Bristol 1972-3 and 1995-6. *Psychological Medicine* 30(5): 1197-203.
- Gunnell, D, T J Peter, R M Kammerling & J Brooks (1995). Relation between parasuicide, suicide, psychiatric admissions and socio-economic deprivation. *British Medical Journal* 311: 226-230.
- Gururaj G & M K Isaac (2001). *Epidemiology of suicide in Bangalore*. Bangalore: National Institute of Mental Health and Neuro Sciences, 2001. (Publication No 43)
- Haggarty, J., Cernovsky, Z., Kermeen, P., Merskey, H (2001). Psychiatric Disorders in an Arctic Community. *Can J Psychiatry* 2000;45:357-362.
- Hale, AS. (1997). ABC of mental health: depression. *British Medical Journal* 315:43-46.
- Hall, A K, & C Curry (1994). Changing epidemiology and management of deliberate self-poisoning in Christchurch. *New Zealand Medical Journal* 107: 396-399.
- Hallstrom T. (1977) Life-weariness, suicidal thoughts and suicidal attempts among women in Gothenburg, Sweden. *Acta Psychiatr Scand*;56(1):15-20.
- Hammerschlag, C A (1982). American Indian disenfranchisement: Its impact on health and health care. *White Cloud Journal* 2(4): 32-36.
- Harkavy-Friedman, J M, G M Asnis, M Boeck & J Di Fiore (1987). Prevalence of specific suicidal behaviours in a high school sample. *American Journal of Psychiatry* 144: 1203-1206.
- Harris, T L, & S D Molock (2000). Cultural orientation, family cohesion, and family support in suicide ideation and depression among African American college students. *Suicide & Life-Threatening Behavior* 30(4): 341-353.
- Harrison, J and J Moller (1994) *Injury Mortality Amongst Aboriginal Australians*. Australian Injury Prevention Bulletin, No. 7.
- Harrison, J E, E R Miller, T S Weeramanthri, J Wakerman & A Barnes (2001). Information Sources for Injury Prevention among Indigenous Australians: Status and Prospects for Improvement. *Injury Research and Statistics Series No 8*. Adelaide: Australian Institute of Health and Welfare (Cat no INJCAT 38).
- Haw, C, K Hawton, K Houston & E Townsend (2001). Psychiatric and personality disorders in deliberate self-harm patients. *British Journal of Psychiatry* 178: 48-54.
- Hawton, K (2001). CRITIQUE: Studying survivors of nearly lethal suicide attempts: An important strategy in suicide research. *Suicide & Life-Threatening Behavior* 32(supplement): 76-84.
- Hawton, K (2001). Studying survivors of nearly lethal suicide attempts: An important strategy in suicide research. *Suicide & Life-Threatening Behaviour* 32: 76-84.
- Hawton, K, L Appleby, S Platt, T Foster, J Cooper, A Malmberg & S Simkin (1998). The psychological autopsy approach to studying suicide: A review of methodological issues. *Journal of Affective Disorders* 50: 271-278.
- Hawton, K, & J Fagg (1988). Suicide and other causes of death following suicide. *British Journal of Psychiatry* 152: 359-366.
- Hawton, K, J Fagg, S Simkin & J Mills (1994). The epidemiology of attempted suicide in the Oxford area, England (1989-1992). *Crisis* 15: 123-135.
- Hawton, K, L Appleby, S Platt, T Foster, J Cooper, A Malmberg & S Simkin (1998). The psychological autopsy approach to studying suicide: A review of methodological issues. *Journal of Affective Disorder* 50(2-3): 269-276.
- Hawton, K, L Harris, K Hodder, S Simkin, & D Gunnell (2001). The influence of the economic and social environment on deliberate self-harm and suicide: An ecological and person-based study. *Psychological Medicine* 31(5): 827-836.
- Hawton K, Harriss L, Simkin S, Bale E, & A. Bond (1999). *Deliberate self harm in Oxford 1999*. University of Oxford: Centre for Suicide Research.
- Hawton, K, S Kingsbury, K Steinhardt, A James & J Fagg (1999). Repetition of deliberate self-harm by adolescents: The role of psychological factors. *Journal of Adolescence* 22: 369-378.
- Hawton, K & N Rose (1986). Unemployment and attempted suicide among men in Oxford. *Health Trends* 18: 29-32.
- Hawton, K & D Zahl (2003). Suicide following deliberate self harm: long term follow up of patients who presented to a general hospital. *British Journal of Psychiatry*, 182: 537-542.
- Haynes, R H (1987). Suicide and social responses in Fiji: A historical survey. *British Journal of Psychiatry* 151: 21-26.

- Health Canada (1999). Canadian Injury Data. Mortality – 1997 and Hospitalizations - 1996-97. Child Injury Division, Bureau of Reproductive and Child Health, Laboratory Centre for Disease Control, Health Protection Branch, Health Canada October, 1999
- Hem E, N T GrLnvold, O G Aasland, & O Ekeberg. (2000). The prevalence of suicidal ideation and suicidal attempts among Norwegian physicians. Results from a cross-sectional survey of a nationwide sample. *Eur Psychiatry* ; 15(3):183-9.
- Hennekens, C H, & J E Burring (1987). *Epidemiology in Medicine*. S L Mayrent (Ed). Boston and Toronto: Little Brown and Company.
- Hereck, G M. (1996). Heterosexism and Homophobia. In Cabaj RP, Stein TS, Editors. *Textbook of Homosexuality and Mental Health*. (pp.101-113). Washington, D.C.: American Psychiatry Press.
- Hernandez, J T, M Lodico & R J DiClemente (1993). The effects of child abuse and race on risk-taking in male adolescents. *Journal of the National Medical Association* 85: 593-597.
- Hershberger S L, & A R D'Augelli (1995). The impact of victimisation on the mental health and suicidality of lesbian, gay and bisexual youths. *Developmental Psychology*, 31: 65-74.
- Hezel, F X, D H Rubenstein & G M White (Eds) (1985). *Culture, Youth and Suicide in the Pacific: Papers from an East-West Center Conference*. University of Hawai'i at Manoa.
- Hillman, J (1997). *Suicide and the Soul* (2nd ed). Woodstock, Connecticut: Spring Publications.
- Hintikka J, Viinamaki H, Tanskanen A, Kontula O, Koskela K. Suicidal ideation and parasuicide in the Finnish general population. *Acta Psychiatr Scand* 1998;98(1):23-7.
- Hippocrates, (1938). On airs, water, and places. *Medical Classics* 3:19.
- Hjelmeland, H, K Hawton, H Nordvik, U Bille-Brahe, D De Leo, S Fekete, O Grad, C Haring, J F Kerkhof, J Lönnqvist, K Michel, E S Renberg, A Schmidtke, K Van Heeringen & D Wasserman (2002). Why people engage in parasuicide: a cross-cultural study of intentions. *Suicide & Life-Threatening Behavior* 32(4): 380-393.
- Hlady, W G, & J P Middaugh (1988). Suicide in Alaska: Firearms and alcohol. *American Journal of Public Health* 78(2): 179-180.
- Hochkirchen, B, & W Jilek (1985). Psychosocial dimensions of suicide and parasuicide in Amerindians of the Pacific Northwest. *Journal of Operational Psychiatry* 16(2): 24-28.
- Hodson, D M (1986). Native values in a non-native world: An alienated reality leading to suicide. Unpublished manuscript.
- Horwood, L J, & D M Fergusson (1998). *Psychiatric Disorder and Treatment Seeking in a Birth Cohort of Young Adults*. Wellington: Ministry of Health.
- Howard-Pitney, B, T D LaFromboise, M Basil, B September & M Johnson (1992). Psychological and social indicators of suicide ideation and suicide attempts in Zuni adolescents. *Journal of Consulting & Clinical Psychology* 60(3): 473-476.
- Hoxey, K, & A Shah (2000). Recent trends in elderly suicide rates in England and Wales. *International Journal Geriatric Psychiatry* 15(3): 274-279.
- Humphreys, N A (1885). *Vital Statistics: A Memorial Volume of Selections from the reports and writings of William Farr, 1807-1883*. London: Sanitary Institute of Great Britain, 1885.
- Hunter, E (1988). On Gordian knots and nooses: Aboriginal suicide in the Kimberley. *Australian & New Zealand Journal of Psychiatry* 22: 264-271.
- Hunter, E (1991a). Out of sight, out of mind: 1. Emergent patterns of self-harm among Aborigines of remote Australia. *Social Science & Medicine* 33: 655-659.
- Hunter, E (1991b). Out of sight, out of mind: 2. Social and historical contexts of self-harmful behaviour among aborigines of remote Australia. *Social Science & Medicine* 33: 661-671.
- Hunter, E (1993). *Aboriginal Health and History: Power and Prejudice in Remote Australia*. New York: Cambridge University Press.
- Hunter, E (1995). Is there a role for prevention in Aboriginal mental health? *Australian Journal of Public Health* 19: 573-579.
- Hunter, E (1999). Considering the changing environment of indigenous child development. *Australasian Psychiatry* 7(3): 137-140.
- Hunter, E (2001). Aboriginal and Torres Strait Islander Suicide. Accessed 5 January 2003, <http://www.auseinet.com/suiprev/occpapers/>.
- Inamura, H. (1977). *Suicidology: Treatment and Prevention*. Tokyo: Tokyo University Press. (in Japanese)

- Inamura, H. (1993). Recent characteristics, risk estimations and preventive methods of shinju (double suicide) in Japan. *Archives of Psychiatric Diagnostics and Clinical Evaluation*, 4: 173-184 (in Japanese)
- Indian Health Service (1999). *Trends in Health, 1998-1999*. Rockville, Maryland: US Department of Health and Human Services.
- Inskip HM, EC Harris & B Barraclough (1998). Lifetime risk of suicide for affective disorder, alcoholism and schizophrenia. *British Journal of Psychiatry*. 172: 35-37.
- Jackson, G, C Palmer, A Lindsay & J Peace (2001). *Counties Manukau Health Profile*. Manukau: Counties Manukau District Health Board.
- Jackson, P B (1992). Specifying the buffering hypothesis: Support, strain, and depression. *Social Psychology Quarterly* 55: 363-378.
- Japanzine (2003). JAPANESE FOR SUICIDAL PEOPLE - You'd be amazed at how many words the Japanese language has for suicide. *The Death Issue*, February, 2003.
- Ji, J, A Kleinman & A E Becker (2001). Suicide in contemporary China: A review of China's distinctive suicide demographics in their sociocultural context. *Harvard Review of Psychiatry* 9(1): 1-12.
- Jianlin, J (2000). Suicide rates and mental health services in modern China. *Crisis* 21(3): 118-121.
- Jobes D A, A I Berman, & A R Josselson. (1987). Improving the validity and reliability of medical-legal certification of suicide. *Suicide and Life-Threatening Behaviour*, 17(4): 310-325.
- Joe, J R (2001). Out of harmony: Health problems and young Native American men. *Journal of American College Health* 49(5): 237-242.
- Jones, I H (1971). Stereotyped aggression in a group of Australian Western Desert Aborigines. *British Journal of Medical Psychology* 44: 259-265.
- Jones, I H (1972). Psychiatric disorders among Aborigines of the Australian Western Desert. II. *Social Science & Medicine* 6: 263-267.
- Jones, I H, & D J Horne (1973). Psychiatric disorders among Aborigines of the Australian Western Desert: Further data and discussion. *Social Science & Medicine* 7: 219-228.
- Jones, J M (1991). Racism: A cultural analysis of the problem. In R L Jones (Ed), *Black Psychology* (3rd ed). Berkeley, California: Cobb & Henry, 609-635.
- Joseph, P (1997). Māori youth suicide in Aotearoa: Selected interviews with Māori elders. Master of Arts (psychology) thesis, International Research Institute for Māori and Indigenous Education, University of Auckland.
- Kahn, M (1986). Psychosocial disorders of Aboriginal people of the United States and Australia. *Journal of Rural Community Psychology* 7: 45-59.
- Kamien, M (1978). *The Dark People of Bourke: A Study of Planned Social Change*. Canberra: Australian Institute of Aboriginal Studies.
- Kashani, J H, P Goddard & J C Reid (1989). Correlates of suicidal ideation in a community sample of children and adolescents. *Journal of the American Academy of Child & Adolescent Psychiatry* 28: 912-917.
- Kashden, J, W J Fremouw, T S Callahan & M D Franzen (1993). Impulsivity in suicidal and non-suicidal adolescents. *Journal of Abnormal Child Psychology* 21: 339-353.
- Kasturiaratchi, N D, H J de Silva & N S Ellawala (1996). A study of suicide in Sri Lanka. Unpublished manuscript, Faculty of Medicine, University of Peradeniya, Sri Lanka.
- Kazdin, A E, A Rodgas & D Colbus (1983). The hopelessness scale for children: psychometric characteristics and concurrent validity. *Journal of Consulting & Clinical Psychology* 54: 241-245.
- Kelleher, M J, D Chambers, P Corcoran, E Williamson & H S Keeley (1998). Religious sanctions and rates of suicide worldwide. *Crisis* 19(2): 78-86.
- Kelleher, M J, H S Keeley & P Corcoran (1997). The service implications of regional differences in suicide rates in the Republic of Ireland. *Irish Medical Journal* 90(7): 262-264.
- Kelleher, M J, P Corcoran & H S Keeley (1998). Variation in suicide rates between health board areas. *Irish Medical Journal* 91(2): 53-56.
- Kelly, T M, & J J Mann (1996). Validity of DSM-III-R diagnosis by psychological autopsy: A comparison with clinician ante-mortem diagnosis. *Acta Psychiatrica Scandinavica* 94(5): 337-343.
- Kelsey, J (1995). *The New Zealand Experiment*. Auckland: Auckland University Press.

- Kerkhof, A, A Schmidtke, U Bille-Brahe, D De Leo & J Lönnqvist (Eds) (1994). *Attempted Suicide in Europe: Findings from the Multicentre Study on Parasuicide by the WHO Regional Office for Europe*. Leiden: DSWO Press.
- Kerkhof, A, W Bernasco, U Bille-Brahe, S Platt & A Schmidtke (1989). *WHO/EURO Multicentre Study on Parasuicide: European Parasuicide Study Interview Schedule (EPSIS)*. Leiden: Department of Clinical Health and Personality Psychology, Leiden University.
- Kessler, R C, G Borges & E E Walters (1999). Prevalence of and risk factors for lifetime suicide attempts in the National Comorbidity Survey. *Archives General Psychiatry* 56: 617-626.
- Kettl, P, & E O Bixler (1991). Suicide in Alaska Natives, 1979-1984. *Psychiatric: Interpersonal & Biological Processes* 54(1): 55-63.
- Khan, A V (1987). Heterogeneity of suicidal adolescents. *Journal of the American Academy of Child & Adolescent Psychiatry* 26: 92-96.
- Khan, M M, & H Reza (1998). Gender differences in nonfatal suicidal behaviour in Pakistan: Significance of socio-cultural factors. *Suicide & Life-Threatening Behavior* 28(1): 62-68.
- Khan, M M, & H Reza (2000). The pattern of suicide in Pakistan. *Crisis* 21(1): 31-35.
- Kienhorst, C W M, E J de Wilde, R F W Diekstra & W H G Wolters (1992). Differences between adolescent suicide attempters and depressed adolescents. *Acta Psychiatrica Scandinavica* 85: 222-228.
- Kienhorst CW, de Wilde EJ, van den Bout J, Broese van Groenou MI, Diekstra RF, Wolters WH. (1990). Self-reported suicidal behavior in Dutch secondary education students. *Suicide Life Threatening Behaviour*; 20(2):101-12.
- Kienhorst, C W M, E J de Wilde, J. van den Bout, R F W Diekstra & W H G. Wolters, (1990) Characteristics of suicide attempters in a population-based sample of Dutch adolescents. *British Journal of Psychiatry* 1990; 156: 243-248.
- Kingsbury, S (1993). Clinical components of suicidal intent in adolescent overdose. *Journal of the American Academy of Child & Adolescent Psychiatry* 32: 518-520.
- Kirmayer, L J (1994). Suicide among Canadian Aboriginal peoples. *Transcultural Psychiatric Research Review* 31(1): 3-58.
- Kirmayer, L J, B Hayton, M Malus, V Jimenez, R Dufour, C Quesney, Y Ternar, T Yu & N Ferrara (1994). *Suicide in Canadian Aboriginal Populations: Emerging Trends in Research and Intervention. Culture & Mental Health Research Unit Report No 1 prepared for the Royal Commission on Aboriginal Peoples*. Montreal. Accessed 8 December 2004 <http://www.medicine.mcgill.ca/psychiatry/transcultural/pdf/Report1.pdf>
- Kjoller M, Helweg-Larsen M. (2000). Suicidal ideation and suicide attempts among adult Danes. *Scand J Public Health*; 28(1):54-61.
- Kleinman, A. (2001). Cross-cultural psychiatry: A psychiatric perspective on global change. *Harvard Review of Psychiatry*, 9(1):46-47.
- Kleinman, A. (1977). Depression, somatization and the nre cross-cultural psychiatry. *Social Science and Medicine* 11:3-10.
- Koller, K M, & B E Castanos (1968). Attempted suicide and alcoholism. *Medical Journal of Australia* 2: 835-837.
- Kosky, R (1982). Suicide and attempted suicide among Australian children. *Medical Journal of Australia* 1: 124-126.
- Kosky, R (1983). Childhood suicidal behaviour. *Journal of Child Psychology & Psychiatry* 24: 457-468.
- Kost-Grant, B L (1983). Self-inflicted gunshot wounds among Alaska Natives. *Public Health Reports* 98(1): 72-78.
- Kraus, R (1974). Suicidal behaviour in Alaska Natives. *Alaska Medicine* 16(1): 2-6.
- Kreitman N (1977). *Parasuicide*. New York: John Wiley and Sons.
- Kreitman, N, A E Philip, S Greer & C R Bagley (1969). Parasuicide [letter]. *British Journal of Psychiatry* 115: 746-747.
- Kresnow, M, R M Ikeda, J A Mercy, K E Powell L Potter, T Simon, R Lee & R Frankowski (2001). An unmatched case-control study of nearly lethal suicide attempts in Houston, Texas: Research methods and measurements. *Suicide & Life-Threatening Behaviour* 32: 7-20.
- Kroll, I T, & L B Warneke (1995). The dynamics of sexual orientation and adolescent suicide: A comprehensive review and developmental perspective. Calgary: University of Calgary.



- Krupinski, J, J W G Tiller, G D Burrows & H Hallstein (1994). Youth suicide in Victoria: A retrospective study. *Medical Journal of Australia* 160: 113-116.
- Kryzhanovskya, L, & G Pilyagina (1999). Suicidal behaviour in Ukraine, 1988-1998. *Crisis* 20(4): 184-190.
- Kukutai, T (2004) The Problem of Defining an Ethnic Group For Public Policy: *Who is Māori and why does it matter?* *Social Policy Journal of New Zealand* • Issue 23: 86-108 • December 2004.
- Kukutai, T. (2003) The dynamics of ethnicity reporting: Māori in New Zealand. Te Puni Kōkiri, Wellington.
- LaFromboise, T D, & B Howard-Pitney (1995). Suicidal behaviour in American Indian female adolescents. In S S Canetto and D Lester (Eds), *Women and Suicidal Behaviour*. New York: Springer Publishing, 157-173.
- Langford, R A, J Ritchie & J Ritchie (1998). Suicidal behaviour in a bicultural society: A review of gender and cultural differences in adolescents and young persons of Aotearoa/New Zealand. *Suicide & Life-Threatening Behavior* 28(1): 94-106.
- LaVecchia, C, F Lucchini & F Levi (1994). Worldwide trends in suicide mortality, 1955-1989. *Acta Psychiatrica Scandinavica* 90(1): 53-64.
- Lawson-Te Aho, K (1998). A Review of Evidence: A background document to support Kia Piki te Ora o te Taitamariki: Strengthening Youth Wellbeing: New Zealand Youth Suicide Prevention Strategy. Wellington: Ministry of Youth Affairs, Ministry of Health and Te Puni Kōkiri.
- Lesage, A D, R Boyer, F Grunberg, C Vanier, R Morissette, C Menard-Bueeau & M Loyer (1994). Suicide and mental disorders: A case-control study of young men. *American Journal of Psychiatry* 151: 1063-1068.
- Lester, D (1972). *Why People Kill Themselves: A Summary of Research Findings on Suicidal Behaviour*. Springfield: Thomas.
- Lester, D (1994a). Māori and non-Māori youth suicide [letter]. *New Zealand Medical Journal* 107(976): 161.
- Lester, D (1994b). The epidemiology of suicide in Chinese populations in six regions of the world. *Chinese Journal of Mental Health* 7: 25-36.
- Levy, J E (1965). Navaho suicide. *Human Organization* 24(4): 308-318.
- Lewinsohn, P M, J Langhinrichsen-Rohling, R A Langford, P Rohde, J R Seeley & J Chapman (1995). The Life Attitudes Schedule: A scale to assess adolescent life-enhancing and life threatening behaviours. *Suicide & Life-Threatening Behavior* 25: 458-474.
- Lönqvist, J K (2000). Psychiatric aspects of suicidal behaviour: Depression. In K Hawton & K van Heeringen (Eds), *The International Handbook of Suicide and Attempted Suicide*. England: John Wiley & Sons, 107-121.
- Macleod, L (1998). The dying fields. *Far Eastern Economic Review* 23: 62-63.
- MacMahon, B and Pugh, T F (1970). *Epidemiology: Principles and Methods*. Boston: Little Brown.
- MacPherson, C & L MacPherson (1987). Towards an explanation of recent trends in Suicide in Western Samoa. *MAN (N.S.)* 22: 305-330.
- Makereti (1986). *The Old-Time Māori*. Auckland: New Women's Press.
- Madianos MG, Madianou-Gefou D, Stefanis CN. Changes in suicidal behavior among nation-wide general population samples across Greece. *Eur Arch Psychiatry Clin Neurosci* 1993;243(3-4):171-8.
- Malone, K M, E M Corbitt, S Li & J J Mann (1996). Prolactin response to fenfluramine and suicide attempt lethality in major depression. *British Journal of Psychiatry* 168: 324-329.
- Mann, J J, M Stanley, P A McBride & B S McEwen (1986). Increased serotonin 2 and adrenergic receptor binding in the frontal cortices of suicide victims. *Archives of General Psychiatry* 43: 954-959.
- Manson, S, & J Beals (1995-2000). American Indian Services Utilization, Psychiatric Epidemiology, Risk and Protective Factors Project (AI-SUPERPPF). <http://www.uchsc.edu/ai/ncaianmhr>.
- Māori Health in New Zealand (2000). *Pacific Health Dialogue: Journal of Community Health & Clinical Medicine for the Pacific* 7(1): 1-124.
- Māori Health Operating Group, Health Funding Authority (2000). *Health Funding Authority Eight Health Gain Priority Areas for Māori Health 1999/2000. Report 1*. Wellington.
- Marecek, J (1998). Culture, gender, and suicidal behaviour in Sri Lanka *Suicide & Life-Threatening Behavior* 28(1): 69-81.

- Marshall, H, & A Yazdani (1999). Locating culture in accounting for self-harm amongst Asian young women. *Journal of Community & Applied Social Psychology* 9: 413-433.
- Martin, A D, & E S Hetrick (1988). The stigmatization of the gay and lesbian adolescent. *Journal of Homosexuality* 15: 163-183.
- Martin, G (1996). Reported family dynamics, sexual abuse, and suicidal behaviours in community adolescents. *Archives of Suicide Research* 2: 183-195.
- Martin, G, P Rozanes, C Pearce & S Allison (1995). Adolescent suicide, depression and family dysfunction. *Acta Psychiatrica Scandinavica* 92: 336-344.
- Marttunen, M J, H M Aro, J K Lönqvist (1993). Adolescence and suicide: A review of psychological autopsy studies. *European Child & Adolescent Psychiatry* 2: 10-18.
- Marzuk, P. M., Tardiff, K., & Hirsch, C. S. (1992). The epidemiology of murder-suicide. *Journal of the American Medical Association*, 267: 3179-3187.
- Maurice S, Pommereau X, Pueyo S, Toulouse C, Tilly B, Dabis F, et al. Epidemiological surveillance of suicides and attempted suicides in Aquitaine, south-west France, using an original computer network of sentinel general practitioners. *J Epidemiol Community Health* 1989;43(3):290-2.
- McAuliffe C. (1998). Suicidal ideation: An exploration of attitudes to suicidal behaviour and problem solving skills [M.Phil]. University College Cork, 1998.
- McClure, G M G (2000). Changes in suicide in England and Wales, 1960-1997. *British Journal of Psychiatry* 176: 64-67.
- McDaniel J S, D Purcell, A R D'Augelli. (2001). The relationship between sexual orientation and the risk of suicide. Research findings and future directions for research and prevention. *Suicide and Life-Threatening Behaviour*, 31(Suppl): 84-105.
- McDowell, I, & C Newell (1987). *Measuring Health: A Guide to Rating Scales and Questionnaires*. New York: Oxford University Press.
- McEvedy C J. (1997). Trends in self-poisoning: admissions to a central London hospital, 1991-1994. *J R Soc Med*;90(9):496-8.
- McGrath, E, G P Keita, B R Strickland & N F Russo (1990). *Women and depression: Risk factors and treatment issues*. Washington, DC: American Psychological Association.
- McLoone, P (1996). Suicide and deprivation in Scotland. *British Journal of Psychiatry* 312: 543-544.
- McNamee, J E, & D R Offord (1994). Prevention of suicide In: Canadian Task Force on the Periodic Health Examination, *Canadian Guide to Clinical Preventive Health Care*. Ottawa: Health Canada, 456-467.
- Meehan, P J, J A Lamb, L E B Saltzman & P W O'Carroll (1992). Attempted suicide among young adults: Progress toward a meaningful estimate of prevalence. *American Journal of Psychiatry* 149: 41-44.
- Meltzer, H Y, R Perline, B J Tricou, M Lowy & A Robertson (1984). Effect of 5-hydroxytryptophan on serum cortisol levels in major affective disorders: II Relation to suicide, psychosis and depressive symptoms. *Archives of General Psychiatry* 41: 379.
- Menninger, K A (1938). *Man Against Himself*. New York: Harcourt.
- Metge, J. (1964) *A New Māori Migration: Rural and Urban Relations in Northern New Zealand*, Victoria University Press, Wellington.
- Middleton, N, & D Gunnell (2000). Trends in suicide in England and Wales. *British Journal of Psychiatry* 176: 595.
- Ministry of Health (1997). *Food Comes First: Methodologies for the National Nutrition Survey of New Zealand*. Wellington. Accessed April 2000, <http://www.moh.govt.nz/moh.nsf>.
- Ministry of Health (1997). *Youth Suicide Facts: 1997 Statistics*. Wellington. <http://www.moh.govt.nz>.
- Ministry of Health (1998). *Our Children's Health: Key Findings on the Health of New Zealand Children*. Wellington.
- Ministry of Health (2001). *DHB Toolkit: Suicide Prevention – To reduce the rate of suicides and suicide attempts*. New Zealand Health Strategy. Ministry of Health. Wellington.
- Ministry of Health (2002). *Suicide Facts: Provisional 1999 Statistics (All Ages)*. Wellington. Accessed 10 April 2002, <http://www.nzhis.govt.nz/stats/suicidestats99.html>.
- Ministry of Health (2002a). *New Zealand Youth Health Status Report*. Wellington. Accessed February 2003, <http://www.moh.govt.nz>.
- Ministry of Health (2002b). *Suicide Facts: Provisional 1999 Statistics (All Ages)*. Wellington. Accessed 10 April 2002, <http://www.nzhis.govt.nz/stats/suicidestats99.html>.
-

- Ministry of Health (2003). Suicide Facts: Provisional 2000 Statistics (All Ages). Wellington. Accessed 16 May 2003, <http://www.nzhis.govt.nz/stats/suicidestats2000.html>.
- Ministry of Health (2004). Suicide Facts: Provisional 2001 Statistics (All Ages). Wellington. Accessed 24 November 2004, <http://www.nzhis.govt.nz/stats/suicidefact.pdf>.
- Ministry of Youth Affairs (1997). Guidelines for Detection and Management of Young People at Risk of Suicide in Primary Care. Wellington: Royal New Zealand College of General Practitioners and Ministry of Youth Affairs.
- Ministry of Youth Affairs (1998). *Kia Piki Te Ora O Te Taitamariki: Strengthening Youth Wellbeing: New Zealand Youth Suicide Prevention Strategy*. Wellington: Ministry of Youth Affairs, Ministry of Health and Te Puni Kōkiri.
- Ministry of Youth Affairs (1998a). *In Our Hands: New Zealand Youth Suicide Prevention Strategy*. Wellington: Ministry of Youth Affairs, Ministry of Health and Te Puni Kōkiri.
- Mitchell, R E (1982). Social networks and psychiatric clients: The personal and environmental context. *American Journal Community Psychological* 10(4): 387-401.
- Moher, D, A R Jadad, G Nichol, M Penman, T Tugwell & S Walsh (1995). Assessing the quality of randomized controlled trials: an annotated bibliography of scales and checklists. *Controlled Clinical Trials* 16: 62-73.
- Moodie PM (1973) *Mental Health: Aboriginal Health*. Canberra. Australian National University Press pp. 195-203.
- Morano, C D, R A Cisler & J Lemerond (1993). Risk factors for adolescent suicidal behaviour: Loss, insufficient family support, and hopelessness. *Developmental Psychology* 28: 851-865.
- Morano, C D, R A Cisler & J Lemerond (1992). Risk factors for adolescent suicidal behaviour: Loss, insufficient familial support, and hopelessness. *Adolescence* 28: 851-865.
- Morano, C D, R A Cisler & J Lemerond (1992). Risk factors for adolescent suicidal behaviour: Loss, insufficient familial support, and hopelessness. *Adolescence* 28: 851-865.
- Morrell, S, R Taylor & C Kerr (1998). Unemployment and young people's health. *Medical Journal of Australia* 168: 236-240.
- Morrell, S, R Taylor & S Quine (1993). Suicide and unemployment in Australia. *Social Science & Medicine* 36: 749-756.
- Morrell, S, R Taylor, S Quine & C Kerr (1993). Suicide and unemployment in Australia 1907-1990. *Social Science & Medicine* 36: 749-756.
- Morrison, A, D H Stone & EURORISC Working Group (2000). Trends in injury mortality among young people in the European Union: A report from the EURORISC Working Group. *Journal of Adolescent Health* 27: 130-135.
- Morrison A, Stone DH, and the EURORISC Working Group. (2000a). Injury Mortality in the European Union. *European Journal of Public Health*; 10: 201-207.
- Morton, N., Chung C. & Mi M. (1967). *Genetics of Interracial Crosses in Hawaii*, S. Karger, New York.
- Moscicki, E K (1994). Gender differences in completed and attempted suicides. *Annals of Epidemiology* 4: 152-158.
- Moscicki, E K (1995). Epidemiology of suicidal behaviour. *Suicide & Life-Threatening Behavior* 1995. 25.
- Moscicki, E K (1995). Suicide in childhood and adolescence. In F C Verhulst & H M Koot (Eds), *The Epidemiology of Child and Adolescent Psychopathology*. Oxford: Oxford University Press.
- Moscicki, E K (1998). Epidemiology of suicide. In D Jacobs (Ed), *Harvard Medical School Guide to Assessment and Intervention in Suicide*. San Francisco, California: Jossey-Bass, 40-51.
- Moscicki, E K, P O'Carroll, D S Rae, B Z Locke, A Roy & D A Regier (1988). Suicide attempts in the Epidemiologic Catchment Area Study. *Yale Journal of Biology & Medicine* 61: 259-268.
- Mulder, R T, A L Beautrais, P R Joyce & D M Fergusson (1998). The relationship between dissociation, sexual abuse, physical abuse and mental illness in a general population sample. *American Journal of Psychiatry* 155(6): 806-811.
- Mullen, P E, J L Martin, J C Anderson, S E Romans & G P Herbison (1995). The long-term impact of physical, emotional and sexual abuse of children: A community study. *Child Abuse & Neglect* 20(1): 7-21.
- Mumford, D. B., Tareen, I. A., Bajwa, M. A., *et al* (1991) The translation and evaluation of an Urdu version of the Hospital Anxiety and Depression Scale. *Acta Psychiatrica Scandinavica*, 83, 81-85.
- Murray, C, & A Lopez (1996). *The Global Burden of Disease*. Geneva: World Health Organization.

- Nandan, G (1994) Indian grants right to suicide. *British Medical Journal* 308: 1392.
- Nandi, D N, G Banerjee & G C Boral (1978). Suicide in West Bengal: A century apart. *Indian Journal of Psychiatry* 20: 155-160.
- Narang, R L, B P Mishra & N Mohan (2000). Attempted suicide in Ludhiana. *Indian Journal of Psychiatry* 42(1): 83-87.
- Nasser, E, & J Overholser (1999). Assessing varying degrees of lethality in depressed adolescent suicide attempters. *Acta Psychiatrica Scandinavica* 99: 423-431.
- National Center for Health Statistics (2003). International Classification of Diseases, 10th Revision, Clinical Modification (ICD-10-CM). Accessed 24 November 2004. [Http://www.cdc.gov/nchs/data/icd9/draft\\_i10pref.pdf](http://www.cdc.gov/nchs/data/icd9/draft_i10pref.pdf).
- National Center for Injury Prevention and Control (2000). Web-Based Injury Statistics Query and Reporting System. Accessed 13 December 2001, <http://www.cdc.gov/ncipc/wisquars/>.
- National Centre for Suicide Research and Prevention of Mental Ill-health. Suicide in Sweden and Suicide and Attempts in Stockholm County 1980-1997.
- National Coding Centre (1998). The Australian Version of the World Health Organization's International Classification of Diseases, 9th revision, Clinical Modification (ICD-9-CMA-II) (1998) (2nd ed). Sydney University of Sydney.
- Neeleman, J (1998). Regional suicide rates in the Netherlands: Does religion still play a role? *International Journal of Epidemiology* 27: 466-472.
- Neeleman J, & S Wessley (1999) Ethnic minority suicide: a small area geographical study in south London. *Psychological Medicine* 29(2): 429-436.
- Nepe, T M (1991) E hao nei e tenei reanga: Te Toi Huarewa Tipuna; Kaupapa Māori, An educational intervention system, MA Thesis, University of Auckland.
- New Zealand Health Information Service (2001a). Selected Morbidity Data for Publicly Funded Hospitals 1998/99. Wellington: Ministry of Health.
- New Zealand Health Information Service (2001b). Suicide Trends in New Zealand 1978-98. Wellington: Ministry of Health.
- New Zealand Health Information Service (2003). Raw data available from New Zealand Health Information Service. Wellington.
- New Zealand Health Information Service (2003). Raw data available from New Zealand Health Information Service. Wellington.
- New Zealand Health Technology Assessment (1998). Youth Suicide Prevention by Primary Health Care Professionals: A Critical Appraisal of the Literature. Report 4 (revised).
- Nightingale, S, A L Beutrais, P Joyce & R Mulder (1994). Antisocial behaviour and alcohol and drug disorders in suicides and suicide attempters. In P R Joyce, R T Mulder, M A Oakley-Browne, J D Sellman & W G A Watkins (Eds), *Development of Personality & Psychopathology*. Christchurch: Department of Psychological Medicine, Christchurch School of Medicine, 249-256.
- Nishnawbe-Aski Nation Youth Forum on Suicide (1996). Horizons of Hope: An Empowering Journey: Final Report. Thunder Bay, Ontario, Canada. Accessed February 2003 <http://www.nan.on.ca/publications>
- Nobles, W W (1991). African philosophy: Foundations of Black psychology. In R L Jones (Ed), *Black Psychology* (3rd ed). Berkeley, California: Cobb & Henry, 47-63.
- Nordentoft, M., L. Breum, L. Munch et al (1993). High mortality by natural and unnatural causes: a 10 year follow up study of patients admitted to a poisoning treatment center after suicide attempts. *British Medical Journal*, 306:1637-1641.
- O'Carroll, P W. (1989). A consideration of the validity and reliability of suicide mortality data. *Swedish Journal of Psychology*, 19(1): 1-16.
- O'Carroll, P W, A L Berman, R W Maris, E K Moscicki, B L Tanney & M M Silverman (1996). Beyond the Tower of Babel: A nomenclature for suicidology. *Suicide & Life-Threatening Behavior* 26(3): 237-252.
- Ohara, K. (1963). Characteristics of suicide in Japan: Especially on parent-child double suicide. *American Journal of Psychiatry*, 120: 382-385.
- Ohara, K. (1985). Shinju. In *Encyclopedia of Psychiatry* (Revised Edition), ed. M. Kato, H. Hozaki, Y. Kasahara, T. Miyamoto, & K. Okonogi, pp.330-331. Tokyo: Kohbundo. (in Japanese)



- Ohberg, A, J Lönqvist, S Sarna, E Vuori & A Penttila (1995). Trends and availability of suicide methods in Finland: Proposals for restrictive measure. *British Journal of Psychiatry* 166: 35-43.
- Oliver, G, & B S Hetzel (1973). An analysis of recent trends in suicide rates in Australia. *International Journal of Epidemiology* 2: 91-101.
- Olvera, R L (2001). Suicidal ideation in Hispanic and mixed-ancestry adolescents. *Suicide & Life-Threatening Behavior* 31(4): 416-427.
- Ontario Womens' Health Council (2002). D E Stewart, A M Cheung, L E Ferris, I Hyman, M M Cohen & J I Williams (Eds), Ontario Womens' Health Status Report. Canada.
- Opler, M K (1969). International and cultural conflicts affecting mental health: Violence, suicide and withdrawal. *American Journal of Psychotherapy* 23(4): 608-620.
- Ostamo, A, E Lahelma & J Lönqvist (2002). Determinants of attempted suicide in urban environment. *Nord Journal Psychiatry* 56(6): 451-456.
- O'Sullivan M, & M.Fitzgerald (1998). Suicidal ideation and acts of self-harm among Dublin school children. *J Adolesc* ; 21(4):427-33.
- Overholser, J, S Freiheit & J DiFilippo (1997). Emotional distress and substance abuse as risk factors for suicide attempts. *Canadian Journal of Psychiatry* 42: 402-408.
- Pallis, D J, & J S Jenkins (1977). Extraversion, neuroticism, and intent in attempted suicides. *Psychological Reports* 41: 19-22.
- Paluszny, M, C Davenport & W J Kim (1991). Suicide attempts and ideation: Adolescents evaluated on a paediatric ward. *Adolescence* 26: 209-215.
- Paproski, D L (1997). Healing experiences of British Columbia First Nations women: Moving beyond suicidal ideation and intention. *Canadian Journal Community Mental Health* 16(2): 69-89.
- Patton, G C, R Harris, J B Carlin, M E Hibbert, C Coffey, M Schwartz & G Bowers (1997). Adolescent suicidal behaviours: A population-based study of risk. *Psychological Medicine* 27: 715-724.
- Paykel, E S, J K Myers, J J Lindenthal & J Tanner (1974). Suicidal feelings in the general population: A prevalence study. *British Journal of Psychiatry* 124: 460-469.
- Pearce, C M, & G Martin (1993). Locus of control as an indicator of risk for suicidal behaviour among adolescents. *Acta Psychiatrica Scandinavica* 88: 409-414.
- Pearce, C M, & G Martin (1994). Predicting suicide attempts among adolescents. *Acta Psychiatrica Scandinavica* 90: 324-328.
- Pelkonen, M, M Marttunen, E Pulkkinen, P Laippala & H Aro (1997). Characteristics of out-patient adolescents with suicidal tendencies. *Acta Psychiatrica Scandinavica* 95: 100-107.
- Perring C. (1998). Death, Dying and the Quality of Life. Student presentations in Philosophy 350 University of Kentucky. <http://www.uky.edu/Classes/PHI/350/suicide.htm>
- Petronis, K R, J F Samuels, E K Moscicki & J C Anthony (1990). An epidemiologic investigation of potential risk factors for suicide attempts. *Social Psychiatry & Psychiatric Epidemiology* 25: 193-199.
- Pfeffer, C R, G L Klerman, S W Hurt, M Lesser, J R Peskin & C A Siefker (1991). Suicidal children grow up: Demographic and clinical risk factors for adolescent suicide attempts. *Journal of the American Academy of Child & Adolescent Psychiatry* 30: 409-616.
- Pfeffer, C R, L Normandin & T Kakuma (1994). Suicidal children grow up: Suicidal behaviour and psychiatric disorders among relatives. *Journal of the American Academy of Child & Adolescent Psychiatry* 33: 1087-1097.
- Pfeffer, C R., J Newcorn, G Kaplan, M S Mizruchi & R Plutchik (1988). Suicidal behaviour in adolescent suicidal inpatients. *Journal of the American Academy of Child & Adolescent Psychiatry* 27: 357-361.
- Phillips, M R, H Liu & Y Zhang (1999). Suicide and social change in China. *Culture, Medicine & Psychiatry* 23: 25-50.
- Pierce, D W (1977). Suicidal intent in self-injury. *British Journal Psychiatry* 130: 377-385.
- Pierce, D W (1981). The predictive validation of a suicide intent scale: A five-year follow-up. *British Journal of Psychiatry* 139: 391-396.
- Pihama, L (1993). *Tungia Te Ururua Kia Tupu Whakaritorito Te Tupu O Te Harakeke: A Critical Analysis of Parents as First Teachers*. Unpublished M A Thesis, University of Auckland.
- Platt, S (1986). Parasuicide and unemployment. *British Journal of Psychiatry* 149: 401-405.
- Platt S, Hawton K, Kreitman N, Fagg J, & Foster J. (1988). Recent clinical and epidemiological trends in parasuicide in Edinburgh and Oxford: a tale of two cities. *Psychol Med*;18(2):405-18.
-

- Platt, S, & N Kreitman (1984). Trends in parasuicide and unemployment among men in Edinburgh 1968-1982. *British Medical Journal* 289: 1029-1032.
- Platt, S, & N Kreitman (1985). Parasuicide and unemployment among men in Edinburgh. *Psychological Medicine* 15: 113-123.
- Platt, S, & N Kreitman (1990). Long term trends in parasuicide and unemployment in Edinburgh, 1968-1987. *Social Psychiatry & Psychiatric Epidemiology* 25: 56-61.
- Platt, S, R Micciolo & M Tansella (1992). Suicide and unemployment in Italy: Description, analysis, and interpretation of recent trends. *Social Science & Medicine* 34: 1191-1201.
- Plotnikov, N (2001). Suicide in Russia. *Russian Social Science Review* 42(3): 41-43.
- Pokorny, A D (1983). Prediction of suicide in psychiatric patients. *Archives of General Psychiatry* 40: 249-257.
- Pokorny, A D (1993). Suicide prediction revisited. *Suicide & Life-Threatening Behavior* 23: 1-10.
- Pōmare, E, V Keefe-Ormsby, C Ormsby, N Pearce, P Reid, B Robson & N Watene-Hayden (1995). *Hāuora: Māori Standards of Health III: A Study of the Years 1970-1991*. Wellington: Te Rōpū Rangahau Hauora a Eru Pōmare, Māori Health Research Center.
- Pool, I. (1991) *Te Iwi Māori*, Auckland University Press, Auckland.
- Pool, I. (2001) What is a Māori? *Radio New Zealand*, 4 March.
- Pratt, G. (1862). *Pratts grammar and dictionary of the Language*. Apia: The Malua Printing Press.
- Pridmore, S, K Ryan & L Blizzard (1995). Victims of violence in Fiji. *Australian & New Zealand Journal of Psychiatry* 29(4): 666-670.
- Pritchard, C (1992). Is there a link between suicide and young men and unemployment? *British Journal of Psychiatry* 160: 750-756.
- Pritchard, C (1992b). Youth suicide and gender in Australia and New Zealand compared with countries of the Western world 1973-1987. *Australian & New Zealand Journal of Psychiatry* 26: 609-617.
- Pritchard, C (1996). Suicide in the People's Republic of China categorized by age and gender: Evidence of the influence of culture on suicide. *Acta Psychiatrica Scandinavica* 93: 362-367.
- Prudhome, C (1938). The problem of suicide in the American Negro. *Psychoanalytic Review* 25: 187-204, 372-391.
- Qin, P, & P B Mortensen (2001). Specific characteristics of suicide in China. *Acta Psychiatrica Scandinavica* 103(2): 117-121.
- Quantz, D H (1997). Cultural and self disruption: Suicide among First Nations adolescents. Paper submitted to the 8th Canadian Association for Suicide Prevention Conference, October, Thunder Bay, Ontario.
- Queensland Health and Medical Services (1978). *Annual Report of the Health and Medical Services of the State of Queensland*. Brisbane: Government Printer.
- Radford, A J, G A Brice, R Harris & M Van Der Byl, H Monten, M McNeece-Neeson & R Hassan (1999). The 'Easy Street' myth: Self harm among Aboriginal and non-Aboriginal female sole parents in urban state housing. *Australian & New Zealand Journal of Public Health* 23(1): 77-85.
- Ratnayeke, L (1996). Suicide and crisis intervention in rural communities in Sri Lanka. *Crisis* 17(4): 149-151, 154.
- Regier, D, & G Allen (1981). *Risk Factor Research in the Major Mental Disorders*. DHHS Publication No ADM 81-1068. Washington DC: US Government Printing Office.
- Reinherz, H Z, R M Giaconia, A B Silverman, A Friedman, B Pakiz, A K Frost & E Cohen (1995). Early psychosocial risks for adolescent suicidal ideation and attempts. *Journal of the American Academy of Child & Adolescent Psychiatry* 34(5): 599-582.
- Remafedi, G, J A Farrow & R W Deisher (1991). Risk factors for attempted suicide in gay and lesbian youth. *Paediatrics* 87: 869-975.
- Remafedi, G, S French, M Story, M D Resnick & R Blum (1998). The relationship between suicide risk and sexual orientation: Results of a population based study. *American Journal of Public Health* 88: 57-60.
- Research Centre for Injury Studies (2002). *Aboriginal and Torres Strait Islanders Self Harm*. Accessed January 2003, <http://www.nisu.flinders.edu.au/pubs/atsi/atsi-Self.html>.
- Reser, J P (1989). Aboriginal deaths in custody and social construction: A response to the view that there is no such thing as Aboriginal suicide. *Australian Aboriginal Studies* 2: 43-50.

- Reser, P A (1995). Parasuicidal behaviour and health: Investigations in two remote Aboriginal communities of North Queensland. Master of Science (tropical medical science) thesis, James Cook University of North Queensland.
- Resnik, H L P & L H Dizmang (1971). Observation on suicidal behaviour among American Indians. *American Journal of Psychiatry* 127(7): 882-887.
- Riggs, S, A J Alario & C McHorney (1990). Health risk behaviours and attempted suicide in adolescents who report prior maltreatment. *Journal of Paediatrics* 116: 815-821.
- Ritchie, J. (1963). *The making of a Māori*, A.H. & A.W. Reed, Wellington and Auckland.
- Ritchie, J, & J Ritchie (1978). *Growing Up in New Zealand*. Sydney: Allen & Unwin.
- Robicsek, F, B Ribbeck & L G Walker (1993). The cost of violence: The economy of health care delivery for non-accidental trauma in urban south-eastern community. *North Carolina Medical Journal* 54(11): 578-582.
- Robins, L N, P A West & G E Murphy (1977). The high rate of suicide in older White men: A study testing ten hypotheses. *Social Psychiatry* 12(1): 1-20.
- Robinson, S. (1998) "History in their blood: DNA studies confirm Māori beliefs about their ancestors' origins" *Time Magazine*, 7 September.
- Roche, A M, K Watt, R McClure, D M Purdie & D Green (2001). Injury and alcohol: A hospital emergency department study. *Drug & Alcohol Review* 20: 155-166.
- Romans, S, A Walsh & J Baxter (1997). Women. In P M Ellis & S C D Collings (Eds), *Public Health Report: Mental Health in New Zealand from a Public Health Perspective*. Wellington: Ministry of Health, 184-206.
- Rosander AC (1977). *Case studies in Sample Design*. New York: M Dekker.
- Rose, G (1993). Mental disorder and the strategies of prevention. *Psychological Medicine* 23: 553-555.
- Rose, J, S Hatcher & T Koelmeyer (1999). Suicide in Auckland 1989-1997. *New Zealand Medical Journal* 112: 324-326.
- Rosenberg, ML, LE Davidson, JC Smith, AL Berman, H Buzbee, G Gantner, GA Gay, B Moore-Lewis DH Mills D Murray PW O'Carroll, & D Jobes, (1988). Operational criteria for the determination of suicide. *Journal of Forensic Sciences* 32(6), 1445-1456.
- Rossow I, & L Wichstrom. (1994). Parasuicide and use of intoxicants among Norwegian adolescents. *Suicide Life Threat Behav*;24(2):174-83.
- Rothman KJ. *Modern epidemiology*. Boston: Little, Brown, and Company, 1986.
- Roy, A, N Segall & B Canterwall (1991). Suicide in twins. *Archives of General Psychiatry* 53: 1145-1152.
- Royal Commission into Aboriginal Deaths in Custody (1991). *National Report*. Canberra: AGPS.
- Royal Commission on Aboriginal Peoples (1995). *Choosing Life: Special Report on Suicide among Aboriginal People*. Ottawa: Canadian Government Publishing, chapter 3.
- Royal Commission on Aboriginal Peoples (1996). *People to People, Nation to Nation: Highlights from the Report of the Royal Commission on Aboriginal Peoples*. Ottawa, Canada: Minister of Supply and Services.
- Royal Commission on Social Policy (1988). *The April Report, II*. Wellington, 26-151.
- Royal New Zealand College of General Practitioners (1999). *Guidelines for Primary Care Providers: Defection and Management of Young People at Risk of Suicide*. <http://www.rnzcgp.org.nz/Guidelines/YS/ys.htm>.
- Rubenstein, J L, T Heeren, D Housman, C Rubin & G Stechkler (1989). Suicidal behaviour in 'normal' adolescents: Risk and protective factors. *American Journal of Orthopsychiatry* 59: 59-71.
- Rubinstein, D H (1987). Cultural patterns and contagion: Epidemic suicide among Micronesian youth. In A B Robillard & A J Marsella (Eds), *Contemporary Issues in Mental Health Research in the Pacific Islands*. Honolulu: Social Science Research Institute, University of Hawaii, 127-148.
- Rubinstein, D H (1992). Suicide in Micronesia and Samoa: A critique of explanations. *Pacific Studies* 15(1): 51-75.
- Rubinstein, D H (1995). Love and suffering: Adolescent socialization and suicide in Micronesia. *Contemporary Pacific* 7(1): 21-53.
- Rygnestad, T. (1988). A prospective 5 year follow up study of self poisoned patients. *Acta Psychiatrica Scandinavica*, 77:328-333.
- Sack, W H, M Beiser, G Baker-Brown & R Redshirt (1994). Depressive and suicidal symptoms in Indian school children: Findings from the Flower of Two Soils. *American Indian and Native Mental Health Research Monograph Series* 4: 81-94, 94-96.

- Sakinofsky, I. (2000). Repetition of suicidal behaviour. In *The International Handbook of Suicide and Attempted suicide* (eds K Hawton and K. Van Heeringen), pp 385-404. Chichester: John Wiley & Sons.
- Sainsbury, P (1986). The epidemiology of suicide. In A Roy (Ed), *Suicide*. Baltimore, Maryland: Williams & Wilkins, 17-40.
- Samuelsson M, JP Gustavsson, IL Petterson, B Arnetz, & M Asberg. (1997). Suicidal feelings and work environment in psychiatric nursing personnel. *Soc Psychiatry Psychiatr Epidemiol*; 32(7):391-7.
- Schlesselman, J J (1982). *Case Control Studies*. New York: Oxford University Press.
- Schmidtke, A, U Bille-Brahe, D De Leo, A Kerkhof, T Bjerke, P Crepet, E Deisenhammer, K Hawton, J Lönnqvist, K Michel, X Pommerau, I Querejeta, A Philippe, E Salander-Renberg, B Temesvary, D Wasserman, J G Sampaio Faria & B Weinacker (1994). Rates and trends of attempted suicide in Europe, 1989-1992. In A Kerkhof, A Schmidtke, U Bille-Brahe, D De Leo & J Lönnqvist (Eds), *Attempted Suicide in Europe: Findings from the Multicentre Study on Parasuicide by the WHO Regional Office for Europe*. Leiden: DSWO Press, 209-229.
- Schmidtke, A, U Bille-Brahe, D DeLeo, A Kerkhof, T Bjerke, P Crepet, E Deisenhammer, K Hawton, J Lönnqvist, K Michel, X Pommerau, I Querejeta, A Philippe, E Salander-Renberg, B Temesvary, D Wasserman, J G Sampaio Faria & B Weinacker (1996). Attempted suicide in Europe: Rates, trends and socio-demographic characteristics of suicide attempters during the period 1989-1992. Results of the WHO/EURO Multicentre Study on Parasuicide. *Acta Psychiatrica Scandinavica* 93: 327-338.
- Schmidtke A, Fricke S, Weinacker B. The epidemiology of attempted suicide in the Würzburg area, Germany 1989-1992. In: Kerkhof A, Schmidtke A, Bille-Brahe U, De Leo D, Lönnqvist J, editors. *Attempted suicide in Europe*. Leiden: DSWO Press, 1994:159-174.
- Schneider, S G, N L Faberow & G N Kruks (1989). Suicidal behaviour in adolescent and young adult gay men. *Suicide & Life-Threatening Behavior* 19: 381-393.
- Schwimmer, E & J Forster (Eds) (1968). *The Māori People in the Nineteen Sixties*. Auckland: Blackwood and Janet Paul.
- Shaffer, D, A Garland, M Gould, P Fisher & P Trautman (1988). Preventing teenage suicide: a critical review. *Journal of the Academy of Child & Adolescent Psychiatry* 27: 675-687.
- Shaffer, D, M S Gould, P Fisher, P Trautman, D Moreau, M Kleinman & M Flory (1996). Psychiatric diagnosis in child and adolescent suicide. *Archives of General Psychiatry* 53: 339-348.
- Shaffer, D, P Fisher, R Hicks, M Parides & M Gould (1995). Sexual orientation in adolescents who commit suicide. *Suicide & Life-Threatening Behavior* 25(supplement): 64-71.
- Shaffi, M, S Carrigan & R Whittinghill (1985). Psychological autopsy of completed suicide in children and adolescents. *American Journal of Psychiatry* 142: 1061-1064.
- Sharma, P G, & D G Sawang (1993). Suicide in rural areas of Warangal district. *Indian Journal of Psychiatry* 3: 79-84.
- Shaunese, K, J Cohen, B Plummer & A Berman (1993). Suicidality in hospitalized adolescents: Relationship to prior abuse. *American Journal of Orthopsychiatry* 63: 113-119.
- Shneidman, E S (1969). Suicide, lethality, and the psychological autopsy. *International Psychiatry Clinical* 6: 225-250.
- Shneidman, E S (1981). The psychological autopsy. *Suicide & Life-Threatening Behavior* 11: 325-340.
- Shukla, G D, B L Verma & D N Mishra (1990). Suicide in Jhansi city. *Indian Journal of Psychiatry* 32: 44-51.
- Silburn, S, S Zubrick, L Hayward & D Reidpath (1991). *Attempted Suicide among Perth Youth*. Perth: Health Department of Western Australia.
- Silverman, A B, H Reinherz & R M Giaconia (1996). The long-term sequelae of child and adolescent abuse: A longitudinal community study. *Child Abuse & Neglect* 20: 709-723.
- Simon, G, R Gater, S Kisely & M Piccinelli (1996). Somatic symptoms of distress: an international primary care study. *Psychosomatic Medicine* 58(5): 481-488.
- Simon, T R, A C Swann, K E Powell, L B Potter, M Kresnow & P W O'Carroll (2001). Characteristics of impulsive suicide attempts and attempters. *Suicide & Life-Threatening Behavior* 32(supplement): 49-59.
- Sinclair, C M (1998). Suicide in First Nations People. In A A Leenaars, S Wenckstern, I Sakinofsky, R J Dyck, M J Kral & R C Bland (Eds), *Suicide in Canada*. Toronto: University of Toronto Press, 165-178.



- Sinclair, K (1991). *A History of New Zealand*. Auckland: Penguin.
- Skegg, K (1997). Suicide and parasuicide. In P M Ellis & S C D Collings (Eds), *Public Health Report: Mental Health in New Zealand from a Public Health Perspective*. Wellington: Ministry of Health, chapter 23.
- Skegg, K, & B Cox (1991). Suicide in New Zealand 1957-1986: The influence of age, period and birth-cohort. *Australian & New Zealand Journal of Psychiatry* 25(2): 181-190.
- Skegg, K, & B Cox (1993). Suicide in custody: Occurrence in Māori and non-Māori New Zealanders. *New Zealand Medical Journal* 106(948): 1-3.
- Skegg, K, B Cox & J Broughton (1995). Suicide among New Zealand Māori: Is history repeating itself? *Acta Psychiatrica Scandinavica* 92: 453-459.
- Slap, G B, D F Vorters, S Chaudhuri & R M Centor (1989). Risk factors for attempted suicide during adolescence. *Paediatrics* 84: 762-772.
- Smith, A J. Self-poisoning with drugs: a worsening situation. *Br Med J* 1972;4(833):157-9.
- Smith, G H (1990a). Māori Research Considerations. New Zealand Association of Researchers in Education Special Interests Conference to mark the visit of Michael Apple to New Zealand, Palmerston North, July.
- Smith, G H (1990b). Research issues related to Māori education. Paper presented at the New Zealand Association of Researchers in Education Special Interests Conference, University of Auckland.
- Smith, K, & S Crawford (1986). Suicidal behaviour among 'normal' high school students. *Suicide & Life-Threatening Behavior* 16: 313-325.
- Smith, L T (1992). Te rapunga i te ao marama: The search for the world of light: Māori perspectives on research in education. In J Morris & T Linzey (Eds), *Growing Up: The Politics of Human Learning*. Auckland: Longman Paul.
- Smith, L T (1996). Kaupapa Māori health research. In Hui Whakapiripiri: A hui to discuss Strategic Directions for Māori health research. Wellington School of Medicine: Te Rōpū Rangahau Hauora a Eru Pōmare.
- Smith, L T & Cram, F (1997). An evaluation of the community panel diversion pilot project. Commissioned by the Crime Prevention Unit, Office of the Prime Minister and Cabinet, Wellington.
- Snaith, R P, S J Baugh, A D Clayden, A Hussain & M Sipple (1982). The clinical anxiety scale: A modification of the Hamilton Anxiety Scale. *British Journal of Psychiatry* 141: 518-523.
- Sorenson, S B, & J M Golding (1988a). Prevalence of suicide attempts in a Mexican-American population: Prevention implications of immigration and cultural issues. *Suicide & Life-Threatening Behavior* 18: 322-333.
- Sorenson, S B, & J M Golding (1988b). Suicide ideation and attempts in Hispanics and non-Hispanic Whites: Demographic and psychiatric disorder issues. *Suicide & Life-Threatening Behavior* 18: 205-218.
- Spaulding, J M (1985-1986). Recent suicide rates among ten Ojibwa Indian bands in north-western Ontario. *Omega-Journal of Death & Dying* 16(4): 347-354.
- Spirito, A, C Sterling, D Donaldson & M Arrigan (1996). Factor analysis of the Suicide Intent Scale with adolescent suicide attempters. *Journal of Personality Assessment* 67: 90-101.
- Spirito, A, J Overholser & K Hart (1991). Cognitive characteristics of adolescent suicide attempters. *Journal of the American Academy of Child & Adolescent Psychiatry* 30: 604-608.
- Spirito, A, W Lewander, S Levy, J Kurkjian & G Fritz (1994). Emergency department assessment of adolescent suicide attempters: Factors related to short-term follow-up outcome. *Pediatric Emergency Care* 10: 6-12.
- Stanley, M, & B Stanley (1989). Biochemical studies in suicide victims: current findings and future implications. *Suicide & Life-Threatening Behavior* 19: 30-42.
- Stark, C, & F Matthewson (2000). Differences in suicide rates may be even more pronounced. *British Medical Journal* 320: 1146.
- Statistics Canada (1993a). *Cause of Death 1991*. Cat No 84-208. Ottawa: Minister of Industry, Science and Technology.
- Statistics Canada (1993b). *The Daily*. Cat No 11-001E, 29 June 1993.
- Statistics New Zealand (1996). *New Zealand Official Yearbook*. Wellington: Government Print.
- Statistics New Zealand (1997). *1996 Census of Populations and Dwellings: Māori*. Wellington.
- Statistics New Zealand (1999). *Demographic Trends 1998*. Wellington.

- Statistics New Zealand (2000). *Māori: Impacts of Unemployment*. Wellington.
- Statistics New Zealand (2005). Changes in ethnicity question 2001 Census and Dwellings. [http://www2.stats.govt.nz/domino/external/web/prod\\_serv.nsf/htmldocs/Change+in+ethnicity+question+-+2001+Census+of+Population+and+Dwellings#Overview](http://www2.stats.govt.nz/domino/external/web/prod_serv.nsf/htmldocs/Change+in+ethnicity+question+-+2001+Census+of+Population+and+Dwellings#Overview)
- Steer, R, & A Beck (1988). Use of the Beck Depression Inventory, Hopelessness Scale, Scale for Suicidal Ideation, and Suicidal Intent Scale with adolescents. *Advances in Adolescent Mental Health* 3: 219-231.
- Stenager, E N, & E Stenager (1997). *Disease, Pain and Suicidal Behaviour*. New York: Haworth Press.
- Stengel, E (1964). *Suicide and Attempted Suicide*. London: Penguin.
- Stevenson, B. (2004) "Towards a better measure of cultural identity" *He Pukeenga Koreoro*. 8(1):37-47.
- Stewart D E, A M Cheung, L E Ferris, I Hyman, M M Cohen & J I Williams (Eds) (2002). *Ontario Womens' Health Status Report*. Canada: Ontario Womens' Health Council.
- Stokes, E (1985). *Māori research and development*. A discussion paper prepared for the Social Sciences Committee of the National Research Advisory Council.
- Stone, D H, P Chishti & C Roulston (2002). Final Report of the European Review of Suicide and Violence Epidemiology (EUROSAVE) Project. Accessed 28 February 2003, <http://www.euro-save.net>.
- Stone, G (1999). *Suicide and Attempted Suicide*. New York: Carroll and Graf.
- Strickland, B R (1978). Internal-external expectancies and health-related behaviours. *Journal of Consulting & Clinical Psychology* 46: 1192-1211.
- Strickland, C J (1997). Suicide among American Indian, Alaskan Native, and Canadian aboriginal youth: Advancing the research agenda. *International Journal of Mental Health* 25(4): 11-32.
- Sudak, H S, A B Ford & N B Rushforth (1984). Adolescent suicide: An overview. *American Journal of Psychotherapy* 38: 350-363.
- Suokas, J & J. Lönnqvist (1991) Outcome of attempted suicide and psychiatric consultation: risk factor and suicide mortality during a 5 years follow up. *Acta Psychiatrica Scandinavica*, 84:545-549.
- Szasz, T (1979). *The Theology of Medicine: The Political-Philosophical Foundations of Medical Ethics*. Oxford: Oxford University Press.
- Tatz, C (1999). *Aboriginal Suicide is Different: Aboriginal Youth Suicide in NSW, the Australian Capital Territory and New Zealand: Towards a Model of Explanation and Alleviation*. A report to the Criminology Research Council on CRC Project 25/96-7.
- Taylor, E A, & S A Stansfeld (1984). Children who poison themselves. 1. A clinical comparison with psychiatric controls. *British Journal of Psychiatry* 145: 127-135.
- Te Awakotuku, N (1991). *He Tikanga Whakaaro: Research Ethics in the Māori Community*. Wellington: Manatu Māori.
- Te Puni Kōkiri (1994). *Te Ara Ahu Whakamua: Proceedings of the Māori Health Decade Hui*. Wellington.
- Te Puni Kōkiri (1996). *Te Māori te Waipiro*. Wellington.
- Te Puni Kōkiri (1998). *A Review of the Evidence: Kia Piki Te Ora O Te Taitamariki: The New Zealand Youth Suicide Prevention Strategy*. Wellington.
- Tejedor, M C, A Diaz, J J Castillon & J M Pericay (1999). Attempted suicide: Repetition and survival findings of a follow-up study. *Acta Psychiatrica Scandinavica* 100: 205-211.
- Thompson, W D (1994). Statistical analysis of case-control studies. *Epidemiologic reviews* 16: 33-50.
- Thomson, N J, & D McDonald (1993). Australian deaths in custody, 1980-1989. 1. Relative risks of Aborigines and non-Aborigines. *Medical Journal of Australia* 159: 577-581.
- Thorslund, J (1991). Suicide among Inuit youth in Greenland 1974-86. In B.D. Postl, P. Gilbert, J. Goodwill, M.E.K. Moffatt, J.D. O'Neil, P.A. Sarsfield & T.K. Young (Eds.), *Circumpolar Health* 90 (pp. 299-302). Winnipeg: University of Manitoba Press.
- Tiatia, J, & C Coggan (2001). Young Pacifican suicide attempts: A review of emergency department medical records, Auckland, New Zealand. *Pacific Health Dialogue: Journal of Community Health & Clinical Medicine for the Pacific* 8(1): 124-128.
- Tiller, J, J Krupinski, G Burrows, A Mackenzie, H Hallenstein & G Johnstone (1997). *A Prospective Study of Completed and Attempted Youth Suicides in Victoria*. Melbourne: University of Melbourne.
- Tondo, L, & R J Baldessarini (2000). Reduced suicide risk during lithium maintenance treatment. *Journal Clinical Psychiatry* 61 (supplement 9): S97-S104.

- Tondo, L, & R J Baldessarini (2001). Suicide: Historical, Descriptive, and Epidemiological Considerations. Accessed 28 January 2003, <http://www.medscape.com/viewprogram/352>.
- Tondo, L, R J Baldessarini, J Hennen, G P Minnai, P Salis, L Scamonatti, M Masia, C Ghiani & P Mannu (1999). Suicide attempts in major affective disorder patients with comorbid substance use disorders. *Journal of Clinical Psychiatry* 60(supplement 2): 63-69.
- Tradition, Change and Survival (1987). Vancouver, British Columbia: University of British Columbia Media Services.
- Trautman, P D, M J Rotheram-Borus, S Dopkins & N Lewin (1991). Psychiatric diagnoses in minority female adolescent suicide attempters. *Journal of the American Academy of Child & Adolescent Psychiatry* 30: 617-622.
- Tulloch, A L, L Blizzard, H Hornsby & Z Pinkus (1994). Suicide and self-harm in Tasmanian children and adolescents. *Medical Journal of Australia* 160: 775-786.
- Tuzun, B, O Polat, S Vatansver & I Elmas (2000). Questioning the psycho-socio-cultural factors that contribute to the cases of suicide attempts: an investigation. *Forensic Science International* 113(1-3): 297-301.
- US Congress (1990) Indian adolescent mental health. Washington, DC: Office of Technology Assessment.
- Van Casteren V, Van der Veken J, Tafforeau J, Van Oyen H. (1993) Suicide and attempted suicide reported by general practitioners in Belgium, 1990-1991. *Acta Psychiatr Scand*;87(6):451-5.
- van Heeringen C, Jannes C. Recent changes in the age- and gender-specific rates of attempted suicide in Gent. *Soc Psychiatry Psychiatr Epidemiol* 1993;28(2):66-70.
- Van Heeringen C, Meerschaert T. (1998). Suicidal Behaviour in Gent and Flanders 1996-1997: Unit for Suicide Research.
- Van Winkle, N W & P A May (1993). An update on American Indian suicide in New Mexico, 1980-1987. *Human Organization* 52(3): 304-315.
- Van Winkle, N W, & P A May (1986). Native American suicide in New Mexico, 1957-1979: A comparative study. *Human Organization* 45(4): 296-309.
- Velez, C N, & P Cohen (1988). Suicidal behaviour and ideation in a community sample of children, maternal and youth reports. *Journal of the American Academy of Child & Adolescent Psychiatry* 27: 349-356.
- Velting, D M, D Shaffer, M S Gould, R Garfinkel, P Fisher & M Davies (1998). Parent-victim agreement in adolescent suicide research. *Journal of American Academy of Child & Adolescent Psychiatry* 37(11): 1161-1166.
- Venkoba Rao, A (1971). Suicide attempters in Madurai. *Journal of Indian Medical Association* 57: 278-284.
- Verhulst, F, & H Koot (1991). Longitudinal research in child and adolescent psychiatry. *Journal of the Academy of Child & Adolescent Psychiatry* 30: 361-368.
- Wagner, B M, R E Cole & P Schwartzman (1995). Psychosocial correlates of suicide attempts among junior and senior high school youth. *Suicide & Life-Threatening Behavior* 25: 358-372.
- Walker, R (1990). *Ka Whawai Tonu Matou: Struggle Without End*. Auckland: Penguin.
- Wallace, L J, A D Calhoun, K E Powell, J O'Neil & S P James (1996). Homicide and Suicide among Native Americans, 1979-1992. *Violence Surveillance Summary Series No 2*. Atlanta, Georgia: National Center for Injury Prevention and Control.
- Wasserman D, & S Spellerberg. (1990). Attempted-suicide trends in Stockholm County, Sweden, 1975-1985. *Acta Psychiatr Scand*; 81(2):190-6.
- Webber, W (2000). EU calls for action to prevent youth suicide. *Lancet* 356: 1092.
- Weinberg CR. (1993). Toward a clearer definition of confounding. *American Journal of Epidemiology*;137:1-8.
- Wetzler, S, G M Asnis, R B Hyman, C Virtue, J Zimmerman & J H Rathus (1996). Characteristics of suicidality among adolescents. *Suicide & Life-Threatening Behavior* 26: 37-45.
- Wilkinson, D, & D Gunnell (2000). Youth suicide trends in Australian metropolitan and non-metropolitan areas, 1988-1997. *Australian & New Zealand Journal of Psychiatry* 34(5): 822-828.
- Wilkinson, G (1994). Can suicide be prevented? *British Medical Journal* 309: 860-862.
- Williams, H W (1971). *A Dictionary of Māori Language*, 7th Edition p.210.



- Williams, C L, & J W Berry (1991). Primary prevention of acculturative stress among refugees: Application of psychological theory and practice. *American Psychologist* 46: 632-641.
- Wilson, C (1999). Ethnicity issues in deliberate self-injury: A review of literature. *The Bulletin* 97: 17-22.
- Wing, J K, J E Cooper & N Sartorius (1974). *The Measurement and Classification of Psychiatric Symptoms*. London. Cambridge University Press.
- Winston, M, & J Smith (2000). A trans-cultural comparison of four psychiatric case-finding instruments in a Welsh community. *Social Psychiatry Psychiatric Epidemiology* 35(12): 569-575.
- Wissow, I. S (2000). Suicide among American Indians and Alaska Natives. In E R Rhoades (Ed), *American Indian Health*. Baltimore, Maryland: Johns Hopkins University Press, 260-280.
- Wittchen, H U (1994). Reliability and validity studies of the WHO-Composite International Diagnostic Interview (CIDI): A critical review. *Journal Psychiatric Research* 28(1): 57-84.
- WHO/EURO Multicentre Study on Parasuicide Facts and Figures. Copenhagen: World Health Organization regional Office for Europe, 1999.
- World Health Organization (1988-1995). *World Health Statistics Annual*. Geneva.
- World Health Organization (1993). *The International Statistical Classification of Diseases and Related Health Problems, tenth revision*. Geneva.
- World Health Organization (1994). *Attempted Suicide in Europe: Findings from the Multicentre Study on Parasuicide*. Leiden: DSWO Press.
- World Health Organization (1996). *World Health Annual Statistics*. Geneva.
- World Health Organization (1997). *Composite International Diagnostic Interview (CIDI). Core version 2.1*. Geneva.
- World Health Organization (1998). *Suicidal Behaviour in Europe: The Situation in the 1990s*. Copenhagen: WHO Regional Office for Europe.
- World Health Organization (1999). *The Newly Defined Burden of Mental Problems. Fact Sheet No 217*. <http://www.who.int/inf-fs/en/fact217.html>.
- World Health Organization (2001). *Mental Health and Brain Disorders: Suicide Rates*. Accessed 7 January 2002, [http://www.who.int/mental\\_health/Topic\\_Suicide/Suicide\\_rates.html](http://www.who.int/mental_health/Topic_Suicide/Suicide_rates.html).
- World Health Organization (2004). *Information from the Department of Mental Health and Substance Abuse*. [http://www.who.int/mental\\_health/en/Nov\\_2004\\_NL\\_frnl.pdf](http://www.who.int/mental_health/en/Nov_2004_NL_frnl.pdf). Accessed 21 December 2004
- World Health Organization (2004a). *Country reports and charts available*. [http://www.who.int/mental\\_health/prevention/suicide/country\\_reports/en](http://www.who.int/mental_health/prevention/suicide/country_reports/en) Accessed 6 January 2005.
- Yamey, G (2000). Suicide rate is decreasing in England and Wales. *British Medical Journal* 320: 75.
- Yip, P S (2001). An epidemiological profile of suicide in Beijing, China. *Suicide & Life-Threatening Behavior* 31(1): 62-70.
- Yip, P S, C Callana & H P Yuen (2000). Urban/rural and differentials in suicide rates: East and west. *Journal of Affective Disorders* 57(1-3): 99-106.
- Yuen, N, N Andrade, L Nahulu, G Makini, J F McDermott, G Danko, R Johnson & J Waldron (1996). The rate and characteristics of suicide attempters in the Native Hawaiian adolescent population. *Suicide & Life-Threatening Behavior* 26(1): 27-36.
- Zhang, J (1996). Suicide in Beijing, China, 1992-1993. *Suicide & Life-Threatening Behavior* 26(2): 175-180.
- Zhang, J (2000a). Collectivism or individualism: An analysis of Chinese interactive culture. *American Review of China Studies* 1(2): 57-65.
- Zhang, J (2000b). Understanding Chinese suicide with a comparison of national data. *American Review of China Studies* 1(1): 9-29.
- Zigmond, A S, & R P Snaith (1983). *The Hospital Anxiety and Depression Scale*. *Acta Psychiatrica Scandinavia* 67: 361-370.
- Zi-Laing, J, S Jia, W E Wiczorek & C Jiang (2002). An overview of suicide research in China. *Archives of Suicide Research* 6: 167-184.
- Zinn, C, H Karcher, M Dolley, J Rochal, M Yamauchi, R Rhein, T Sheldon, A Dorozynski & S Kingman (1994). Suicide. *British Medical Journal* 308: 7-11.
- Zubrick, S R, S R Silburn, L Gurrin, H Teoh, C Shepherd, J Carlton, D Lawrence (1997). *Western Australian Child Health Survey: Education, Health and Competence*. Perth, Western Australia: Australian Bureau of Statistics and the TVW Telethon Institute for Child Health Research.