

The resilience of urban Aboriginal children and their caregivers

Christian Ronald Phillip Young

**A thesis submitted in fulfilment of the requirements for the degree of
Doctor of Philosophy**

School of Public Health

Faculty of Medicine

University of Sydney

2019

Intentionally left blank.

Statement of Originality

This is to certify that to the best of my knowledge the content of this thesis is my own work. This thesis has not been submitted for any degree or other purposes.

I certify that the intellectual content of this thesis is the product of my own work and that all the assistance received in preparing this thesis and sources have been acknowledged.

Christian Ronald Phillip Young

Signature:

Date:

Author's Contribution

The work presented in this thesis has been carried out by the author under the supervision of Doctor Anna Williamson (The Sax Institute), Professor Jonathan C Craig (School of Public Health, The University of Sydney) and Professor Kathleen Clapham (Australian Health Services Research Institute, The University of Wollongong).

The author planned the research, designed the studies, obtained ethics approval (Chapter 3), collected, managed and analysed the data, interpreted results, drafted and revised the manuscripts for submission to peer-reviewed journals, and wrote and compiled this thesis.

As supervisor for the candidature upon which this thesis is based, I can confirm that the authorship attribution statements above are correct.

Doctor Anna Williamson

Signature:

Date:

Ethical Clearance

The studies presented in Chapters 3 to 5 were approved by the University of Sydney, Human Research Ethics Committee and the Aboriginal Health and Medical Research Council Ethics Committee of New South Wales.

All participants gave written informed consent for participation in the studies.

Abstract

For 65,000 years Aboriginal people living in Australia have demonstrated resilience in the face of adversity. Aboriginal communities have adapted to large changes in climate, have lived and flourished in arid, hostile conditions, and have developed highly specialised skills to maintain and preserve delicate ecosystems. These abilities reflect physical, intellectual and cultural strengths that have allowed Aboriginal people to thrive in conditions that most early European settlers found to be inhospitable. More recently, Aboriginal people have survived existential threats to both population and culture, including gross violations of their human rights, and a catastrophic decline in numbers that proliferated well into the 20th Century.

At present, the proportion of Aboriginal children completing secondary and tertiary-level education is higher than at any other time, and Aboriginal representation at senior levels of academia, healthcare, and governance is steadily growing. The ability to adapt positively despite the presence of adversity is conceptualised as resilience. Human resilience is believed to be the product of a dynamic interaction between multiple systems (e.g. biological, familial, cultural). Resilience is commonly inferred by positive (or better than expected) social, educational, or health outcomes in the presence of circumstances that are known to threaten the normal development, wellbeing or functioning of an individual or group. Resilience is associated with a number of factors that are known to contribute to health status throughout the lifespan, such as positive educational and employment outcomes. Resilience has also been linked directly to good physical and mental health.

Given the unequal risk that Aboriginal people are exposed to, a greater understanding of how resilience manifests may lead to targeted initiatives that can reduce the health gaps between Aboriginal and non-Aboriginal people. This requires identifying risk factors for poor health and wellbeing, identifying factors that enable resilience, understanding how these factors promote resilience, and translating this knowledge into initiatives that promote good health. Currently, the small amount of research in Australia limits our understanding of what can be done to promote the resilience of Aboriginal children and their caregivers. The overarching aim of this thesis is to investigate resilience within an

urban Aboriginal context and identify factors that are associated with greater resilience.

To do this, this thesis will:

1. Identify psychosocial factors associated with the mental health of Indigenous children who share a common history of European colonisation (Chapter 2)
2. Investigate and describe children's resilience within four urban Australian Aboriginal communities, including the prevalence of resilience, factors that are associated with fostering resilience, the processes whereby resilience manifests, and potential strategies to enhance resilience (Chapters 3 and 4)
3. Investigate the prevalence of resilience and stressful life events among caregivers of Aboriginal children and identify psychosocial, health and demographic factors associated with resilience (Chapter 5)
4. Review current evidence surrounding what works to improve Aboriginal children's social and emotional wellbeing and resilience (Chapter 6)

The research component of this thesis begins with a systematic review of studies that investigated quantitative associations between psychosocial risk and protective factors and the mental health and resilience of Indigenous children who live in Australia, the United States and Canada. Resilience was then explored within Australia using a mixed methods design. Childhood resilience and associated factors were defined from the perspectives of members of three urban Aboriginal communities. The findings from this study were then used to identify five independent variables believed to promote resilience. The relationships between these factors and adolescent's social and emotional strengths were then quantitatively assessed. To gain a holistic picture of resilience within the family, factors associated with low psychological distress among caregivers of Aboriginal children when stress is present was investigated quantitatively. To conclude, a systematic review of peer reviewed studies that evaluated social and emotional wellbeing programs for Aboriginal young people (4 to 25 years old) between 2007 and 2017 was conducted.

The results show that urban Aboriginal people are remarkably resilient despite considerable adversity. For children, the presence of stable home environments, supportive social networks, connection to culture and regular exercise were all seen to

foster behavioural, social and emotional strengths in the presence of adversity. Additionally, children who have the awareness and the opportunity to set positive goals, and the self-efficacy to work towards attaining these goals were thought more likely to resist making choices indicative of poor resilience. Like children, caregivers who lived in stable home environments were more likely to be resilient; however, the poor physical health of caregivers and their families posed a significant threat to resilience. The programs to enhance the social and emotional wellbeing and resilience of Aboriginal children identified in the literature review largely used education-based strategies, sports and cultural activities, and the provision of role-models and mentors. However, the number of evaluated programs appeared small relative to need, and the quality of evidence was predominantly low, reflecting the nascent stage of Aboriginal social and emotional and resilience research.

For urban Aboriginal families, this thesis highlights risks that are associated with higher order determinants of health, such as low socio-economic status and the historic and ongoing marginalisation of Aboriginal people and their culture. Policy with greater vision and commitment is required in order to change the systems and structures that create and maintain disadvantage, thereby reducing the unequal risk exposure that Aboriginal people experience. Greater provision of culturally appropriate initiatives that can promote stable, strong and cohesive Aboriginal families are needed, as well as programs that can prevent the incidence of functionally limiting health problems in Aboriginal caregivers. The availability of positive role-models and strategies to empower children to make positive choices in challenging circumstances are likely to promote resilience, particularly among children most at risk. Initiatives that are community-led, involve education for parents and children, include cultural activities, sport and mentorship appear promising. However, despite a number of initiatives, the evidence base that supports programs to enhance social and emotional wellbeing, including resilience, is lacking. Given the presence of ongoing mental health gaps between Aboriginal and non-Aboriginal people, more rigorous program evaluations that have the power to inform large-scale strategies that can build upon the resilience of Aboriginal communities are warranted.

Intentionally left blank.

Acknowledgments

This thesis draws upon a large volume of information that has been provided by a diverse range of Aboriginal community members, including health professionals, Elders, caregivers, adolescents and children. Given the presence of urgent and unacceptable health gaps between Aboriginal and non-Aboriginal people, the value of this data cannot be understated. I would therefore like to express my gratitude to all the caregivers who gave up a morning or an afternoon (or both), to answer numerous questions about their lives, and that of each of their children. I would also like to acknowledge the Aboriginal people who openly shared stories of resilience, even though this may have been painful to do.

I have received considerable help along my PhD journey for which I am extremely grateful. First and foremost, I could not have asked for a more supportive triumvirate of supervisors. Anna, Jonathan and Kathie, I have learnt a great deal from you, both directly, but also by watching how you conduct yourselves as researchers, educators and leaders. You have brought a wealth of knowledge and experience to the particularly thorny area of resilience research. Most of all, thank you for your patience. Anna, I cannot thank you enough for your guidance, calmness, positivity and 'no-nonsense' attitude, which have greatly helped my own personal wellbeing throughout the PhD process.

Thank you to the exceptional team at the Sax Institute, especially Pete, Deanna and Simone, who have been an invaluable source of knowledge and support right from the very beginning. Thank you to Leonie and Adam, who graciously and patiently entertain my requests for 'five minutes of their time'. To our fearless leader Sumi, I'm convinced that you do the work of five people. To the rest of the SEARCH team, Elena, Hilary, Janice, Melanie, Nicole and Shingi, thank you for your help, conversation and for being such a pleasure to work with.

A huge thank you to all at the Centre for Kidney Research (CKR). I was extremely fortunate to find myself in a collaborative, professional and supportive atmosphere at the beginning of a new career. The culture at CKR is a testament to all who work there,

but also to Jonathan, his vision, ethic and leadership – he will be missed by all. Thanks to Allison for always having the time to share her expertise and for showing me the qualitative research ropes. More recently, thanks to Armando for his statistical advice.

To the extended SEARCH team, the executive body, the research officers, the ACCHS managers, the clinicians and the health workers: to have, collectively, brought the vision of SEARCH into reality, collected data on over 1600 people (and counting), and to have provided so many life-changing services for Aboriginal children is nothing short of outstanding. I count myself fortunate to be one small part of this remarkable team. The strength of SEARCH is in its partnerships. My hope is that these partnerships will continue to flourish, not least to improve the health of Aboriginal communities, but also to serve as an example of the power of Aboriginal and non-Aboriginal relationships that are built on mutual respect and common goals.

At a more proximal level, I would like to thank my parents, Peter and Bess, and my step-parents, John and Jayne, for their continuing support. I would especially like to thank Dad for fostering a curiosity in science, often through long late-night talks regarding the nature of the world, and Mum for her unconditional love, support and enthusiasm, and for being one of the few people who will (willingly) read every word I have written.

Special thanks to Lisa Ndeira for stepping up at the last minute and meticulously proofreading Chapters 1, 6 and 7.

Lastly, to Cath, this work would not have been possible without your love, commitment and understanding, thank you – I promise this one is the last!

Author's Statement

This body of research is focused on the health of Aboriginal Australians and uses data collected from Indigenous communities both in Australia and overseas. Given the chequered history of Aboriginal health research, I wish to acknowledge my role as a non-Aboriginal researcher and state my intentions and my aims.

My rationale for undertaking this research is the product of a number of factors. The first is an interest in child development and the circumstances that enable children to grow into healthy adults. This interest was amplified when I became involved with a successful program that provided life changing services for Aboriginal children (the Hearing Ear Health and Language Services project). This experience provided my first real insight into the health gap between Aboriginal and non-Aboriginal people and demonstrated the power of research to identify and ameliorate critical challenges to children's development. When the opportunity arose to undertake a higher degree as part of a team of Aboriginal and non-Aboriginal researchers who are dedicated to improving Aboriginal health, I was eager to take it.

My personal goal is to provide research that improves people's lives. The body of work presented here aligns with this goal by attempting to provide new knowledge regarding Aboriginal resilience and how this may be enhanced. However, I am aware that, even with good intentions, non-Aboriginal researchers working in Aboriginal health can sometimes do more harm than good. Aboriginal research that is constructed and interpreted through a Western lens can be deficit-focused, can fail to take into account cultural and contextual differences, and can reinforce hegemonic frameworks. As a New Zealand born Pākehā (person of European descent), I can never fully understand the lived experience of Indigenous people. I do not know what it is like to be raised in a country where my ancestors have lived for tens of thousands of years, and yet my culture is marginalised by another. For these reasons I am cautious when undertaking this research in Aboriginal health.

I am happy to say that, during the course of this work, I have received considerable guidance from many Aboriginal people. This includes support and advice from my

supervisor, Professor Kathleen Clapham; Aboriginal researchers at the Sax Institute; and Aboriginal research officers and CEO's at four Aboriginal Community Controlled Health Services. Further, this research is conducted within the SEARCH study's guidelines. These include, identifying research priorities through discussion with the Aboriginal community, involving Aboriginal people in the design, implementation and interpretation of the research, and ensuring that the Aboriginal community owns all the data produced by the research.

While I have learnt a considerable amount about Aboriginal culture and health, there is a great deal more that I am yet to discover. Additionally, there is much that I can never know. My aim is to continue to work in Aboriginal health research, and to continue to learn. My hope is that this research is received in the manner in which it was conducted, and that it will be of use to the Aboriginal communities and health services who participated in its creation.

Table of Contents

Statement of Originality.....	iii
Author’s Contribution	iv
Ethical Clearance.....	iv
Abstract.....	v
Intentionally left blank.....	viii
Acknowledgments.....	ix
Author’s Statement.....	xi
List of Tables	xx
List of Figures	xxi
First Author Publications Arising from Thesis.....	xxii
Additional publications during PhD candidature	xxiii
Conference Proceedings Arising from Thesis	xxiv
List of Abbreviations	xxv
Chapter 1 – Introduction	31
1.1 Chapter introduction.....	31
1.2 Background.....	31
1.3 The Australian Aboriginal population	33
1.3.1 Pre-European contact	33
1.3.2 European contact.....	34
1.3.3 The 20th Century	35
1.3.4 The current population	36
1.3.5 Aboriginal health.....	36
1.3.6 Social determinants of health.....	37
1.3.7 Intergenerational trauma	41

1.4.1	Resilience definitions	42
1.4.2	A history of resilience research.....	44
1.4.3	Resilience methodologies	45
1.4.4	Conceptual issues.....	46
1.4.5	Factors associated with resilience	47
1.4.6	Indigenous resilience	48
1.4.7	Operationalising resilience in this thesis	49
1.5	The SEARCH study	51
1.5.1	Aboriginal research within Australia.....	51
1.5.2	SEARCH.....	51
1.6	Study rationale	53
1.7	Aims/research questions.....	54
1.8	Overview of chapters	55
1.8.1	Age ranges used in this thesis.....	56
1.8.2	Aboriginal guidance	57
1.9	References.....	57
 Chapter 2 – Psychosocial factors associated with the mental health of Indigenous children living in high income countries: a systematic review		
2.1	Chapter introduction.....	79
2.1.1	Authors' contributions	80
2.2	Abstract	80
2.2.1	Background	80
2.2.2	Methods.....	80
2.2.3	Results.....	80
2.2.4	Conclusions	81
2.3	Introduction.....	81

2.4	Methods	82
2.4.1	Study inclusion and exclusion criteria	82
2.4.2	Search strategy	83
2.4.3	Definition of variables.....	83
2.4.4	Data extraction strategy	87
2.4.5	Data synthesis and presentation	87
2.4.6	Study quality assessment.....	88
2.5	Results	90
2.5.1	Review statistics.....	90
2.5.2	Study quality assessment.....	97
2.5.3	Evidence of effectiveness	97
2.6	Discussion	107
2.7	References.....	112
Chapter 3 – Perspectives on childhood resilience among the Aboriginal community: an interview study		
3.1	Chapter introduction.....	125
3.1.1	Authors' contributions	126
3.2	Abstract	126
3.2.1	Objective	126
3.2.2	Methods.....	126
3.2.3	Results.....	126
3.2.4	Conclusions	127
3.3	Introduction.....	127
3.4	Methods	128
3.4.1	Participants	128
3.4.2	Data collection	128

3.4.3	Data analysis	129
3.5	Results	130
3.5.1	Qualitative themes.....	131
3.6	Discussion.....	137
3.7	References.....	140
Chapter 4 – The prevalence and protective factors for resilience in adolescent Aboriginal Australians living in urban areas.....		
4.1	Chapter introduction.....	147
4.2	Abstract	148
4.2.1	Objectives.....	148
4.2.2	Design, setting and participants	148
4.2.3	Main outcome measures	148
4.2.4	Results.....	148
4.2.5	Conclusions	148
4.3	Introduction.....	149
4.4	Methods	150
4.4.1	SEARCH.....	150
4.4.2	Measures.....	150
4.4.3	Statistical analysis	153
4.5.	Results	154
4.5.1	Participant characteristics	154
4.5.2	SDQ frequency distribution	156
4.5.3	Regression models	157
4.6.	Discussion.....	159
4.7	References.....	163

Chapter 5 – Stressful life events and resilience among carers of Aboriginal children in urban New South Wales: cross sectional findings from the Study of Environment on Aboriginal Resilience and Child Health (SEARCH).....	171
5.1 Chapter introduction.....	171
5.1.1 Author’s contributions	172
5.2 Abstract	172
5.2.1 Objectives.....	172
5.2.2 Design, setting and participants	172
5.2.3 Primary outcome measure	172
5.2.4 Results.....	172
5.2.5 Conclusions	173
5.3 Introduction.....	173
5.4 Methods	174
5.4.1 SEARCH.....	174
5.4.2 Measures.....	175
5.4.3 Statistical measures	177
5.4.4 Aboriginal representation.....	178
5.5 Results	178
5.5.1 Participant characteristics	178
5.5.2 Frequency, spectrum and correlations between stressful life events	180
5.5.3 Resilience: frequency and predictors	184
5.6 Discussion.....	190
5.7 References.....	194
Chapter 6 – Improving the social and emotional wellbeing of young Aboriginal people living in Australia: A systematic review	201
6.1 Chapter introduction.....	201

6.1.1	Authors' contributions	201
6.2	Abstract	202
6.2.1	Aims.....	202
6.2.2	Methods.....	202
6.2.3	Results.....	202
6.2.4	Conclusions	202
6.3	Introduction.....	203
6.4.	Methods	204
6.4.1	Study inclusion and exclusion criteria	204
6.4.2	Search strategy	204
6.4.3	Data extraction	204
6.4.4	Quality assessment	205
6.5	Results	206
6.5.1	Search results.....	206
6.5.2	Description of studies	207
6.5.3	Quality assessment	211
6.5.4	Study summaries.....	216
6.6	Discussion.....	220
6.7	References.....	224
Chapter 7 – General Discussion		235
7.1	Overview of research	235
7.2	Summary of key findings and contributions	236
7.3	Strengths and limitations	240
7.3.1	Strengths.....	240
7.3.2	Limitations.....	241
7.4	Implications for policy and practice	243

7.4.1	More initiatives that can support Aboriginal families	244
7.4.2	More youth programs aimed at building resilience	245
7.4.3	More rigorous program evaluations.....	246
7.5	Areas for further research.....	248
7.6	Conclusion	248
7.7	References.....	249
Appendix A – Supplementary Material for Chapter 2		263
A.1	Search strategy.....	263
Appendix B – Supplementary Material for Chapter 3		266
B.1	Interview guide.....	266
B.2	Illustrative quotes.....	268
B.3	Participant information statement	273
Appendix C – Supplementary Material for Chapter 5		276
C.1	The Stressful Life Events Questionnaire (SLE).....	276
C.2	Resilience in SEARCH caregivers (model one).....	277
C.3	STROBE Checklist for Observational Studies.....	282
Appendix D – Supplementary Material for Chapter 6		286
D.1	PRISMA checklist for systematic reviews.....	286
D.2	Search strategy for Chapter 6	289
D.3	Newcastle-Ottawa Scale adapted for non-randomised evaluation studies	290
D.4	CASP checklist for included studies.....	293

List of Tables

Table 2.1	Study characteristics
Table 2.2	GRADE evidence profile for individual-level domains
Table 2.3	GRADE evidence profile for family-level domains
Table 2.4	GRADE evidence profile for community-level domains
Table 3.1	Participant characteristics
Table 4.1	Participant characteristics
Table 5.1	Participant characteristics
Table 5.2	Correlation between stressful life events
Table 5.3	Associations between resilience and individual-level variables in caregivers in the high stress group
Table 5.4	Associations between resilience and family-level variables in caregivers in the high stress group
Table 5.5	Associations between resilience and community-level variables in caregivers in the high stress group
Table 6.1	Description of studies
Table 6.2	Assessment of quantitative outcomes
Table 6.3	Assessment of qualitative outcomes

List of Figures

- Figure 1.1** A framework of the social determinants of health
- Figure 1.2** Location of participating SEARCH ACCHSs in New South Wales
- Figure 2.1** Search results
- Figure 2.2** Risk of bias
- Figure 2.3** Individual-level associations
- Figure 2.4** Family-level associations
- Figure 2.5** Community-level associations
- Figure 3.1** Thematic schema
- Figure 4.1** Frequency distribution of SDQ total difficulties scores
- Figure 4.2** Frequency distribution of SDQ prosocial scores
- Figure 4.3** Difference in SDQ scores: total difficulties sub-scale
- Figure 4.4** Difference in SDQ scores: prosocial sub-scale
- Figure 5.1** Proportion of participants experiencing each of the 14 stressful life events
- Figure 5.2** Frequency distribution of the number of stressful life events experienced in the past 12 months
- Figure 5.3** Mean K10 scores by stressful life events and: functional limitations, alcohol problems and family burden due to children's behaviour.
- Figure 6.1** Search results

First Author Publications Arising from Thesis

This thesis is presented for examination as a thesis containing published and unpublished works. Four chapters have been published in peer reviewed journals (Chapters 2, 3, 4 and 5). The candidate is the first author on each of these papers.

Chapter 2

Published as: **Young C**, Hanson C, Craig JC, Clapham K, Williamson A. Psychosocial factors associated with the mental health of indigenous children living in high income countries: a systematic review. *Int J Equity Health*. 2017;16:153.

Chapter 3

Published as: **Young C**, Tong A, Nixon J, Fernando P, Kalucy D, Sherriff S, Clapham K, Craig JC, Williamson A. Perspectives on childhood resilience among the Aboriginal community: an interview study. *Aust NZ J Public Health*. 2017;41:405-10.

Chapter 4

Published as: **Young C**, Craig J, Clapham K, Williams S, Williamson A, for the SEARCH investigators. The prevalence and protective factors for resilience in adolescent Aboriginal Australians living in urban areas: a cross-sectional study. *Aust NZ J Public Health*. 2018.

Chapter 5

Published as: **Young C**, Craig J, Clapham K, Williams S, Williamson A, for the SEARCH investigators. Stressful life events and resilience among carers of Aboriginal children in urban New South Wales: cross sectional findings from the Study of Environment on Aboriginal Resilience and Child Health (SEARCH). *BMJ Open* 8.6 (2018): e021687.

Additional publications during PhD candidature

Young C, Tong A, Sherriff S, et al. Building better research partnerships by understanding how Aboriginal health communities perceive and use data: a semi-structured interview study. *BMJ Open*. 2016;6:e010792.

Young C, Tong A, Gunasekera H, et al. Health professional and community perspectives on reducing barriers to accessing specialist health care in metropolitan Aboriginal communities: A semi-structured interview study. *J Paediatr Child Health*. 2017;53:277-82.

Young C, Gunasekera H, Kong K, et al. A case study of enhanced clinical care enabled by Aboriginal health research: the Hearing, EAR health and Language Services (HEALS) project. *Aust N Z J Public Health*. 2016;40:523-8.

Chando S, **Young C**, Craig JC, Gunasekera H, Tong A. Parental views on otitis media: systematic review of qualitative studies. *Eur. J. Pediatr*. 2016;175:1295-305.

Conference Proceedings Arising from Thesis

Poster: **Young C**, Tong A, Nixon J, Fernando P, Kalucy D, Sherriff S, Clapham K, Craig JC, Williamson A. “Perspectives on childhood resilience among the Aboriginal community: an interview study”, presented at the Australian Public Health Conference 2018, Cairns, September 2018.

Poster: **Young C**, Tong A, Nixon J, Fernando P, Kalucy D, Sherriff S, Clapham K, Craig JC, Williamson A. “Perspectives on childhood resilience among the Aboriginal community: an interview study”, presented at the 6th Annual NHMRC Symposium on Research Translation, Brisbane, November 2017.

Oral Presentation: **Young C**, Tong A, Nixon J, Fernando P, Kalucy D, Sherriff S, Clapham K, Craig JC, Williamson A. “Perspectives on childhood resilience among the Aboriginal community: an interview study”, presented at the 2017 Study of Environment on Aboriginal Resilience and Child Health Annual Forum, Sydney, August 2017.

Oral presentation: **Young C**, Craig J, Clapham K, Williams S, Williamson A, for the SEARCH investigators. “Stressful life events and resilience among carers of Aboriginal children in urban New South Wales: cross sectional findings from the Study of Environment on Aboriginal Resilience and Child Health (SEARCH)”, presented at the 2016 Study of Environment on Aboriginal Resilience and Child Health Annual Forum, Sydney, August 2016.

List of Abbreviations

ACCHS	Aboriginal Community Controlled Health Service
ADHD	Attention Deficit Hyperactivity Disorder
AHMRC	Aboriginal Health and Medical Research Council
AMS	Aboriginal Medical Service
aOR	Adjusted Odds Ratio
ATSI	Aboriginal and Torres Strait Islander
BADS	Braver Aggression Detection Scale
BAI	Beck Anxiety Intervention
BDI	Beck Depression Inventory
BDI-IA	Amended Beck Depression Inventory
BHS	Beck Hopelessness Scale
BRP-2	Behaviour Rating Profile-2nd Edition
CANZUS	Canada, Australia, New Zealand and the United States
CAPA	Child and Adolescent Psychiatric Assessment
CASAFS	Child and Adolescent Social and Adaptive Functioning Scale
CASP	Critical Appraisal Skills Program
CBCL	Child Behaviour Checklist
CDEP	Community Development Employment Programs
CDI	Children's Depression Inventory
CES-D	Centre for Epidemiology Studies-Depression

CfC	Communities for Children
CI	Confidence interval
CIS	Columbia Impairment Scale
COREQ	Consolidated Criteria for Reporting Qualitative Studies
CRIAH	Coalition for Research to Improve Aboriginal Health
CYFS	Child Youth and Family Support
DBD	Disruptive Behaviour Disorders Rating Scale
DISC-R	Diagnostic Interview Schedule for Children-Revised
DIS-IV	National Institute for Mental Health Diagnostic Interview Schedule
DSM-IV	Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition
ECBI	Eyeberg Child Behaviour Inventory
EFT	Equine Facilitated Therapy
FACS	Department of Family and Community Services
FES	Family Environment Scale
GEE	Generalised Estimating Equations
GPA	Grade Point Average
GRADE	Grades of Recommendation Assessment, Development and Evaluation
HSC	Higher School Certificate
HSC	The Hopelessness Scale for Children
IDD	Inventory to Diagnose Depression
K10	The Kessler 10 Psychological Distress Scale
K5	Kessler Psychological Distress Scale (5 item)

MeSH	Medical Subject Headings
MMPI	Minnesota Multiphasic Personality Inventory
MOOSE	Meta-analysis of Observational Studies in Epidemiology
NAIDOC	National Aborigines and Islanders Day Observance Committee
NHMRC	National Health and Medical Research Council
NOS	Newcastle-Ottawa Scale
NSW	New South Wales
NT	Northern Territory
OAM	Medal of the Order of Australia
OCIS	Orthogonal Cultural Identification Scale
PANAS-X	Positive and Negative Affect Schedule
PRISMA	Preferred Reporting Items of Systematic reviews and Meta-Analyses
QLD	Queensland
RCMAS-2	Revised Children's Manifest Anxiety Scale, Second Edition
RCT	Randomised Controlled Trial
RSE	Rosenberg Self-Esteem Scale
SA	South Australia
SAS-A	Social Anxiety Scale for Adolescents
SDQ	Strengths and Difficulties Questionnaire
SDQ-2	Marsh's Self-Description Questionnaire II
SEARCH	Study of Environment on Aboriginal Resilience and Child Health
SEIFA	Socio-Economic Indexes for Areas

SEIQoL-DW	Schedule for Individual Quality of Life
SEQ	Social Experiences Questionnaire
SES	Socio-economic status
SLE	The Stressful Life Events Questionnaire
SMFQ	Short Mood and Feelings Questionnaire
SSP	School Success Profile
STAI	Spielberger State-Trait Anxiety Inventory
STROBE	Strengthening The Reporting of Observational Studies in Epidemiology
T-CRS	Teacher-Child Rating Scale
TECSES	Tri-Ethnic Center's Self Esteem Scale
TSCC	Trauma Symptom Checklist
US	United States
WA	Western Australia
WAACHS	Western Australian Aboriginal Child Health Survey
YSR	Youth Self-Report

Chapter 1 – Introduction

Intentionally left blank.

Chapter 1 – Introduction

1.1 Chapter introduction

The current health and social disparities between Australian Aboriginal and non-Aboriginal people pose significant challenges for Aboriginal communities. Though these disparities are likely to have complex aetiologies, they are widely attributed to the historical and ongoing trauma associated with European colonisation, including catastrophic population loss; institutionalised discrimination; dispossession of land; loss of culture, language, and traditional Aboriginal male and female roles and status; and the removal of children from their families. In the face of these challenges, however, Aboriginal people have shown resilience. Resilience is commonly described as ‘positive adaption in the context of adversity’¹ – a concept synonymous with the survival of Aboriginal people. Resilience is associated with a number of positive outcomes that are known to contribute to health status throughout the lifespan, such as educational and occupational outcomes. Resilience has also been linked directly to positive physical and mental health outcomes.^{2,3} Despite a rich history of resilience research, the scientific literature describing Aboriginal resilience is sparse. The Study of Environment on Aboriginal Resilience and Child Health (SEARCH) seeks to better understand the resilience of Aboriginal children and their caregivers through collaborative research underpinned by strong partnerships with Aboriginal communities. Using SEARCH and other data sources, this thesis seeks to add new knowledge regarding what helps urban Aboriginal children and their caregivers to be resilient. This, in turn, may help to inform practical strategies with the potential to close longstanding health gaps between Aboriginal and non-Aboriginal people.

1.2 Background

Aboriginal Australians face a greater number of adversities than their non-Aboriginal counterparts including a history of social and cultural marginalisation (the displacement and diminution of Aboriginal culture in Australia, and the denial of rights to Aboriginal Australians), living standards and a higher burden of disease.⁴⁻⁶ These adversities are linked to poorer physical and mental health outcomes for Aboriginal people, culminating

in an average life expectancy at least 11 years less than that of non-Aboriginal Australians.⁷⁻⁹ A key strategy to reduce this gap is advancing the understanding of physical, mental, environmental and social determinants of Aboriginal health through focused research.^{10,11} Historically, much of this research has been designed to directly compare Aboriginal and non-Aboriginal health outcomes. However, this line of research often paints a pessimistic picture of Aboriginal health that may, itself, be detrimental to Aboriginal people.^{12,13} Subsequently, there has been a call for more strengths-based Aboriginal health research.¹⁴

Importantly, many Aboriginal people thrive in spite of adverse conditions. There is evidence to suggest that Aboriginal social and emotional wellbeing is better, on average, than may be expected given the multiple life stressors faced.^{15,16} This ability to show “positive adaption despite adversity” is conceptualised as ‘resilience’.¹⁷ Resilience is argued to be a dynamic system that draws upon protective processes available at the individual, family and community level.¹⁸

Childhood and adolescence is a logical time to study resilience given the enormous cognitive, social, and emotional development children undergo. Additionally, it is during these years that children can be seen to ‘hit’ developmental milestones that may be predictive of good resilience. Evidence suggests that resilient children are more likely to develop into competent and emotionally stable adults, making childhood a logical target for interventions that bolster resilience.^{19,3} Given the strong influence of family at this time, research involving the caregivers of Aboriginal children may help provide a more holistic view of resilience within Aboriginal families.²⁰

Despite a rich tradition of resilience research in Western populations there is a paucity of studies investigating Aboriginal resilience. This is surprising given the Australian government’s pledge to Close the Gap by 2030,²¹ and the support such research may add to this endeavour. Furthermore, this dearth of research is at odds with the frequency in which resilience is mentioned in conjunction with Aboriginal people.^{22,23} The body of work presented in this thesis seeks to investigate the factors that are related to the resilience of Aboriginal children and their caregivers living in urban and regional New South Wales, identify potentially important targets for resilience-building

programs, and to synthesise the evidence for ‘what works’ to aid Aboriginal children’s capacity to be resilient.

Throughout this thesis the term ‘Aboriginal’ respectfully refers to Aboriginal Australian and Torres Strait Islander peoples, a convention often followed in New South Wales that is guided by Aboriginal staff within the NSW Department of Health, Area Managers of Aboriginal Health within Area Health Services, and the Aboriginal Health and Medical Research Council of NSW.²⁴ The term ‘Indigenous’ is used when referring to the original inhabitants of any country or region with a history of European colonisation (e.g. New Zealand Māori).

1.3 The Australian Aboriginal population

Any discussion of Aboriginal resilience needs first acknowledge the adversities that Aboriginal people have faced, and their demonstrated ability to cope despite historical and ongoing trauma. The following is a brief account of Australian Aboriginal society, pre and post European contact.

1.3.1 Pre-European contact

Modern day Aboriginal people are believed to be direct descendants of the first humans to arrive in Australia at least 65,000 years ago,²⁵ making the Aboriginal civilisation the oldest continuous living culture in the world.²⁶ Evidence suggests that early Aboriginal society was considerably heterogeneous, consisting of small semi-nomadic family groups often with distinct cultural and linguistic differences.²⁷ Estimates of the number of Aboriginal people at the time of European contact range from 300,000 to over 1,000,000.²⁸⁻³⁰

Aboriginal people demonstrated remarkable resilience to the often harsh and challenging Australian environment. This is evidenced by the skill in which communities adapted to large changes in climate, were able to source food and water in arid, hostile conditions, and in the management and preservation of delicate ecosystems.^{31,32} These abilities reflect physical, intellectual and cultural strengths that have allowed Aboriginal people to thrive in conditions that most early European settlers found to be inhospitable. While evidence of the health of Aboriginal people before European contact

is scarce, a number of observations made by early settlers suggest that Aboriginal people possessed excellent health that was at least as favourable as most 19th century Europeans.^{33,34}

Historically, an important component of Aboriginal culture is a deep understanding, connection and reliance on land or 'Country'.²⁹ Aboriginal definitions of Country include not only the physical: flora, fauna, land, water and air; but also encompass a spiritual connection, connectivity between all living things and a custodial responsibility to preserve and maintain the environment. A connection to Country is still widely believed to be a source of wellness, health and belonging for Aboriginal communities.^{35,36}

"The land is my mother. Like a human mother, the land gives us protection, enjoyment and provides for our needs - economic, social, and religious. We have a human relationship with the land: Mother-daughter, son. When the land is taken from us or destroyed, we feel hurt because we belong to the land and we are part of it."³⁷

- Rev Dr Djinyini Gondarra, OAM

1.3.2 European contact

The first contact between Aboriginal people and Europeans is believed to have occurred in the early 17th Century when the Dutch began challenging the Portuguese for control of the East Indies. This expansion led to contact between the Dutch and the Aboriginal people of Cape York in North Queensland, often resulting in violence and the loss of life (both Aboriginal and Dutch), and the kidnapping of Aboriginal people for slavery and information.³⁸ While the impact of the Dutch on the Aboriginal population was relatively limited, the hostility and contempt shown towards the Aboriginal people by the Dutch proved to be a portent of a far greater threat that would follow.

Following Cook's mapping of the eastern coast of Australia in 1770, the First Fleet left England in 1787 with the goal of establishing a penal colony in New South Wales and a British foothold in the Southern Hemisphere. The first British settlement was formally established in Sydney Cove in 1788.³⁹ While initial attitudes towards the Aboriginal people were varied, with evidence of both violence and cooperation,⁴⁰ the fledgling Australian government failed to acknowledge Aboriginal sovereignty over the land. This

attitude was formalised by Governor Bourke's 1835 proclamation that Australia was 'Terra Nullius', or 'nobody's land'.⁴¹

As more British settlements were established across the continent, Aboriginal resistance to British claims over resources such as land, water and native animals escalated. While these conflicts caused casualties on both sides, Aboriginal people suffered far greater losses, including systematic massacres that have been described as genocide.^{42,43}

Contact with the British also had a catastrophic impact on the Aboriginal people through the proliferation of diseases such as smallpox and tuberculosis.⁴⁴ As European colonisation spread, a significant proportion of the surviving Aboriginal population were forcibly moved off their traditional lands into government run settlements or missions.²⁷ The displacement of Aboriginal communities combined with restricted access to vital resources such as food and water led to the systematic disempowerment of Aboriginal communities.⁴⁵ Within a handful of generations, the subjugation of Aboriginal people by European colonists caused the widespread loss of Aboriginal family structures, language and cultural practises that had lasted for millennia.^{42,45,46}

1.3.3 The 20th Century

By the 1930's, the combination of disease, conflict, hunger and widespread dispossession of land contributed to a decline in the pre-European Aboriginal population to around 74,000 people.⁴⁷ During the same amount of time, the non-Aboriginal population had risen to 6.5 million.⁴⁸ The catastrophic decline in the number of Aboriginal people led many to believe that the Aboriginal race would eventually die out.⁴⁹ This belief, and the desire to assimilate the remaining Aboriginal population into White culture, led to the policy of removing Aboriginal children from their parents and placing them in White families. Between 1910 and 1970's approximately 20,000 to 25,000 Aboriginal children were forcibly removed from their families, these children came to be known as the 'Stolen Generation'.⁵⁰ This policy, described as a "gross violation of human rights", has been shown to substantially contribute to the trauma and suffering of Aboriginal people and their communities that continues today.^{51,52} An inquiry into the extent and impact of the Stolen Generation was established in 1995 in response to concerns that most Australians were largely ignorant of the history of forced

removal of Aboriginal children.⁵¹ This attitude was thought to have a serious impact on Stolen Generation survivors and their families by hindering the recognition of their needs and the provision of services. Compared to other Aboriginal people aged 50 years and over, members of the Stolen Generation, are around three times more likely to rely on government payments as their main source of income, are over two times more likely to have been charged by police and are twice as likely to be not be in good health.⁵³ In 2008, a national survey of 13,300 Aboriginal people revealed 38% had an immediate family member that had been removed.⁵²

In response to institutionalised discrimination, the forced removal of children and widespread inequality, the Aboriginal civil rights movement began in the first half of the 20th century.⁵⁴ Aboriginal and non-Aboriginal activists campaigned to gain constitutional recognition, voting rights, equal pay and land titles for Aboriginal people. The movement escalated in the 1960's culminating in the 1967 referendum, in which 90.8% of the constituents voted to count Aboriginal people alongside non-Aboriginal people in the Australian census, and to allow the federal government to legislate specifically for Aboriginal people.⁵⁵ This victory became a symbol for Aboriginal strength, unity, and pride – and paved the way for further successful activism.²⁹

1.3.4 The current population

As of the 2016 census, 649,200 people identify themselves as Aboriginal and/or Torres Strait Islander (2.8% of the Australian population).⁵⁶ Over three quarters of the Aboriginal population live in urban or regional areas (79%), compared to 98% of non-Aboriginal people.⁵⁷ The median age of the Aboriginal population is 15 years younger than that of the non-Aboriginal population (23 years, and 38 years, respectively).⁵⁶

1.3.5 Aboriginal health

Despite the high standard of living and quality of healthcare in most parts of Australia, Aboriginal people experience some of the worst health outcomes in the world. That is, not only do Aboriginal people experience grossly unequal health outcomes when compared to Australian non-Aboriginal populations, they are also known to fare worse than many Indigenous and non-Indigenous people worldwide, including countries much

poorer than Australia.^{58,59} Compared to non-Aboriginal people, age-standardised data shows that Aboriginal adults have higher prevalence of cardiovascular disease (27% to 21%, respectively), are 3.5 times more likely to have diabetes,^{60,61} have seven times the rates of end stage renal disease,⁶² have approximately double the level of maternal mortality,⁶³ are three times more likely to have very high psychological distress⁶⁴ and are twice as likely to commit suicide.⁶⁵ Further, Aboriginal people have poorer health outcomes at younger ages when compared to non-Aboriginal people. These include rates of acute coronary events 13 times higher at age 25-34, higher rates of hospitalisations for cardiovascular disease (52% compared to 17% for people age under 55), 3.6 times higher rates of stroke among 55-64 year-olds, and higher rates of diabetes among 35-44 year-olds (11% compared to 3%).⁶⁰ Aboriginal life expectancy is at least 11 years less than for non-Aboriginal people – equivalent to that of the total population of Australians more than half a century ago.⁹

As well as poorer health outcomes, Aboriginal families face increased social burdens, including high levels of unemployment, violence and substance abuse.⁶⁶⁻⁶⁸ Alarming, the prevalence of child abuse and neglect has more than doubled between 1999 and 2010⁶⁹ and Aboriginal children are seven times more likely to receive child protection services than non-Aboriginal children.⁷⁰ These factors, largely believed to be driven by historical trauma and disadvantage, pose serious risks for the healthy development of Aboriginal children, which can impact the health of subsequent generations of Aboriginal people. The severity of these discrepancies, described as a “health crisis”,⁷¹ prompted the Close the Gap campaign to be officially launched in 2007. Close the Gap is a nation-wide initiative that seeks to reduce health, education and employment discrepancies between Aboriginal and non-Aboriginal people by 2030.⁷² While some gains have been made, as of 2018, four of the seven targets are considered to be ‘not on track’ to achieve this goal, including the gap in life expectancy.⁷³

1.3.6 Social determinants of health

Aboriginal concepts of health are holistic, encompassing not only the physical qualities of the individual, but also include the health and wellbeing of the wider community, the strength and integrity of relationships and environmental influences.^{74,75} Aligning, in

part, with these beliefs, it is now widely accepted among Western health researchers that the diverse array of social environments in which people are born, develop and mature is a prominent factor in determining both physical and mental health.^{76,77} For example, adolescents raised in impoverished environments are shown to have worse outcomes on a wide range of mental and physical health outcomes over the life-course than adolescents who are brought up in enriched environments.⁷⁸ Social determinants of health encompass factors that occur at an individual level, such as employment, housing, education, income, discrimination, social standing and support, as well as inequalities that exist between communities, cultural groups and countries.⁷⁶ The relationship between social factors and health is conceptualised as a social gradient where, at any point on the gradient, those above are expected to have better health outcomes than those below.⁷⁹

The effects of this gradient are clearly illustrated in the differences observed between Indigenous and non-Indigenous populations.⁸⁰ Indigenous people experience both disproportionate social disadvantage and worse health outcomes when compared to their non-Indigenous counterparts.⁸¹ This burden is reflected in a recent review of 23 separate Indigenous populations, which found significant differences when compared to local benchmark populations in birth weight, infant mortality, child malnutrition, educational outcomes and socio-economic status.⁸² For Aboriginal Australians, social determinants such as racism and low socio-economic environments have been shown to be associated with poorer mental and physical health outcomes.^{6,83,84}

Additionally, Aboriginal health has been strongly linked to a connection to Country. This includes an interdependent relationship between Aboriginal people and their traditional lands and seas that is thought vital for health, wellbeing and identity.⁸⁵⁻⁸⁷ For Aboriginal people living in urban areas the disconnect between land and people is a potential further source of ill health.⁸⁸

Figure 1.1 proposes a conceptual framework that illustrates the causal pathways whereby social determinants are believed to impact health.⁸⁹ Factors are positioned in three distinct, yet interrelated, levels representing upstream (macro-level) factors, midstream (intermediate-level) and downstream (micro-level) factors. Social

determinants occur at the macro-level and are believed to impact health directly, or through intermediate-level psychosocial factors (e.g. stress) or health behaviours (e.g. smoking).

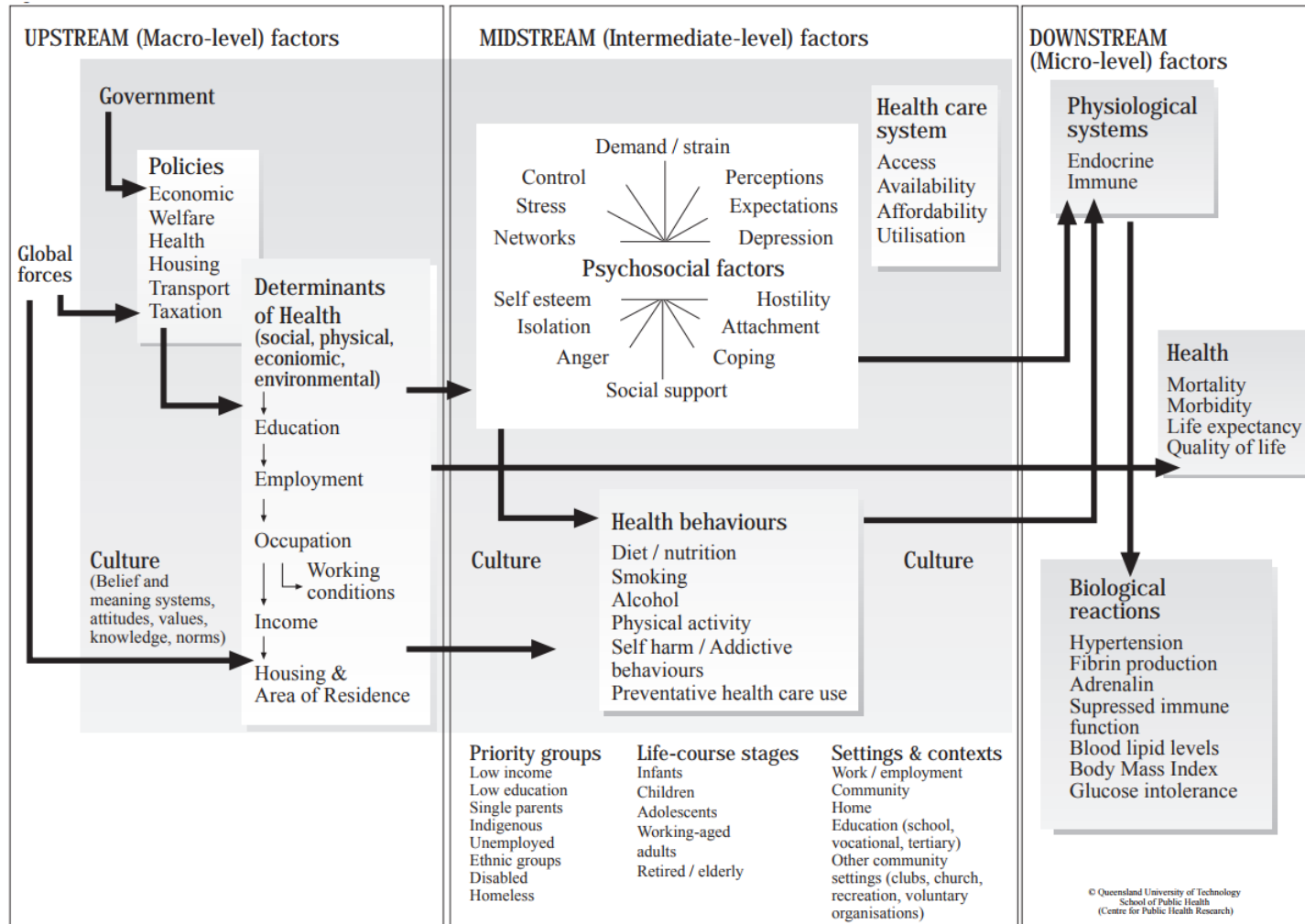


Figure 1.1 A framework of the social determinants of health

Originally published in
 “Turrell G, Oldenburg B, Mcguffog I, et al. *Socioeconomic determinants of health: towards a national research program and a policy and intervention agenda.* Queensland University of Technology, 1999.” Used with permission.

1.3.7 Intergenerational trauma

Contributing to the social determinants of Indigenous health, the deleterious effects of European colonisation are widely believed to proliferate through generations, sustaining cycles of poverty, poor health and disadvantage among Indigenous communities.⁹⁰⁻⁹²

While the literature supporting the concept of transfer of trauma across many generations remains largely theoretical, there is a growing body of evidence that supports this transfer from one generation to the next. For example, the children of war veterans and holocaust survivors are shown to exhibit a greater degree of mental and physical health problems than those born to parents who did not experience such adversity.⁹³⁻⁹⁶ In Australia, children whose parents reported any lifetime mental health disorder have significantly higher mental health problems than children whose parents reported no diagnoses.⁹⁷

The harmful intergenerational effects of forced separation are reflected in findings from the Bringing Them Home Report and subsequent reports from the Australian Institute of Health and Welfare.⁵¹⁻⁵³ These reports outline physical, psychological and sexual abuse, racism, exploitation and loss culture and heritage experienced by members of the Stolen Generation, estimated to be between 10% to 33% of all Aboriginal children between the period from 1910 to 1970. The downstream consequences of this policy include poorer mental and physical health when compared to other Aboriginal people, and higher rates of crime and poverty. Results from the Western Australian Aboriginal Child Health Survey (WAACHS) which show that children whose caregivers who had been removed from their families were found to be at greater risk of clinically significant emotional or behavioural difficulties (32.7%) compared to children whose caregivers had not been removed (21.8%).⁹⁸ A meta-synthesis of qualitative studies identified the concept of “loss” (e.g. loss of spiritual and cultural identity, family, community, Country, tradition knowledge, power and hope) as perpetuating intergenerational trauma among Aboriginal people.⁹⁹ Intergenerational trauma is also represented in a number of government-sanctioned reports on Aboriginal health.^{51,100-102} For example, the Victorian Indigenous Family Violence Taskforce Report acknowledge key factors that contribute to family violence within Aboriginal families, including “dispossession of land and traditional culture, breakdown of community kinship systems and Aboriginal lore, the

effects of institutionalism and child removal policies, inherited grief and trauma, and the loss of traditional Aboriginal male roles, female roles and status.”¹⁰³ The disruption to Aboriginal families, including unresolved trauma and insidious health and social effects are believed to be “among the most serious problems facing Aboriginal people today.”¹⁰⁴

For Aboriginal people, trauma does not only have its roots in the past. Current trauma caused by racism; poor health, including the premature mortality of friends and relatives; continuing high rates of child removal; and socioeconomic pressures disproportionately affect the lives of Aboriginal people. Given the growing evidence for the intergeneration transmission of trauma, and the large body of evidence that supports social determinants of health, the historical and ongoing mistreatment of Aboriginal people is widely believed to be the “cause of causes” of current-day poor health and socio-economic disadvantage.^{51,105}

1.4 Resilience research

The previous section described the influence of negative social and historical factors on determining poor health outcomes for children and adults alike. The following section outlines the body of research that seeks to understand individual differences in people exposed to such adversity.

1.4.1 Resilience definitions

While no universally accepted definition of human resilience exists, almost all definitions require two broad conditions to be met: the presence of an adverse circumstance that threatens normal functioning, and a positive outcome that occurs in the presence of, or following, this adversity. For example, prominent resilience researchers describe resilience as, “The process of, capacity for, or outcome of successful adaptation despite challenging and threatening circumstances”,¹⁰⁶ “The capacity of a dynamic system to withstand or recover from significant challenges that threaten its stability, viability, or development”,¹⁰⁷ “Successful coping with biological and social risk factors”.¹⁹

‘Adversity’ is inferred by the presence of factors that are known to increase the likelihood of negative outcomes.⁵ Childhood adversity can refer to a number of

psychosocial and environmental stressors including, war, sexual and physical abuse, bullying, poverty, and neglect. The impact that an adversity, or adversities, are likely to have on children can largely depend upon the timing, duration, number and severity of the event(s).^{2,108} For example, the loss of a caregiver during childhood years is likely to have a greater negative impact than if this event occurred during adulthood.¹⁰⁹ In the context of Aboriginal children, the aforementioned history of cultural marginalisation; loss of land, traditions and family structures; intergenerational trauma; forced separation; low socio-economic status and discrimination describe historic and current day adversities that impact Aboriginal children and their families. While establishing the severity of adversity in resilience research is important, a detailed investigation of adversity is not the primary focus of this thesis.

A 'positive outcome' (often termed 'positive adaption') may consist of the absence of a negative outcome (e.g. the absence of any psychopathology), the return to equilibrium (regaining normal mood after a traumatic event), or any improvement in functioning that occurs during or post adversity. For children, adapting to adversity is often inferred by the successful passing of age-appropriate developmental tasks or good mental health and social behaviour.¹¹⁰ It is also important to consider that what researchers deem to be a 'positive outcome' is highly contextually dependent.¹¹¹ For instance, high academic achievement may be considered a key positive outcome in some cultures, whereas other cultures may consider the strength of relationships with ones family as a more relevant indicator of childhood resilience. Thus, it is particularly important when conducting research with different cultural groups that positive outcomes are defined by the communities participating in the research themselves. Further, resilience researchers acknowledge that learning to cope with adversity and stress is a normal part of childhood development and that resilience is mostly recognised when adversities are chronic and/or pose high risk to children's normal functioning.² Further, an adaptive outcome may not always be considered positive in the long-term. For example, hypervigilance may be highly adaptive during an extremely threatening circumstance (e.g. war). However, research has shown that greater hypervigilance is associated with anxiety disorders, including posttraumatic stress disorder.^{112,113} In the context of this

thesis, good psychological and social functioning are generally used to indicate ‘positive adaption’.

Resilience can be viewed as a process or an outcome.¹¹⁴ For example, social ecological theories of resilience maintain that resilience is a product of both the child and their environment.¹¹⁵ This includes the capacity of children (or their families) to navigate towards resources, and the availability of gatekeepers (e.g. parents, social networks, health services, schools, governments) to provide these services.¹¹⁶ Similarly, resilience is often conceptualised as a transactional process between an individual and their environment that produces adaptive systems in the face of adversity.¹¹⁷

1.4.2 A history of resilience research

Resilience research shares its roots with early developmental psychopathology research. As childhood trauma came to be associated with subsequent physical and mental health problems, research that could explain individual differences in children’s adaptive abilities emerged.¹¹⁸ Importantly, many children raised in high-risk environments were seen not to display negative behaviours that were common among these groups. Initially, these children were thought to be “invulnerable” – their resilience a product of an inherent trait.¹¹⁷ However, with more research, this idea was increasingly abandoned in favour of a resilience framework that included both internal and external factors.¹¹⁹ Aligning with ecological theories of child development, resilience research generally encompasses multiple levels of influence. These primarily include factors that occur at the individual, family and community level. There is some evidence to suggest that as adversity increases, external factors (e.g. social support) account for more variation in resilience than individual-level variables (e.g. personality traits).¹²⁰

Masten emphasises resilience as a dynamic process that occurs within many interconnecting systems (e.g. children’s family). While individual traits, such as self-control, are associated with resilience, children’s ability to be resilient is also dependent on the strength of family, peer, community and cultural systems. As children develop, their ability to be resilient varies as function of their interaction within such systems and the presence and strength of adversities over time.^{117,121} Masten describes resilience as

the product of ordinary, not extraordinary, resources and processes, and that the absence of these resources constitute the largest threats to children's resilience.²

The empirical investigation of resilience has been described by Masten as consisting of four 'waves' of research.¹ Early resilience research was largely descriptive, seeking to identify associations between social and environmental factors and positive adaptation. Subsequent advances in resilience research emphasise the importance of understanding resilient processes (i.e. *how* do factors promote resilience or vulnerability?), and the development of practical interventions that aim to build resilience. More recently, resilience research has employed advances in statistical methodologies and medical science (e.g. epigenetics, brain-imaging technology) to understand how systems at the micro (e.g. genes, neurobiology) and macro-level (e.g. social forces) interact to predict resilience.¹

1.4.3 Resilience methodologies

At the core of resilience research is the search for factors and processes that promote or reduce resilience.¹⁷ Influenced by early work from Garmezy and colleagues, researchers often refer to factors that are: associated with positive outcomes in both adverse and non-adverse conditions (often termed, 'compensatory' or 'promotive' factors), that are associated with relatively better outcomes in adverse conditions only (often termed, 'protective' factors), and that are associated with worse outcomes (often termed, 'risk' or 'vulnerability' factors).¹⁷ Compensatory factors are largely thought to produce additive effects. That is, the benefit of a compensatory factor will be approximately equivalent in both high and low risk scenarios; whereas, the defining feature of a protective factor is a statistical interaction indicating a significant benefit that is observed in adverse conditions but is less apparent or non-existent when adversity is not present. In this way a protective factor may not necessarily constitute the 'flip side' of a risk factor. For example, Luthar uses the example of an artistic or musical talent as being protective during adversity, but the absence of this talent does not infer risk.¹⁷

It should be noted that there is some inconsistency in the use of this terminology with some researchers choosing to use the term 'protective' to describe factors that produce positive main effects, as well as interactions.¹⁷ In this thesis, unless otherwise stated, the

term 'protective factor' is used to describe any variable that is associated with a positive outcome in any circumstance.

Quantitative resilience research often falls into two broad research paradigms: 'person based' and 'variable based'.^{118,122} Person-based research typically compares groups of individuals who have faced similar levels of adversity, but who show different amounts of positive adaption. Using cut-off scores to delineate groups, this approach yields a 'resilient' group (e.g. high adversity and high positive adaption) and a 'vulnerable' group (e.g. high adversity and low positive adaption). By comparing these groups, resilience researchers can make inferences about the specific contribution of protective and vulnerability factors associated with resilience. Variable-based research investigates the influence of protective or vulnerability factors at differing levels of adversity by employing multivariable statistics (e.g. multiple regression or structural equation modelling). Statistical interactions are more generally derived through variable-based designs.¹¹⁸

In addition to quantitative research, qualitative research paradigms have been argued to make a significant contribution to the resilience literature. Ungar proposes that a strength of qualitative research lies in the ability to gain a deeper understanding of resilience *processes* from the perspectives of specific socio-cultural groups.¹²³

Qualitative research has an additional advantage in that the selection of potential protective or vulnerability factors is neither arbitrary, nor limited. This may produce a more complete picture of the factors and processes that are believed to be associated with resilience, framed within the appropriate context.^{17,123} Qualitative approaches are therefore thought to be able to circumvent some of the conceptual issues that have plagued quantitative resilience research (described in the next section), and may complement quantitative research when conducted with the same study population.

1.4.4 Conceptual issues

While the idea of resilience is largely intuitive, issues with the definitions, measurement and utility of this construct are prominent within the literature.^{118,124,125} In particular, the arbitrary and numerous methods of defining adversity and positive adaption have raised concerns regarding whether researchers are actually measuring the same construct.¹²⁶

In response, researchers have noted the variation in which parameters can be defined is necessary in order to more fully understand resilient processes, and can be a potential strength, provided variables are chosen based on the appropriate context and underlying theoretical considerations.¹²⁷

Concerns regarding the multidimensional nature of resilience have also been raised. That is, children may be considered resilient in one domain but not another.¹²⁸ For example, a study conducted by Zucker et al. found that some at-risk children who were deemed resilient, as measured by low behavioural deviance, also exhibited elevated anxiety and depression in follow-up research.¹²⁹ Luthar contends that uneven functioning is common within child development, but that this should not invalidate the construct of resilience. Rather, there should exist uniformity across theoretically similar domains if resilience is to be inferred (e.g. at-risk children who do well academically would be expected to also display 'persevering' classroom behaviours).¹¹⁸ The multi-dimensional nature of resilience has prompted some researchers to specify the resilient domain they are measuring. For example, 'social resilience' may be used to describe at-risk children who score well on measures of social competence. Other researchers measure resilience *profiles* by including both internal (e.g. anxiety) and external (e.g. social competence) measures of positive adaptation.¹³⁰

Despite the criticisms resilience research has received, the importance of a greater understanding of this construct in both theoretical domains (e.g. child development) and social policy (e.g. health interventions) is recognised among researchers and policy makers.^{118,131-133}

1.4.5 Factors associated with resilience

A number of factors have been consistently associated with childhood resilience. A brief overview is presented below. For a comprehensive review see Luthar, 2006¹⁷ and Shean, 2015.¹¹⁹

At the individual level, early 'easier' temperament, intelligence, self-regulation, self-esteem, a skill or talent, social competence, and having an internal locus of control are seen to be associated with resilience.^{19,128,130,134-140} At the family level, the association

between good family functioning and resilience has been replicated in multiple studies, with nurturing parenting behaviours and family cohesion identified as protective factors.^{117,134,141-143} For example, a seminal longitudinal study of 698 Hawaiian children over four decades found that multiple family-level variables were related to good life-course functioning, despite high levels of risk. These included: establishing a close bond with at least one trusted and emotionally stable family member, being raised in households that provided structure and boundaries, and supportive parenting.¹⁹ Conversely, childhood maltreatment is seen as a vulnerability factor.¹⁴⁴ At the community level, the availability of positive role models within the community (e.g. a supportive teacher or mentor), prosocial peer relationships, community cohesion and the presence of early intervention programs are seen to be associated with resilience.^{17,19,137,145}

1.4.6 Indigenous resilience

Research with Indigenous populations has shown that Indigenous and non-Indigenous groups share many of the same protective factors, including: greater self-esteem, nurturing parenting, positive family functioning and community cohesion.¹⁴⁶⁻¹⁴⁹ Additionally, a number of culturally specific factors have been identified. Of these, the connection between Indigenous people and their culture is widely cited as being crucial for establishing resilience.^{147,150-152} At the community level, Indigenous self-governance is believed to confer resilience against historical trauma. For example, a study of First Nation communities in British Columbia found that communities who were largely self-governing had significantly lower unemployment and suicide rates than communities who had less cultural autonomy.¹⁵³ The effects of racism and discrimination are seen to confer vulnerability on Indigenous people.¹⁵⁴

In Australia, qualitative studies with young people have found that empowerment, agency, and increasing civil connectedness enhances resilience,¹⁵⁵ as well as a strong connection to Aboriginal culture.¹⁵⁶ In Victoria, quantitative research has shown that the number of friends young Aboriginal people had promoted resilience by mediating the relationship between racism and mental health problems.¹⁵⁷ In the Northern Territory and Queensland, resilience (as measured by screening and assessment tools) has been negatively associated with measures of poor mental health.^{158,159} Hopkins et al.

employed a comprehensive person-based resilience paradigm involving 1,021 young people aged 12 to 17 years from Western Australia. The researchers first identified five family-level risk factors¹⁶⁰ then, using these risks in conjunction with measures of social and emotional wellbeing, they delineated groups of resilient and vulnerable children. They found that good self-esteem, having a prosocial friend, and living in a low socio-economic area was associated with resilience.¹⁶¹ Further research with this sample indicated that resilient young people were significantly more likely to have less lifetime health problems, as reported by their caregivers.³ However, despite a growing number of studies that seek to identify the correlates of health within Indigenous communities, research investigating the resilience of Indigenous people remains scarce.¹⁶²

1.4.7 Operationalising resilience in this thesis

As previously noted, no universally accepted definition of human resilience exists, although some form of ‘positive adaption’ and ‘adversity’ are almost always present when operationalising resilience. In the context of this thesis, good psychological and social functioning are generally used to indicate ‘positive adaption’, while the well-documented threats to Aboriginal people’s physical and mental health, such as discrimination, intergenerational trauma and low socioeconomic status, are considered to constitute ‘adversity’. However, due to the different aims and methodological approaches undertaken in each chapter, the construct of resilience has not been measured uniformly within this thesis. A brief description of how resilience is operationalised in Chapters 2 – 6 is given below.

Chapter 2 – a systematic review of the psychosocial correlates of mental health among Aboriginal and Indigenous young people. Studies that measured associations between psychosocial variables and mental health outcomes (internalising and externalising) in conjunction with quantitative measures of adversity were deemed to measure ‘resilient’ mental health. Adversity was defined as any significant threat to children’s health, development or wellbeing.

Chapter 3 – an interview study with Aboriginal adults about their views on Aboriginal children and adolescent’s resilience. Resilience was defined by participant’s beliefs and perspectives. Participants were asked what characteristics children who were ‘doing well

despite adversity' displayed. Participants were also asked to reflect upon their own experiences of 'doing well despite adversity'.

Chapter 4 – a cross-sectional observational study of Aboriginal adolescent's resilience. Resilience was defined as 'low risk' Strengths and Difficulties Questionnaire (SDQ) scores on the total difficulties, and the prosocial scales. The SDQ is a measure of children's emotional and behavioural strengths and difficulties and is therefore a suitable measure of positive adaptation. Previous work by the SEARCH team has found the SDQ to be an acceptable measure of Aboriginal children's social and emotional wellbeing, to demonstrate adequate acceptability, reliability and validity,^{163,164} and for high risk scores to be associated with increased mental health-related emergency department presentations in the five years following measurement.¹⁶⁵ The SDQ has previously been used as a measure of positive adaptation in Australian Aboriginal children.¹⁶¹ Further, the data presented in Chapter 3 suggests that the emotional and behavioural traits that the SDQ measures reflect the attitudes and perspectives of SEARCH communities towards resilience. Adversity is not directly measured in this study but is instead inferred from well-documented adversities that the SEARCH communities are known to be disproportionately exposed to, such as racism and socioeconomic disadvantage. This study uses independent variables that were identified from the interviews with Aboriginal people outlined in the previous chapter, and thus builds on this work, providing a quantitative exploration of the factors identified in the qualitative resilience data.

Chapter 5 – a cross-sectional observational study of the resilience of caregivers of Aboriginal children. Resilience is defined as having experienced three or more stressful life events in the last 12 months and having scores of ≤ 21 on the Kessler 10 Psychological Distress scale, which is indicative of low psychological stress.

Chapter 6 – a systematic review of evaluated programs that aim to improve Aboriginal children's social and emotional wellbeing. An initial search revealed that there were no formal evaluations of programs that aimed to specifically improve resilience among Aboriginal children. The term 'Social and Emotional Wellbeing', an Aboriginal definition

of health that also includes resilience,¹⁶⁶ was used as a broader outcome in which to investigate the evidence for programs that are likely to promote resilience

1.5 The SEARCH study

1.5.1 Aboriginal research within Australia

Historically, Aboriginal health research has often perceived to have been conducted ‘on’ rather than ‘with’ the Aboriginal community.¹⁶⁷ Much of this research has been criticised for being insensitive, deficit-focused, conducted with minimal explanation to Aboriginal people, and offering little tangible benefits to Aboriginal communities.^{12,168}

Consequently, many Aboriginal people became wary of research.^{167,169} These practices have led to major reforms in Aboriginal research including separate ethical guidelines that have been developed for research involving Aboriginal people. The aim of these guidelines is to ensure that Aboriginal communities have greater control over all aspects of health research practices, including the design, execution and evaluation, ethical considerations, research priorities and data ownership.^{170,171}

Recognising the need to conduct research in partnership with the Aboriginal community, the Coalition for Research to Improve Aboriginal Health (CRIA) was formed in 2004 from a collaboration between the Aboriginal Health and Medical Research Council of NSW (AHMRC, the peak body for Aboriginal health in New South Wales), and the Sax Institute (an organisation that aims to promote evidence-based health policy by connecting researchers, policy makers and service delivery agencies). CRIA seeks to build capacity in Aboriginal health research, enable research partnerships to improve health policy, and to foster engagement between researchers and the Aboriginal community.¹⁷²

1.5.2 SEARCH

The Study of Environment on Aboriginal Resilience and Child Health (SEARCH) was borne from CRIA to address the health research needs of urban Aboriginal people. Through extensive consultation with Aboriginal communities, research priorities were identified, and nascent partnerships established. From these beginnings SEARCH has forged

partnerships between leaders in Aboriginal health, Aboriginal and non-Aboriginal researchers and four Aboriginal Community Controlled Health Services (ACCHS) located in urban and regional New South Wales (NSW) that have continued for more than twelve years.¹⁷³ All SEARCH research is designed and conducted in collaboration with the participating Aboriginal healthcare professionals and communities, who also own the data.

SEARCH aims to investigate the aetiology of mental and physical health outcomes in urban Aboriginal children, but also collects data from their caregivers. Data assessing a range of social, health and environmental factors is collected via a comprehensive survey as well as clinical measures. SEARCH employs Aboriginal research officers at each of the participating sites in order to ensure data is collected in a culturally appropriate manner. The study also seeks to support data usage in order to build health service and research capacity.^{174,175}

The Phase 1 SEARCH dataset consists of 1669 children and their caregivers. Children were aged between 0 and 17 years and were 53% male. Caregivers had a mean age of 35 years and were 91% female. Most caregivers were the child's biological mother (78%), with 9% being cared for by another relative, and 6% in foster care. SEARCH is guided by Bronfenbrenner's bioecological model of human development which emphasises the importance of studying the child in multiple proximal and distal ecological systems.¹⁷⁶ In accordance with this conceptual framework SEARCH surveys collected data from multiple domains including socioeconomic status, diet, exercise, substance use, injury, housing, neighbourhood factors, social and emotional wellbeing, psychological distress, and health service use. Clinical measures such as height, Body Mass Index (BMI), blood pressure, blood lipids and urinary albumin were also taken. Through consultation with Aboriginal informants, resilience was determined by measures of emotional and behavioural problems (the SDQ) and low psychological distress (the K10). Both the SDQ and the K10 have shown good acceptability and internal consistency when used with Aboriginal populations.^{163,164} Phase two data collection is due to be completed by 2019/20. SEARCH is currently the largest longitudinal study of Aboriginal children in Australia.

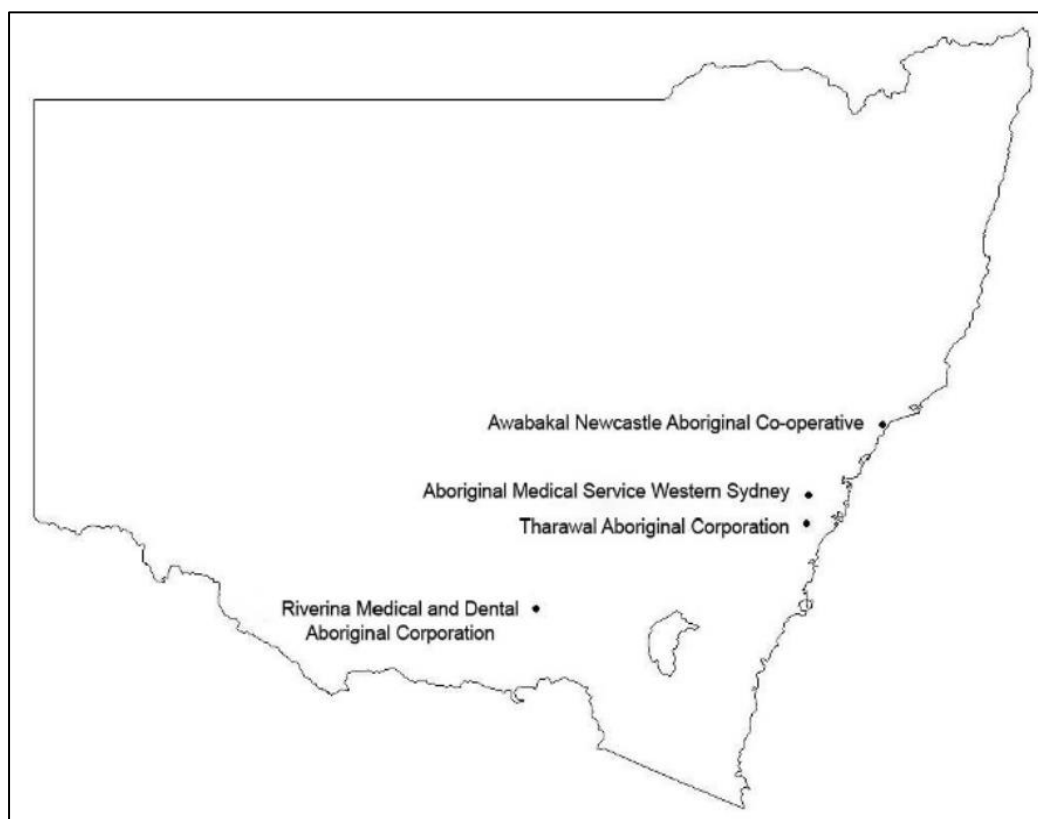


Figure 1.2 Location of participating SEARCH ACCHSs in New South Wales

Originally published in “The SEARCH Investigators. The Study of Environment on Aboriginal Resilience and Child Health (SEARCH): study protocol. *BMC Public Health*. 2010;10:287.” Used with permission.

This thesis uses phase one survey data collected from SEARCH during the period 2006-2012.

1.6 Study rationale

Aboriginal people experience ongoing discrimination and cultural marginalisation that has contributed to unacceptable health and social inequalities.^{10,68} Despite these adversities, Aboriginal people are clearly resilient. The Aboriginal population has recovered from the catastrophic decline in numbers that followed colonisation, the number of Aboriginal children completing secondary and tertiary-level education is steadily growing,¹⁷⁷ and Aboriginal representation is present at senior levels of

academia, healthcare, sport and governance. Yet, the health and social gaps between Aboriginal and non-Aboriginal people persist, prompting the need for a greater understanding of what works to reduce this disparity. Policies that aim to reduce the number of adversities Aboriginal people experience should be a priority if real gains are to be made in Closing the Gap. Given the many and varied risks Aboriginal people face, including the persistence of racist attitudes and cycles of poverty and disadvantage, this goal is likely to require considerable commitment and time. Therefore, understanding how some Aboriginal children manage to do well despite the historical and ongoing adversities outlined in this chapter may help to inform strategies that can Close the Gap for future generations of Aboriginal people.

Given the small amount of (largely qualitative) research into Aboriginal resilience, this body of work aims to expand upon existing knowledge by employing a holistic approach to Aboriginal resilience research in Australia. This aim is to be achieved by:

- Providing a comprehensive understanding of common risks and protective factors for mental health and resilience within children from Indigenous cultures who share a common history of European colonisation
- Using mixed methods research in order to provide a contextual understanding of urban Aboriginal people's perspectives of resilience, adversity, positive adaptation and protective factors
- Investigating resilience holistically by assessing resilience within both children and their caregivers
- Assessing the current state of knowledge regarding how resilience may be fostered in Aboriginal children and comparing this data with the knowledge generated from this body of work
- Synthesising the results to make recommendations for policy that can enhance resilience in young Aboriginal people

1.7 Aims/research questions

Using the SEARCH study as a culturally appropriate research resource, the overarching aim of this thesis is to investigate the resilience of urban Aboriginal children and their caregivers and the factors which underpin it. Specifically, this research aims to:

1. Identify psychosocial factors associated with the mental health of Indigenous children who share a common history of European colonisation (Chapter 2)
2. Investigate and describe children's resilience within an urban Australian Aboriginal context, including the prevalence of resilience, factors that are associated with fostering resilience, the processes whereby resilience manifests, and potential strategies to enhance resilience (Chapters 3 and 4)
3. Investigate the prevalence of resilience and stressful life events among caregivers of Aboriginal children and identify psychosocial, health and demographic factors associated with resilience (Chapter 5)
4. Review current evidence surrounding what works to improve Aboriginal children's social and emotional wellbeing and resilience (Chapter 6).

1.8 Overview of chapters

Chapter 1 provides a brief description of Aboriginal people in Australia including pre- and post-European contact, current day health status and the impact of social determinants and historical trauma on health. The concept of resilience is introduced, including an overview of the empirical literature, conceptual issues, and factors that are associated with the resilience of Indigenous and non-Indigenous populations. The history and rationale of the SEARCH study is described, followed by the rationale for this thesis.

Chapter 2 presents a systematic review of studies that investigated quantitative associations between psychosocial risk and protective factors, and the mental health and resilience of Indigenous children who live in high-income countries. The quality of evidence is evaluated using the Grades of Recommendation Assessment, Development and Evaluation (GRADE) guidelines.

Chapter 3 presents a qualitative study on Aboriginal perspectives of childhood resilience. This chapter describes health professionals and community member's (aged 18+ years

old) beliefs regarding childhood resilience from their own experiences, and from working with and raising children. Important factors that are believed to build resilience, including potential strategies for resilience enhancing programs, are explored.

Using SEARCH adolescent data (ages 12-17 years old), the relationship between five factors believed to be associated with resilience, as identified in Chapter 3, and resilience, as measured by the Strengths and Difficulties Questionnaire, are quantitatively assessed in Chapter 4.

Chapter 5 presents a quantitative investigation of the amount and type of stressful life events caregivers of SEARCH children experience, and their ability to be resilient in this context. Using a person-based and variable-based design, protective and vulnerability factors are identified.

Chapter 6 presents a systematic review of peer-reviewed studies that evaluated social and emotional wellbeing programs for young Aboriginal people (aged 4-25 years old). The quality of evidence is appraised using adapted GRADE guidelines.

Chapter 7 presents a summary of key findings and the contributions that this thesis has made towards the extant body of Aboriginal resilience literature. The strengths and limitations of the thesis as a whole are discussed, followed by implications for policy, and areas for further research.

1.8.1 Age ranges used in this thesis

The age ranges used in each chapter were decided based on the study objectives and methods. School-aged children (mean ages 5-18 years old) were included in Chapter 2, with any study involving people over 21 excluded. Mean age was used in order to limit the amount of studies excluded where the samples consisted predominantly of school-aged children (e.g. 5-18 year-olds), but where a small number of participants were 18 - 20 years-old. Aboriginal adults (18+ years) were included in Chapter 3 in order to gather the perspectives of people who were able to reflect upon their own experiences of resilience with maturity, and that of children in their care. Chapter 4 investigated a number of potential protective factors that were only measured in SEARCH adolescents, hence this chapter only includes children aged 12-17. The focus of Chapter 5 is

caregivers of Aboriginal children. Parents and carers were only eligible to participate in SEARCH if they were aged 16 years or older, thus caregivers 16 years old or over were included. Chapter 6 presents a review of evaluated social and emotional wellbeing programs in Australia. Given that mental health services for young people in Australia often accept patients up to the age of 25 (e.g. Headspace) and that World health Organisation definitions of young people extend to 25, the age range was extended to match this practice.¹⁷⁸

1.8.2 Aboriginal guidance

Along with the extensive Aboriginal community consultation that underpins the SEARCH study, all research conducted in this thesis was done so under the guidance of Aboriginal people, including Professor Kathleen Clapham (all Chapters), Ms Janice Nixon (Chapter 3), Mr Peter Fernando (Chapter 3), Ms Simone Sherriff (Chapter 3), and Mrs Sandra Williams (Chapters 4 and 5). This guidance took many forms, including determining appropriate research questions; the construction of interview schedules and interpretation of qualitative data; cultural advice regarding interview methods; guidance regarding study design, including culturally appropriate measures of adversity and positive adaptation; expert advice regarding the Aboriginal health literature and ensuring the breadth and historical accuracy of Chapter 1; guidance in the overall interpretation of the results per study (Chapters 2 – 6) and as described in Chapter 7 (Discussion). Further, Aboriginal Research Officers, health staff and CEOs from partner ACCHSs helped ensure the research was conducted in a culturally appropriate and safe manner. The manner in which resilience was defined and measured in Chapter 4 was guided by the perspectives of SEARCH community members towards Aboriginal childhood resilience canvassed in Chapter 3.

1.9 References

1. Wright MOD, Masten AS, Narayan AJ. *Resilience processes in development: Four waves of research on positive adaptation in the context of adversity*. In Handbook of resilience in children (pp. 15-37). Springer, Boston, MA. 2013.

2. Masten AS. *Ordinary magic: Resilience in development*. New York, NY: Guilford Press. 2014.
3. Hopkins KD, Shepherd CC, Taylor CL, Zubrick SR. Relationships between Psychosocial Resilience and Physical Health Status of Western Australian Urban Aboriginal Youth. *PloS One*. 2015;10:e0145382.
4. Vos T, Barker B, Begg S, Stanley L, Lopez AD. Burden of disease and injury in Aboriginal and Torres Strait Islander Peoples: The Indigenous health gap. *Int J Epidemiol*. 2009;38:470-7.
5. Zubrick SR, Dudgeon P, Gee G, et al. *Social determinants of Aboriginal and Torres Strait Islander social and emotional wellbeing*. Working together: Aboriginal and Torres Strait Islander mental health and wellbeing principles and practice. 2010:75-90.
6. Larson A, Gillies M, Howard PJ, Coffin J. It's enough to make you sick: the impact of racism on the health of Aboriginal Australians. *Aust N Z J Public Health*. 2007;31:322-9.
7. Shepherd CC, Li J, Mitrou F, Zubrick SR. Socioeconomic disparities in the mental health of Indigenous children in Western Australia. *BMC Public Health*. 2012;12:756.
8. Clapham KF, Stevenson MR, Lo SK. Injury profiles of Indigenous and non-Indigenous people in New South Wales. *Med J Aust*. 2006;184:217.
9. Phillips B, Morrell S, Taylor R, Daniels J. A review of life expectancy and infant mortality estimations for Australian Aboriginal people. *BMC Public Health*. 2014;14:1.
10. Paul CL, Sanson-Fisher R, Stewart J, Anderson AE. Being sorry is not enough: the sorry state of the evidence base for improving the health of Indigenous populations. *Am J Prev Med*. 2010;38:566-8.
11. Eades SJ, Taylor B, Bailey S, et al. The health of urban Aboriginal people: insufficient data to close the gap. *Med J Aust*. 2010;193:521.

12. Walter MM. The politics of the data: How the Australian statistical Indigene is constructed. *International Journal of Critical Indigenous Studies*. 2010;3:45-56.
13. Sweet MA, Dudgeon P, McCallum K, Ricketson MD. Decolonising practices: can journalism learn from health care to improve Indigenous health outcomes? *Med J Aust*. 2014;200:626-7.
14. Penman RA. *Aboriginal and Torres Strait Islander views on research in their communities, Occasional Paper No. 16*. Canberra: Australian Government, Department of Families, Community Services and Indigenous Affairs, 2006.
15. Lincoln R, Lynch-Bloss M, O'Connor I, Ogilvie E. *Peer Networks and Other Influences on Aboriginal Offending: Report to Criminology Research Council*, Canberra. 1998.
16. Tomy AJ, Norrish JM, Cummins RA. The subjective wellbeing of indigenous Australian adolescents: Validating the Personal Wellbeing Index-School Children. *Soc. Indic. Res.* 2013;110:1013-31.
17. Luthar SS. *Resilience in development: a synthesis of research across five decades*. In: Cicchetti D, Cohen DJ, eds. *Dev. Psychopathol.* 2nd edn. Hoboken, NJ: Wiley, 2006: 739–95.
18. Werner EE. Resilience in development. *Curr Dir Psychol Sci.* 1995;4:81-4.
19. Werner EE. Risk, resilience, and recovery: Perspectives from the Kauai Longitudinal Study. *Dev. Psychopathol.* 1993;5:503-15.
20. Rutter M. Family and school influences on cognitive development. *J. Child Psychol. Psychiatry.* 1985;26:683-704.
21. Australian Human Rights Commission. *Indigenous Health Equality Summit, Statement of Intent*. Canberra, 2008. Retrieved from https://www.humanrights.gov.au/sites/default/files/content/social_justice/health/statement_intent.pdf.

22. McLennan, V. Family and community resilience in an Australian Indigenous Community. *Australian Indigenous Health Bulletin*. 2015;15(3):1-8.
23. Henderson G, Robson C, Cox L, Dukes C, Tsey K, Haswell M. Social and emotional wellbeing of Aboriginal and Torres Strait Islander people within the broader context of the social determinants of health. *Beyond band-aids: exploring the underlying social determinants of Aboriginal Health*. Darwin (AUST): Cooperative Research Centre for Aboriginal Health; 2007: 136-64.
24. NSW Department of Health. *Communicating positively, a guide to appropriate Aboriginal terminology*. Sydney, 2004. Retrieved from <http://www.health.nsw.gov.au/aboriginal/Publications/pub-terminology.pdf>.
25. Clarkson C, Jacobs Z, Marwick B, et al. Human occupation of northern Australia by 65,000 years ago. *Nature*. 2017;547:306-10.
26. Rasmussen M, Guo X, Wang Y, et al. An Aboriginal Australian genome reveals separate human dispersals into Asia. *Science*. 2011;334:94-8.
27. Jureidini R, Poole M. *Sociology: Australian Connections*. St Leonards: Allen & Unwin; 2003.
28. Evans R. *A history of Queensland*. Annandale: Cambridge University Press; 2007.
29. Dudgeon P, Wright M, Paradies Y, et al. Aboriginal social, cultural and historical contexts. In P. Dudgeon, H. Milroy, & R. Walker (Eds.) *Working together: Aboriginal and Torres Strait Islander mental health and wellbeing principles and practice* (2nd ed., pp. 3–24) Canberra, Australia: Commonwealth of Australia. 2014.
30. Madden R, Pulver L. Aboriginal and Torres Strait Islander population: more than reported. *Australian Actuarial Journal*. 2009;15:181.
31. Lewis HT. *Burning the 'Top End': kangaroos and cattle*. Fire Ecology and Management of Western Australian Ecosystems: Western Australian Institute of Technology, Perth 1985:21-31.

32. O'Dea K, Jewell P, Whiten A, et al. Traditional diet and food preferences of Australian Aboriginal hunter-gatherers. *Philos. Trans. R. Soc.* 1991;334:233-41.
33. Worgan GB. Journal of a First Fleet Surgeon. Library Council of New South Wales, Sydney, Australia. 1978 [Original work published 1788].
34. Blyton G. Reflections, Memories, and Sources: Healthier Times?: Revisiting Indigenous Australian Health History. *Health and History.* 2009:116-35.
35. Burgess CP, Johnston FH, Bowman DM, Whitehead PJ. Healthy country: healthy people? Exploring the health benefits of Indigenous natural resource management. *Aust N Z J Public Health.* 2005;29:117-22.
36. Kingsley J, Townsend M, Henderson-Wilson C, Bolam B. Developing an exploratory framework linking Australian Aboriginal peoples' connection to country and concepts of wellbeing. *Int. J. Environ. Res. Public Health.* 2013;10:678-98.
37. Edwards EH. *Traditional Aboriginal Society.* South Yarra [Vic]: Macmillian Education Australia, 1998.
38. Loos N. *Aboriginal-Dutch Relations in North Queensland, 1606-1756.* 1974.
39. Tench, Watkin. Sydney's first four years: being a reprint of A narrative of the expedition to Botany Bay and A complete account of the settlement at Port Jackson. Sydney: Angus and Robertson, in association with the Royal Australian Historical Society. 1961 [Original work published 1793].
40. Clarke PA. Early European interaction with Aboriginal hunters and gatherers on Kangaroo Island, South Australia. *Aborig. Hist.* 1996;20:51-81.
41. Banner S. Why Terra Nullius? Anthropology and property law in early Australia. *Law Hist. Rev.* 2005;23:95-131.
42. Barta T. Relations of Genocide: Land and Lives in the Colonization of Australia, in I. Wallimann and M.N. Dobkowski (eds.), *Genocide and the Modern Age: Etiology and Case Studies of Mass Death.* New York: Greenwood Press: 237-251. 1987.

43. Tatz C. *Genocide in Australia*. AIATSIS Research Discussion Paper No 8: Canberra, Australia: Australian Institute of Aboriginal and Torres Strait Islander Studies, 1999.
44. Robertus LM, Konstantinos A, Hayman NE, Paterson DL. Tuberculosis in the Australian Indigenous population: history, current situation and future challenges. *Aust N Z J Public Health*. 2011;35:6-9.
45. Broome R. *Aboriginal Australians, A history since 1788*, Fourth edition. Sydney: Allen & Unwin. 2010.
46. Raphael B, Swan P, Martinek N. *Intergenerational aspects of trauma for Australian Aboriginal people*. International handbook of multigenerational legacies of trauma. Springer, Boston, MA, 1998. 327-339.
47. Hugo, G. *Population distribution, migration, and climate change in Australia: an exploration*. ACCARNSI Discussion Paper: Node 2 Urban management, transport, and social inclusion. National Climate Change Adaptation Research Facility. 2012.
48. Australian Bureau of Statistics. *Australian Historical Population Statistics, Ca. No 3105.0.65.001*. Canberra: Commonwealth of Australia. 2014
49. McGregor R. *Imagined destinies: Aboriginal Australians and the doomed race theory, 1880-1939*: Melbourne University Press; 1997.
50. Manne R. *In Denial: The Stolen Generations and the Right*. Quarterly Essay 1: Melbourne. Black Inc.; 2001.
51. Wilkie M. *Bringing them home: Report of the national inquiry into the separation of Aboriginal and Torres Strait Islander children from their families*: Human Rights and Equal Opportunity Commission; 1997.
52. Anderson P, Tilton E. *Bringing Them Home 20 years on: an action plan for healing*. 2017.
53. Australian Institute of Health and Welfare. *Aboriginal and Torres Strait Islander Stolen Generations aged 50 and over*. 2018. Retrieved from

<https://www.aihw.gov.au/reports/indigenous-australians/stolen-generation-aged-50-and-over/contents/table-of-contents>

54. National Museum Australia. *Collaborating for Indigenous Rights*. Retrieved from <http://indigenoustrights.net.au/people>.
55. National Archives of Australia. *The 1967 referendum - Fact sheet 150*. Retrieved from <http://www.naa.gov.au/collection/fact-sheets/fs150.aspx.46>.
56. Australian Bureau of Statistics. Census: Aboriginal and Torres Strait Islander population. Media Release: *2016 Census shows growing Aboriginal and Torres Strait Islander population*, June 2017. Retrieved from <http://www.abs.gov.au/ausstats/abs@.nsf/MediaReleasesByCatalogue/02D50FAA9987D6B7CA25814800087E03?OpenDocument>.
57. Australian Bureau of Statistics. Census of Population and Housing: Reflecting Australia - Stories from the Census, 2016, Ca. No 2071.0. Canberra: Commonwealth of Australia. 2017.
58. Cooke M, Mitrou F, Lawrence D, Guimond E, Beavon D. Aboriginal Well-being in Four Countries: An Application of the UNDP's Human Development Index to Aboriginal Peoples in Australia, Canada, New Zealand, and the United States. Pp. 87- 109 in *Aboriginal Well-Being: Canada's Continuing Challenge*, edited by J. White, D. Beavon and N. Spence. Toronto: Thompson Educational Publishing. 2007.
59. Hill K, Barker B, Vos T. Excess Indigenous mortality: are Indigenous Australians more severely disadvantaged than other Indigenous populations? *Int J Epidemiol*. 2007;36:580-9.
60. Australian Institute of Health and Welfare 2015. *Cardiovascular disease, diabetes and chronic kidney disease— Australian facts: Aboriginal and Torres Strait Islander people*. Cardiovascular, diabetes and chronic kidney disease series no. 5. Cat. no. CDK 5. Canberra: AIHW. 2015.

61. Burrow S, Ride K. Review of Diabetes Among Aboriginal and Torres Strait Islander People. Mt Lawley (AUST): Edith Cowan University Australian Indigenous HealthInfoNet; 2016
62. Australian Institute of Health and Welfare. *Aboriginal and Torres Strait Islander Health Performance Framework 2012 report*: Australian Capital Territory. Cat. no. IHW 96. Canberra: AIHW. 2013.
63. Silburn K, Reich H, Anderson I (eds). A Global Snapshot of Indigenous and Tribal Peoples' Health, *The Lancet-Lowitja Institute Collaboration*, The Lowitja Institute, Melbourne. 2016.
64. Cunningham J, Paradies YC. Socio-demographic factors and psychological distress in Indigenous and non-Indigenous Australian adults aged 18-64 years: analysis of national survey data. *BMC Public Health*. 2012;12:95.
65. Ridani R, Shand FL, Christensen H, et al. Suicide prevention in Australian Aboriginal communities: a review of past and present programs. *Suicide Life Threat Behav*. 2015;45:111-40.
66. Mitchell, L. *Domestic violence in Australia — An overview of the issues*. Background note. Canberra: Parliamentary Library. 2011.
67. Wilson A, Stearne A, Gray D, Siggers S. The harmful use of alcohol amongst Indigenous Australians. Australian Indigenous HealthInfoNet. 2010.
68. Larson A, Gillies M, Howard PJ, Coffin J. It's enough to make you sick: the impact of racism on the health of Aboriginal Australians. *Aust N Z J Public Health*. 2007;31:322-9.
69. SCRGSP (Steering Committee for the Review of Government Service Provision). *Overcoming Indigenous Disadvantage: Key Indicators 2011*, Productivity Commission, Canberra. 2011.
70. Australian Institute of Health and Welfare. *Child protection Australia 2016–17*. Child welfare series no. 68. Cat. no. CWS 63. Canberra: AIHW. 2018.

71. Calma T. Social Justice Report 2005, Aboriginal and Torres Strait Islander Social Justice Commissioner. Human Rights and Equal Opportunity Commission, Sydney 2005.
72. Adams M. Close the Gap: Aboriginal community controlled health services. *Med J Aust.* 2009;190:593.
73. Commonwealth of Australia, Department of the Prime Minister and Cabinet, *Closing the Gap Prime Minister's Report 2018.*
74. Boddington P, Räisänen U. Theoretical and practical issues in the definition of health: Insights from Aboriginal Australia. *J. Med. Philos.* 2009;34:49-67.
75. Garvey D. Review of the social and emotional wellbeing of Indigenous Australian peoples. Australian Indigenous HealthInfoNet: Citeseer; 2008.
76. Marmot M. Social determinants of health inequalities. *Lancet.* 2005;365:1099-104.
77. Braveman P, Gottlieb L. The social determinants of health: it's time to consider the causes of the causes. *Public Health Rep.* 2014;129:19-31.
78. Viner RM, Ozer EM, Denny S, et al. Adolescence and the social determinants of health. *Lancet.* 2012;379:1641-52.
79. Adler NE, Boyce T, Chesney MA, et al. Socioeconomic status and health: The challenge of the gradient. *Am. Psychol.* 1994;49:15.
80. Mitrou F, Cooke M, Lawrence D, et al. Gaps in Indigenous disadvantage not closing: a census cohort study of social determinants of health in Australia, Canada, and New Zealand from 1981–2006. *BMC Public Health.* 2014;14:201.
81. King M, Smith A, Gracey M. Indigenous health part 2: the underlying causes of the health gap. *Lancet.* 2009;374:76-85.
82. Anderson I, Robson B, Connolly M, et al. Indigenous and tribal peoples' health (The Lancet–Lowitja Institute Global Collaboration): a population study. *Lancet.* 2016;388:131-57.

83. Randall D, Jorm LR, Lujic S, et al. Exploring disparities in acute myocardial infarction events between Aboriginal and non-Aboriginal Australians: roles of age, gender, geography and area-level disadvantage. *Health Place*. 2014;28:58-66.
84. Marmot M. Social determinants and the health of Indigenous Australians. *Med J Aust*. 2011;194:512-3.
85. Colquhoun S, Dockery AM. *The link between Indigenous culture and wellbeing: Qualitative evidence for Australian Aboriginal peoples*. CLMR Discussion Paper Series 2012/01. Perth: Labour Market Research, Curtin Business School, Curtin University.
86. Conway J, Lawn S, Crail S, McDonald S. Indigenous patient experiences of returning to country: a qualitative evaluation on the Country Health SA Dialysis bus. *BMC Health Serv Res*. 2018;18:1010.
87. Kingsley J, Munro-Harrison E, Jenkins A, Thorpe A. "Here we are part of a living culture": Understanding the cultural determinants of health in Aboriginal gathering places in Victoria, Australia. *Health Place*. 2018;54:210-20.
88. Ganesharajah C. Indigenous health and wellbeing: the importance of country: Native Title Research Unit, Australian Institute for Aboriginal and Torres Strait Islander Studies. 2009.
89. Turrell G, Oldenburg BF, Mcguffog I, Dent R. Socioeconomic determinants of health: towards a national research program and a policy and intervention agenda: Queensland University of Technology; 1999.
90. Atkinson, J. Trauma trails, recreating song lines: *The transgenerational effects of trauma in Indigenous Australia*. North Melbourne: Spinifex Press. 2002.
91. Elias B, Mignone J, Hall M, Hong SP, Hart L, Sareen J. Trauma and suicide behaviour histories among a Canadian indigenous population: an empirical exploration of the potential role of Canada's residential school system. *Soc. Sci. Med*. 2012;74:1560-9.

92. Brave Heart MYH, Chase J, Elkins J, Altschul DB. Historical trauma among indigenous peoples of the Americas: Concepts, research, and clinical considerations. *J Psychoactive Drugs*. 2011;43:282-90.
93. O'toole B, Burton M, Rothwell A, Outram S, Dadds M, Catts S. Intergenerational transmission of post-traumatic stress disorder in Australian Vietnam veterans' families. *Acta Psychiatr. Scand*. 2017;135:363-72.
94. Zerach G, Levin Y, Aloni R, Solomon Z. Intergenerational transmission of captivity trauma and posttraumatic stress symptoms: A twenty three-year longitudinal triadic study. *Psychol. Trauma*. 2017;9:114.
95. Alford CF. Subjectivity and the intergenerational transmission of historical trauma: Holocaust survivors and their children. *Subjectivity*. 2015;8:261-82.
96. Lev–Wiesel R. Intergenerational transmission of trauma across three generations: A preliminary study. *Qual Soc Work*. 2007;6:75-94.
97. Johnson SE, Lawrence D, Perales F, Baxter J, Zubrick SR. Prevalence of Mental Disorders Among Children and Adolescents of Parents with Self-Reported Mental Health Problems. *Community Mental Health Journal*. 2017:1-14.
98. De Maio J, Zubrick S, Silburn SR, et al. The Western Australian Aboriginal Child Health Survey: Measuring the social and emotional wellbeing of Aboriginal children and intergenerational effects of forced separation. Perth: Curtin University of Technology and Telethon Institute for Child Health Research 2005.
99. Ypinazar VA, Margolis SA, Haswell-Elkins M, Tsey K. Indigenous Australians' understandings regarding mental health and disorders. *Aust N Z J Psychiatry*. 2007;41:467-78.
100. Parker, R. Australian Aboriginal and Torres Strait Islander mental health: an overview. In N. Purdie, P. Dudgeon, & R. Walker (Eds.), *Working together: Aboriginal and Torres Strait Islander mental health and wellbeing principles and practice* (pp. 3–11). Australian Government Department of Health and Ageing. 2010.

101. Australian Institute of Health and Welfare. *Family violence prevention programs in Indigenous communities*. Resource sheet no. 37 produced for the Closing the Gap Clearinghouse. 2016.
102. Atkinson, J. Trauma-informed services and trauma-specific care for Indigenous Australian children. Resource sheet no. 21. Produced for the Closing the Gap Clearinghouse. Melbourne: Australian Institute of Family Studies and Canberra: Australian Institute of Health and Welfare. 2013.
103. Victorian Indigenous Family Violence Task Force. *Victorian Indigenous Family Task Force final report*. Melbourne: Department of Victorian Communities. 2003.
104. Australian Indigenous HealthInfoNet. *Stolen Generations*. Retrieved from <https://healthinfonet.ecu.edu.au/learn/health-topics/healing/stolen-generations/>.
105. Czyzewski K. Colonialism as a broader social determinant of health. *International Indigenous Policy Journal*. 2011;2.
106. Masten AS, Best KM, Garmezy N. Resilience and development: Contributions from the study of children who overcome adversity. *Dev. Psychopathol*. 1990;2:425-44.
107. Sapienza JK, Masten AS. Understanding and promoting resilience in children and youth. *Curr Opin Psychiatry*. 2011;24:267-73.
108. Ying L, Wu X, Lin C, Jiang L. Traumatic severity and trait resilience as predictors of posttraumatic stress disorder and depressive symptoms among adolescent survivors of the Wenchuan earthquake. *PloS One*. 2014;9:e89401.
109. Phillips SP, Carver L. Early parental loss and self-rated health of older women and men: a population-based, multi-country study. *PloS One* 2015;10:e0120762.
110. Masten AS, Obradović J. Competence and resilience in development. *Ann. N. Y. Acad. Sci*. 2006;1094:13-27.
111. Ungar M. Resilience across cultures. *Brit J Soc Work*. 2008;38:218-35.

112. Dalgleish T, Moradi AR, Taghavi MR, Neshat-Doost HT, Yule W. An experimental investigation of hypervigilance for threat in children and adolescents with post-traumatic stress disorder. *Psychol Med.* 2001;31(3):541–547
113. Ehlers A, Clark DM. A cognitive model of posttraumatic stress disorder. *Behav Res Ther.* 2000;38(4):319–345.
114. Olsson CA, Bond L, Burns JM, Vella-Brodrick DA, Sawyer SM. Adolescent resilience: A concept analysis. *J. Adolesc.* 2003;26:1-11.
115. Ungar, M. (Ed.). *The social ecology of resilience: A handbook of theory and practice.* New York: Springer. 2012.
116. Ungar M, Ghazinour M, Richter J. Annual research review: What is resilience within the social ecology of human development? *J. Child Psychol. Psychiatry.* 2013;54:348-66.
117. Masten AS. Ordinary magic: Resilience processes in development. *Am. Psychol.* 2001;56:227.
118. Luthar SS, Cicchetti D, Becker B. The construct of resilience: A critical evaluation and guidelines for future work. *Child Dev.* 2000;71:543-62.
119. Shean M. *Current theories relating to resilience and young people.* Victorian Health Promotion Foundation: Melbourne, Australia 2015.
120. Ungar M. Social ecological complexity and resilience processes. *Behav. Brain Sci.* 2015;38.
121. Ungar M, Ghazinour M, Richter J. Annual research review: What is resilience within the social ecology of human development? *J Child Psychol Psychiatry.* 2013;54:348-66;
122. Masten AS, Hubbard JJ, Gest SD, Tellegen A, Garmezy N, Ramirez M. Competence in the context of adversity: Pathways to resilience and maladaptation from childhood to late adolescence. *Dev. Psychopathol.* 1999;11:143-69.

123. Ungar M. Qualitative contributions to resilience research. *Qual Soc Work*. 2003;2:85-102.
124. Luthar SS, Sawyer JA, Brown PJ. Conceptual issues in studies of resilience. *Annals of the New York Academy of Sciences* 2006;1094:105-15.
125. Sameroff, AJ. Identifying risk and protective factors for healthy child development. In A. Clarke-Stewart & J. Dunn (Eds.), *Families Count* (pp. 53–76). 2006.
126. Glantz MD, Johnson JL. *Resilience and development: Positive life adaptations*: Springer Science & Business Media; 1999.
127. Luthar, S. S. *Resilience: A construct of value?* Paper presented at the 104th Annual Convention of the American Psychological Association, August 1996, Toronto, Ontario.
128. Luthar SS. Vulnerability and resilience: A study of high-risk adolescents. *Child Dev*. 1991;62:600.
129. Zucker RA, Wong MM, Puttler LI, Fitzgerald HE. Resilience and vulnerability among sons of alcoholics. *Resilience and Vulnerability: Adaptation in the Context of Childhood Adversities*. Cambridge University Press: New York, 2003:76-103.
130. Masten AS, Tellegen A. Resilience in developmental psychopathology: Contributions of the project competence longitudinal study. *Dev. Psychopathol*. 2012;24:345-61.
131. Brown K. Policy discourses of resilience. *Climate change and the crisis of capitalism: a chance to reclaim self, society and nature* Routledge, London, UK 2012:37-50.
132. Luthar SS, Cicchetti D. The construct of resilience: Implications for interventions and social policies. *Dev. Psychopathol*. 2000;12:857-85.

133. Australian Government, Department of Education and Training. *Student Resilience and Wellbeing*. Retrieved from www.education.gov.au/student-resilience-and-wellbeing.
134. Egeland B, Carlson E, Sroufe LA. Resilience as process. *Dev. Psychopathol.* 1993;5:517-28.
135. Garmezy N, Masten AS, Tellegen A. The study of stress and competence in children: A building block for developmental psychopathology. *Child Dev.* 1984;97-111.
136. Cowen EL, Wyman PA, Work WC, Parker GR. The Rochester Child Resilience Project: Overview and summary of first year findings. *Dev. Psychopathol.* 1990;2:193-212.
137. Bolger K, Patterson C. Sequelae of child maltreatment. In S.S. Luthar (Ed.), *Resilience and Vulnerability: Adaptation in the Context of Childhood Adversities* (pp.156-181). New York: Cambridge University Press. 2003.
138. Smith J, Prior M. Temperament and stress resilience in school-age children: A within-families study. *J Am Acad Child Adolesc. Psychiatry* 1995;34:168-79.
139. Wyman PA, Cowen EL, Work WC, Hoyt-Meyers L, Magnus KB, Fagen DB. Caregiving and developmental factors differentiating young at-risk urban children showing resilient versus stress-affected outcomes: A replication and extension. *Child Dev.* 1999;70:645-59.
140. Wyman PA, Cowen EL, Work WC, Parker GR. Developmental and family milieu correlates of resilience in urban children who have experienced major life stress. *Am J Community Psychol.* 1991;19:405-26.
141. Gunnar M. Early adversity and the development of stress reactivity and regulation. In: Nelson C, (Ed.). *The effects of early adversity on neurobehavioral development. The Minnesota symposia on child psychology*, vol. 31. Mahwah, NJ: Erlbaum; 2000. p. 163–200.

142. Luthar SS, Zelazo LB. Research on resilience: An integrative review. In S. S. Luthar (Ed.), *Resilience and vulnerability: Adaptation in the context of childhood adversities* (pp. 510–549). Cambridge, England: Cambridge University Press. 2003.
143. Rutter, M. Resilience reconsidered: Conceptual considerations, empirical findings, and policy implications. In J. P. Shonkoff & S. J. Meisels (Eds.), *Handbook of early childhood intervention* (2nd ed., pp. 651– 682). New York: Cambridge University Press. 2000.
144. Cicchetti D, Rogosch FA. The role of self-organization in the promotion of resilience in maltreated children. *Dev. Psychopathol.* 1997;9:797-815.
145. Hetherington EM, Elmore AM. Risk and resilience in children coping with their parents' divorce and remarriage. In S. S. Luthar (Ed.), *Resilience and vulnerability: Adaption in the context of childhood adversities* (pp. 182–212). New York: Cambridge University. 2003.
146. Stumblingbear-Riddle G, Romans JS. Resilience among urban America Indian adolescents: Exploration into the role of culture, self-esteem, subjective well-being, and social support. *Am Indian Alsk Native Ment Health Res.* 2012;19:1-19.
147. Fast E, Collin-Vézina D. Historical trauma, race-based trauma and resilience of indigenous peoples: A literature review. *First Peoples Child & Family Review.* 2010;5:126-36.
148. Kirmayer LJ, Sehdev M, Isaac C. Community resilience: Models, metaphors and measures. *International Journal of Indigenous Health.* 2009;5:62.
149. Carlton BS, Goebert DA, Miyamoto RH, et al. Resilience, family adversity and well-being among Hawaiian and non-Hawaiian adolescents. *Int J Soc Psychiatry.* 2006;52:291-308.
150. Fleming J, Ledogar RJ. Resilience, an evolving concept: A review of literature relevant to Aboriginal research. *Pimatisiwin.* 2008;6:7.

151. Wexler L. Looking across three generations of Alaska Natives to explore how culture fosters indigenous resilience. *Transcult. Psychiatry*. 2014;51:73-92.
152. Thomas D, Mitchell T, Arseneau C. Re-evaluating resilience: from individual vulnerabilities to the strength of cultures and collectivities among indigenous communities. *Resilience*. 2016;4:116-29.
153. Chandler MJ, Lalonde C. Cultural continuity as a hedge against suicide in Canada's First Nations. *Transcult. Psychiatry*. 1998;35:191-219.
154. LaFromboise TD, Hoyt DR, Oliver L, Whitbeck LB. Family, community, and school influences on resilience among American Indian adolescents in the upper Midwest. *J Community Appl Soc Psychol*. 2006;34:193-209.
155. Gale F, Bolzan N. Social resilience: Challenging neo-colonial thinking and practices around 'risk'. *Journal of Youth Studies*. 2013;16:257-71.
156. Clapham KF, Khavarpour F, Bolt RJ, Stevenson M, Su S. Researching the safety of Indigenous children and youth: An urban perspective. In: McCoy BF, Stewart P, Poroch N, [Eds]. *Urban Health: Strengthening Our Voice, Culture and Partnerships*. Canberra (AUST): Australian Institute of Aboriginal and Torres Strait Islander Studies; 2012. p. 47-57.
157. Priest N, Paradies Y, Stewart P, Luke J. Racism and health among urban Aboriginal young people. *BMC Public Health*. 2011;11:568.
158. Stathis SL, Doolan I, Letters P, Arnett A, Cory S, Quinlan L. Use of the Westerman Aboriginal Symptoms Checklist-Youth (WASC-Y) to screen for mental health problems in Indigenous youth in custody. *Advances in Mental Health*. 2012;10:235-9.
159. Thomas A, Cairney S, Gunthorpe W, et al. Strong Souls: development and validation of a culturally appropriate tool for assessment of social and emotional well-being in Indigenous youth. *Aust N Z J Psychiatry*. 2010;44:40-8.

160. Hopkins KD, Taylor CL, Zubrick SR. The differential influence of contextual risks on psychosocial functioning and participation of Australian aboriginal youth. *Am. J. Orthopsychiatry*. 2013;83:459-71.
161. Hopkins KD, Zubrick SR, Taylor CL. Resilience amongst Australian aboriginal youth: an ecological analysis of factors associated with psychosocial functioning in high and low family risk contexts. *PLoS One*. 2014;9:e102820.
162. Fleming J, Ledogar RJ. Resilience, an Evolving Concept: A Review of Literature Relevant to Aboriginal Research. *Pimatisiwin*. 2008;6:7-23.
163. Williamson A, Redman S, Dadds M, et al. Acceptability of an emotional and behavioural screening tool for children in Aboriginal Community Controlled Health Services in urban NSW. *Aust N Z J Psychiatry*. 2010;44:894-900.
164. Williamson A, McElduff P, Dadds M, et al. The construct validity of the Strengths and Difficulties Questionnaire for aboriginal children living in urban New South Wales, Australia. *Australian Psychologist*. 2014;49:163-70.
165. Williamson A, Skinner A, Falster K, Clapham K, Eades SJ, Banks E. Mental health-related emergency department presentations and hospital admissions in a cohort of urban Aboriginal children and adolescents in New South Wales, Australia: findings from SEARCH. *BMJ Open*. 2018;8:e023544.
166. Victoria State Government Department of Health and Human Services. Balit Murrup Aboriginal social and emotional wellbeing framework 2017–2027. Melbourne. Victorian Government. 2017.
167. Humphery K. Dirty questions: Indigenous health and 'Western research'. *Aust N Z J Public Health*. 2001;25:197-202.
168. Thomas DP, Bainbridge R, Tsey K. Changing discourses in Aboriginal and Torres Strait Islander health research, 1914–2014. *Med J Aust*. 2014;201:S15-8.
169. Walter M. Using the 'power of the data' within Indigenous research practice. *Australian Aboriginal Studies*. 2005;2005:27.

170. Jamieson LM, Paradies YC, Eades S, et al. Ten principles relevant to health research among Indigenous Australian populations. *Med J Aust.* 2012;197:16.
171. Couzos S, Lea T, Murray R, Culbong M. 'We are Not Just Participants—We are in Charge': The NACCHO Ear Trial and the Process for Aboriginal Community-controlled Health Research. *Ethn. Health.* 2005;10:91-111.
172. Sax Institute. *CRIAH*. Retrieved from <https://www.saxinstitute.org.au/our-work/criah/>.
173. The SEARCH Investigators. The Study of Environment on Aboriginal Resilience and Child Health (SEARCH): study protocol. *BMC Public Health.* 2010;10:287.
174. Wright D, Gordon R, Carr D, et al. The Study of Environment on Aboriginal Resilience and Child Health (SEARCH): a long-term platform for closing the gap. *Public Health Res Pract.* 2016;26.
175. Young C, Tong A, Sherriff S, et al. Building better research partnerships by understanding how Aboriginal health communities perceive and use data: a semistructured interview study. *BMJ Open.* 2016;6.
176. Bronfenbrenner U, Morris P. *The bioecological model of human development*. In: Damon W, Lerner RM, editors. *Handbook of child psychology (Vol 1, pp 793-828)*. New York: John Wiley & Sons; 2006.
177. Australian Bureau of Statistics. *Education and Indigenous Wellbeing, Ca. No 4102.0*. Canberra: Commonwealth of Australia. 2011.
178. World Health Organisation. *Child and Adolescent Health and Development*. 2019. Retrieved from http://www.searo.who.int/entity/child_adolescent/topics/adolescent_health/en/om

Intentionally left blank.

**Chapter 2 – Psychosocial factors associated with the
mental health of Indigenous children living in high income
countries: a systematic review**

Intentionally left blank.

Chapter 2 – Psychosocial factors associated with the mental health of Indigenous children living in high income countries: a systematic review

Authors

Christian Young,^{1, 2} Camilla Hanson,^{1, 2} Jonathan C. Craig,^{1, 2} Kathleen Clapham,³ Anna Williamson⁴

Department and Institution

¹ Sydney School of Public Health, The University of Sydney

² Centre for Kidney Research, Westmead Institute for Medical Research

³ Australian Health Services Research Institute, The University of Wollongong

⁴ The Sax Institute

2.1 Chapter introduction

As described in Chapter 1, human resilience is a construct that is often inferred from positive adaptation in the presence of adversity. In order to understand childhood resilience within an Indigenous context it is important to understand the risks that Indigenous children experience to their mental health as well as potential protective factors. This chapter presents an overview of the associations between psychosocial factors and mental health in Indigenous children who live in high income countries. Quantitative resilience studies are also identified including protective and vulnerability factors that are associated with resilience.

The material presented in this chapter has been published as: **Young C**, Hanson C, Craig JC, Clapham K, Williamson A. Psychosocial factors associated with the mental health of indigenous children living in high income countries: a systematic review. *Int J Equity Health*. 2017;16:153.

Chapter 2 is structured as per the journal article.

2.1.1 Authors' contributions

CY, JC, KC and AW conceptualised the study. CY and CH conducted the literature search and applied the GRADE guidelines. CY collated the data and wrote the manuscript. All authors interpreted the results and reviewed, revised and approved the final version of the manuscript.

2.2 Abstract

2.2.1 Background

Indigenous children living in high income countries have a consistently high prevalence of mental health problems. We aimed to identify psychosocial risk and protective factors for mental health in these settings.

2.2.2 Methods

A systematic review of studies published between 1996 and 2016 that quantitatively evaluated the association between psychosocial variables and mental health among Indigenous children living in high income countries was conducted. Psychosocial variables were grouped into commonly occurring domains. Individual studies were judged to provide evidence for an association between a domain and either good mental health, poor mental health, or a negligible or inconsistent association. The overall quality of evidence across all studies for each domain was assessed using the Grades of Recommendation Assessment, Development and Evaluation (GRADE) guidelines.

2.2.3 Results

47 papers were eligible (mainland US 30 [64%], Canada 8 [17%], Australia 7 [15%], Hawaii 4 [9%]), including 58,218 participants aged 4 to 20 years. Most papers were cross-sectional (39, 83%) and measured negative mental health outcomes (41, 87%). Children's negative cohesion with their families and the presence of adverse events appeared the most reliable predictors of increased negative mental health outcomes. Children's substance use, experiences of discrimination, comorbid internalising symptoms, and negative parental behaviour also provided evidence of associations with

negative mental health outcomes. Positive family and peer relationships, high self-esteem and optimism were associated with increased positive mental health outcomes.

2.2.4 Conclusions

Quantitative research investigating Indigenous children's mental health is largely cross-sectional and focused upon negative outcomes. Indigenous children living in high income countries share many of the same risk and protective factors associated with mental health. The evidence linking children's familial environment, psychological traits, substance use and experiences of discrimination with mental health outcomes highlights key targets for more concerted efforts to develop initiatives to improve the mental health of Indigenous children.

2.3 Introduction

Indigenous children living in high income countries such as Australia, New Zealand, Canada and the United States (US) have survived enormous challenges to their health and wellbeing. Despite these threats, the strength and resilience of Indigenous communities and families has enabled most children to have good mental health. However, Indigenous children in these countries are disproportionately affected by mental health problems when compared to their non-Indigenous counterparts.¹⁻⁵ Childhood mental health disorders such as anxiety, depression and externalising behaviours are associated with a range of negative outcomes that are overrepresented in Indigenous communities, including high rates of suicidal ideation and completion.^{6,7} The long-term sequelae of poor childhood mental health is believed to significantly contribute to negative health and social outcomes that occur throughout the lifespan.⁸

While the aetiology of childhood mental health disorders is likely to involve multiple determinants, the impact of European colonisation constitutes an additional, pervasive risk factor for Indigenous children living in Australia, New Zealand, Canada and the US. For these children, colonisation and subsequent cultural marginalisation are believed to be the "cause of causes",⁹ impacting negatively on children's mental health through low socio-economic families and communities, experiences of discrimination, and exposure to the psychological effects of intergenerational trauma and inequality.¹⁰

Given that Indigenous populations share a history of colonisation, research that investigates common correlates of mental health may help to strengthen the evidence base, and contribute to the development of effective health interventions. To date, there has been little research that assesses risk and protective factors among multiple Indigenous cultures. The aim of this systematic review is to identify modifiable psychosocial risk and protective factors, common to Indigenous children living in Australia, New Zealand, Canada and the US that are associated with mental health outcomes typically experienced during childhood and adolescence. The results may aid the design of initiatives to improve the mental health of Indigenous children, reduce health disparities, and identify areas for further research.

2.4 Methods

We followed the Meta-analysis of Observational Studies in Epidemiology (MOOSE) guidelines to conduct this systematic review.¹¹

2.4.1 Study inclusion and exclusion criteria

Peer reviewed, English language studies that reported quantified relationships between psychosocial variables and mental health outcomes in Indigenous children were eligible. School-aged samples (mean ages between 5 and 18 years) from the four 'CANZUS' (Canada, Australia, New Zealand, United States) countries were included, with studies including participants over 21 years excluded. While many Indigenous people live in remote areas, studies that only included young people from very remote areas (e.g. the Arctic Circle) were excluded. Given the unique adversities and environmental factors that isolated populations are likely to face,¹² the exclusion of such groups was hypothesised to improve the generalisability of the results. Studies investigating multiple ethnic groups were included if a separate quantitative analysis was provided for the Indigenous sample.

Due to the potential of evolving social and political landscapes to effect changes in the health of Indigenous minority groups, only papers published in the last 20 years (1996 to January 2016) were included. In keeping with this review's focus of modifiable factors associated with mental health, studies measuring congenital disorders or mental

disability were excluded. Given current controversies surrounding the diagnosis of Attention Deficit Hyperactivity Disorder (ADHD),¹³ associations between psychosocial variables and an ADHD diagnosis were not included.

Symptoms of mental health vary considerably in both presentation and severity. This review focused on commonly measured aspects of mental health that are relevant from early childhood to late adolescence and across a range of cultures. These included externalising and internalising disorders, and measures of positive mental health such as self-esteem.¹⁴ In keeping with this focus, outcomes that were more serious, rare and less likely to be observed across the relevant age range such as eating disorders, delinquency and suicidal ideation and completion were excluded.¹⁵⁻¹⁸ Studies that used recruitment strategies that led to over-sampling high risk populations were not included.

2.4.2 Search strategy

The first author (CY) conducted the literature search using MEDLINE, PsychINFO, Embase, and Scopus databases. Results were retrieved in February, 2016. Details of the literature search are available in Appendix A.1. Author CY screened papers for eligibility by reading abstracts and, where necessary, the full text. A second reviewer (CH) independently read 25% of the papers and compared her findings with the first author. Disagreements were resolved by discussion. Of the 159/492 (25%) papers independently assessed by the first and second author, four discrepancies were detected; however, on closer inspection all of these papers met exclusion criteria and no further papers were assessed by the second author. Reference lists were examined from included papers to identify potentially eligible studies.

2.4.3 Definition of variables

Psychosocial variables: Psychosocial variables were defined as any quantifiable measure of children's characteristics, and their family and community environments. These were grouped into commonly occurring domains (e.g. socioeconomic status). Domains were further grouped by individual, family and community level. Individual-level domains relate to children's traits, attitudes or abilities; family-level domains relate to the family/household environment, including parent's characteristics and the relationships

between children and their parents; community-level domains relate to children's neighbourhood and broader community, including peer relationships and school-based variables. Domains that were measured in fewer than four papers were not included in this analysis. This arbitrary rule was decided by the authors in order to include domains that were likely to provide sufficient data for comparison and evaluation purposes. The list of domains and their definitions are given below:

Individual-level domains

Optimism: Measured children's optimistic view of their future and optimistic explanatory styles.

Positive attitudes towards school: Measured children's positive view of school including feelings of school membership.

Self-efficacy: Measured children's belief in their ability to achieve specific goals.

Self-esteem: Measured children's concept of their own self-worth.

Identification with White culture: Measured the extent that Indigenous children saw themselves adopting or adapting to White cultural practices. This domain was measured primarily with ethnic identification scales. For example, the Orthogonal Cultural Identification Scale (OCIS)¹⁹ or the Bicultural Ethnic Identity Scale.²⁰

Scholastic ability: Measured children's academic achievement or general cognitive ability. Grade Point Average (GPA) scores were the most commonly used measure for this domain.

Identification with Indigenous culture: Measured children's identification with their own Indigenous culture. This domain was primarily measured with ethnic identification scales (e.g. the OCIS), or by assessing children's knowledge of their Indigenous culture or language.

Substance use: Measured children's use of illegal drugs and alcohol (tobacco use was not included).

Externalising: Measured antisocial, aggressive and oppositional behaviours.

Internalising: Measured internalising symptoms including anxiety, depression, withdrawn behaviour and suicidal ideation.

Adverse events: Measured children's exposure to events likely to cause substantial stress (e.g. abuse, neglect) or significant disruption to children's lives (e.g. the loss of a close family member).

Family-level domains

Family cohesion (positive): Measured the quality of relationships children experienced within their immediate family including measures of family support and positive parenting styles.

Low family SES: Measured indices of socio-economic status (SES) including family income, caregiver's education and occupation, household occupancy level and housing quality/tenure.

Atypical family structure: Measured whether children were raised by single caregivers or by family members other than the children's parents (e.g. aunts, uncles or grandparents).

Caregiver's mental health/behaviour (negative): Included measures of caregiver's mental health problems, criminal activity, domestic violence and substance abuse.

Family cohesion (negative): Measured poor relationships children had with their family, and harsh parenting practices.

Community-level domains

Peer support: Measured the presence and quality of prosocial relationships children had with their peers.

Community cohesion (negative): Measured negative elements within the children's community including violent or criminal activity in neighbourhood or school environments.

Discrimination: Measured children's experiences of racial discrimination.

Bullying: Measured whether children had experienced recent bullying.

Mental health outcomes: We defined mental health outcomes as any internalising or externalising symptom, and/or measure of positive mental health typically associated with school-aged children. Internalising disorders describe adverse mental health states that are inner-directed, including depression, anxiety, and withdrawal.²¹ In contrast, externalising disorders are outer-directed and manifest as maladaptive behavioural problems including antisocial, oppositional and aggressive behaviour.²²

Positive mental health outcomes included measures of self-esteem, positive affect and resilience. Resilience is commonly defined as positive adaption in the presence of adversity.²³ In this review, 'positive adaption' was inferred by the presence of a positive mental health outcome (e.g. greater self-esteem), or the lack of a negative mental health outcome. Adversity was inferred by the presence of an event, or events, that were likely to significantly disrupt children's health, development or wellbeing. Only quantitative measures of positive adaption and adversity were considered for this review. For example, Hopkins et al.²⁴ divided a sample of Australian Aboriginal children into 'low' and 'high' risk groups based on the number of adversities experienced. Children in the high-risk group who showed good mental health outcomes (as measured by the Strengths and Difficulties Questionnaire)²⁵ were considered resilient. Studies that did not include a measure of adversity or a validated resilience scale were not deemed to measure resilience. A separate summary of the psychosocial variables that were associated with resilient mental health is given in the results.

Mental health measures that combined internalising, externalising or positive mental health outcomes were described as 'Global' measures of mental health. For example, the Strength and Difficulties Questionnaire uses measures of 'conduct problems' (externalising), 'emotional symptoms' (internalising) and 'prosocial behaviour' (positive mental health) to calculate a global measure of children's mental health.

In order to assess comorbidity between mental health outcomes, externalising, internalising and self-esteem constitute both predictor variables (domains) and outcomes (mental health) in this review.

2.4.4 Data extraction strategy

Bivariate and multivariable analyses of a domain's association with mental health were extracted from each study, including the statistic used, the magnitude and direction of association, the p value and the confidence interval (where given). When path analysis was employed, only associations from the best fitting model were included. Similarly, when multiple statistical models progressively introduced confounders, only statistics from the final model were included. Longitudinal and cross-sectional data were both included. Interactions were not recorded; however, because the construct of resilience can be observed through statistical interactions between levels of adversity and other predictor variables, interactions that were deemed to measure resilient mental health were included. When multiple papers reported results from the same study, variables measuring the same domain were treated as belonging to a single study.

2.4.5 Data synthesis and presentation

The aim was to determine the associations between psychosocial variables and childhood mental health outcomes. Due to the considerable heterogeneity in how these variables were conceptualised and measured, and in the statistical methods employed to assess relationships, calculation of summary estimators (meta-analysis) was neither possible nor appropriate. Instead, a two-stage process was used to assess the strength of association between psychosocial variables and mental health. The first stage involved making an overall judgement whether an individual study provided evidence for an association between a domain and: good mental health, poor mental health, or showed a negligible or inconsistent association. The second stage involved assessing the quality of evidence associating each domain with mental health, as measured by multiple studies, using the Grades of Recommendation Assessment, Development and Evaluation (GRADE).²⁶

Individual studies: Each study was independently assessed by two authors (CY, CH) to ascertain whether it provided evidence for an association between a psychosocial domain and: good mental health, poor mental health, or a negligible or inconsistent association. When only one association between a psychosocial domain variable and a mental health outcome was reported in a single study, statistical significance was used

to determine evidence for an association. When domains were measured by more than one psychosocial variable and/or multiple mental health outcomes were used within a single study; the number of statistically significant associations, the magnitude and direction of effects and the number of comparisons were all considered before making a judgement regarding an association. Measures of both positive (e.g. self-esteem) and negative (e.g. depression) mental health were considered together in order to determine the overall association between domain variables and mental health. Disagreements were resolved via discussion.

2.4.6 Study quality assessment

We used the Grades of Recommendation Assessment, Development and Evaluation (GRADE) guidelines to rate the quality of evidence within each domain. The GRADE guidelines rate evidence as being ‘very low’, ‘low’, ‘moderate’ or ‘high’ depending on four categories of investigation: risk of bias, inconsistency, indirectness, and if reasons to rate up the strength of evidence exist. The GRADE category of ‘Imprecision’ was not assessed given the relatively small number of studies that reported confidence intervals. The GRADE category of ‘Indirectness’ was also not assessed given that relevant inclusion criterion were matched directly to the research question. Observational studies start at ‘low’ quality and could be rated up or down depending on the quality of evidence. In accordance with the GRADE recommendations, domains that had been rated down for any reason were not eligible to be rated up. Two authors (CY, CH) independently assessed all elements of the GRADE evidence profile, discrepancies were resolved by discussion.

Risk of Bias: Risk of bias was first assessed in individual papers using the Newcastle-Ottawa Scale (NOS) adapted for cross-sectional studies.²⁷ This scale measures potential sources of bias on a 10-point scale. Risk of bias is deemed to be present if the sample size is not justified or unsatisfactory,²⁸ if the sample is unrepresentative of the target population, if inappropriate or un-validated measurement tools have been used, if theoretically important variables were not controlled for (socioeconomic status, and age and gender), and if inappropriate or unclear statistical tests were employed. We set the following criteria for judging risk of bias: 9 to 10 points = low risk; 7 to 8 points =

medium risk; ≤ 6 points = high risk. Domains that included a majority of high risk studies were considered to be at serious risk of bias and were rated down.

Inconsistency: Inconsistency was deemed to be present when large differences between point estimates and/or confidence interval ranges were observed among studies that measured the same psychosocial domain. Domains were always rated as inconsistent if different studies measuring the same domain produced statistically significant but conflicting associations with mental health outcomes (note: this did not include negligible associations).

Rating up the quality of evidence: Provided that there were no reasons to rate evidence down, the quality of evidence for each domain could be rated up if: the majority of studies reported medium or large effect sizes, if a dose-gradient effect was observed, or if the majority of studies controlled for confounding variables that could plausibly reduce the magnitude of the effect. We followed conventional rules of thumb for effect sizes²⁹ and deemed medium effect sizes as: Cohen's $d = .5$, zero-order correlation coefficient $r = |.3|$, and odds ratios = 2 or .5; large effect sizes were defined as Cohen's $d = .8$, zero-order correlation coefficient $r = |.5|$, and odds ratios = 5 or .2. All other statistics were interpreted within the context of the study.

Using the above heuristics two researchers (CY, CH) independently appraised the effect sizes reported in each study. Effect sizes were rated as being 'small', 'medium', 'large', 'negligible' or 'inconsistent'. When more than one statistic was reported, a summary of the range of effect sizes was recorded, outliers were excluded. Using the same method, a qualitative summary of the range of effect sizes, *per domain*, was made by the researchers, disagreements were resolved by discussion.

For example, a study by Whitbeck et al.³⁰ investigated substance use among American Indian children. In this case the domain, 'substance use' is indicated by three variables: "alcohol problems", "alcohol abuse" and "number of substances used in the past month". Mental health was indicated by measures of withdrawal, somatic complaints and anxiety/depression (all symptoms of internalising). This study provided three independent variables and three dependent variables, yielding nine associations between the domain 'substance use' and mental health. The variable "number of

substances used in the past month” was found to be significantly correlated with mental health variables: “somatic symptoms” and “anxiety/depression” (r 's = .16 and .27, respectively). All other correlations were positive but non-significant. Given the absence of conflicting evidence, and the two significant correlations, this paper is deemed to have provided evidence of an association between the domain ‘substance use’ and poor mental health.

After appraising all other studies measuring the domain ‘substance use’, 8/9 studies measuring this domain were deemed to provide evidence for an association with poor mental health. Using the GRADE guidelines, the quality of evidence was rated up from ‘low’ to ‘moderate’ due to the majority of studies that adjusted for confounding factors and the absence of any reason to rate down.

2.5 Results

2.5.1 Review statistics

The review included 47 papers. Figure 2.1 (following) presents the results of the literature search.

The majority of papers reported on studies conducted in the US (mainland; 30 papers, 64%) with Native American samples, 8 papers (17%) involved Indigenous Canadian samples (two papers assessed both US mainland and Canadian Indigenous samples), 7 papers (15%) involved Indigenous Australian children, and 4 (9%) papers involved Indigenous Hawaiian children. No studies from New Zealand met inclusion criteria. All studies were observational; 39 papers (83%) used a cross-sectional design, 8 (17%) used a longitudinal design or a mixture of longitudinal and cross-sectional designs.

Participants’ ages ranged from 4 to 20 years. Most studies included children aged between 11 to 18 years (i.e. middle and/or high school-aged children). Sample sizes ranged from 65 to 13,454 participants. Measures of negative mental health outcomes were the most commonly assessed, measured in 41 (87%) papers. Internalising symptoms were measured in 27 papers (57%), externalising symptoms were measured in 14 papers (30%), global measures of mental health were measured in 14 papers (30%), and positive mental health was measured in 13 papers (28%). Domains that

appeared in the search but were measured in fewer than four papers included: physical health, historical loss, religious involvement, level of isolation, social skills and self-regulation. The number of publications was seen to increase over time with half of the papers published between 2011 and January 2016 (the last five years of the review's 20-year timeframe).

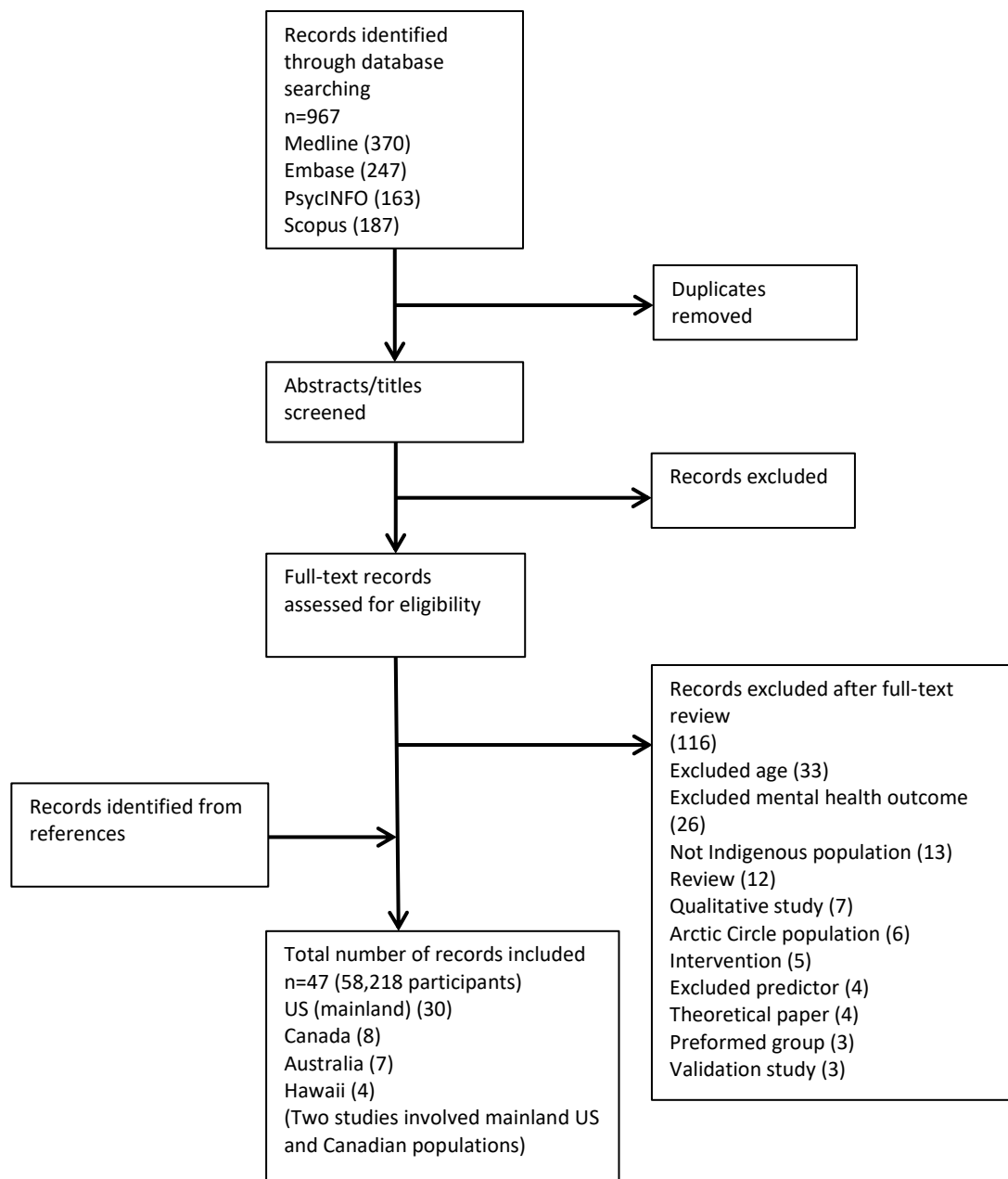


Figure 2.1 Search results

Individual-level domain variables were reported in 40 papers (85%), family-level domain variables were measured in 25 papers (53%) and community-level domain variables were measured in 22 papers (47%). The median number of associations between a single psychosocial domain and mental health outcome per paper was two (interquartile range: 3).

Table 2.1 provides a summary of the included papers.

Table 2.1 Study characteristics

Region	Study	Sample size	Male (%)	Age (range or mean) or school grade	Mental health outcome	Mental health measure
US (mainland)	Costello, ^[31] 1997	323	53	9-13	Symptoms of child/adolescent psychiatric disorders	CAPA
	Federman ^[32] 1997	431	Not reported	9-15	Symptoms of child/adolescent psychiatric disorders	CAPA
	Cummins, ^[33] 1999	13,454	49	14.5	Positive mental health	Emotional Health scale (bespoke measure)
	Fisher, ^[34] 1999	112	46	14.82	Psychopathological behaviour	CBCL
	Wall, ^[35] 2000	96	52	8-13	Internalising and externalising symptoms	CBCL
	Whitbeck, ^[30] 2001	195	54	9-16	Internalising symptoms	YSR
	Rieckmann, ^[36] 2004	332	41	14-20	Depression	CDI, DSM-IV, MMPI
	Bearinger, ^[37] 2005	569	48	9-15	Violence	Bespoke measure
	Newman, ^[38] 2005	96	47	12-15	Internalising symptoms, positive mental health	SAS, SMFQ, RSE, PANAS-X, YSR, SEQ, FES
	La Fromboise, ^[39] 2006	212	54	10-15	Positive mental health	Bespoke measure
	Silmere, ^[40] 2006	401	45	15.6	Positive mental health	DIS-IV, YSR, CIS
	Whitesell, ^[41] 2006	1252	48	14-17	Self-esteem	RSE
	Jones, ^[42] 2007	137	47	14-19	Self-esteem, depression	RSE, CES-D

Stiffman, ^[43] 2007	385	Not reported	12-19	Behaviour and emotional problems	YSR
Stiffman, ^[44] 2007	401	Not reported	12-19	Depression, conduct disorder	YSR, CIS
Scott, ^[45] 2008	112	53	13-19	Depressive symptoms	IDD
Hamill, ^[46] 2009	151	54	7-12th grade	Depressive symptoms	CDI
Albright, ^[47] 2010	114	47	11-15	Hopelessness	HSC
La Fromboise, ^[48] 2010	438	46	Adolescents	Hopelessness	BHS
Gallagher, ^[49] 2011	137	49	14-19	Self-esteem, social functioning	CASAFA, RSE
Scott, ^[50] 2012	198	46	5-8th grade	Depressive symptoms	CDI
Stumblingbear-Riddle, ^[51] 2012	196	42	14-18	Self esteem	TECSES
Mileviciute, ^[52] 2013	93	51	Grades 5-8	Depressive symptoms	CDI
Mileviciute, ^[53] 2014	146	36	13-18	Depressive symptoms, externalising problems	CDI, YSR
Smokowski, ^[54] 2014	1358	49	13.4	Internalising and externalising symptoms, self-esteem	SSP, YSR, RSE
Bell, ^[55] 2014	79	41	11-18	Depressive symptoms, self-esteem	CES-DC, RSE
Tyser, ^[56] 2014	164	47	Grades 5-12	Depressive symptoms	CDI
Brokie, ^[57] 2015	132	49	15-19	Depression and PTSD symptoms	BDI-IA, Short Screen for PTSD

US (mainland)	Hartshorn, ^[58] 2012	692	50	10-12 at first wave	Aggression	DSM-IV
	Whitbeck, ^[59] 2006	656	50	9-13	Childhood mental disorders	DISC-R
Canada						
	Mykota, ^[60] 2006	480	51	6-18	Psychosocial functioning	BRP-2
	Flanagan, ^[61] 2011	65	58	11-19	Internalising and externalising symptoms	T-CRS, CDI, RCMAS-2, peer report
	Lemstra, ^[62] 2011	204	44	5-8 grade	Depressed mood	CES-D
	Lemstra, ^[63] 2011	204	44	10-16	Depressed mood	CES-D
	Ames, ^[64] 2013	283	48	12	Depressive symptoms, self-esteem	CES-D, SDQ-2
	Kaspar, ^[65] 2013	12,366	51	6-14	Psychological or nervous difficulties	Clinical diagnosis
Australia						
	Silburn, ^[66] 2007	1073	Not reported	12-17	Clinically significant emotional and behavioural problems	SDQ
	Priest, ^[67] 2011	345	47	16-20	Social and emotional wellbeing	Strong Souls Survey
	Zubrick, ^[68] 2011	5289	Not reported	0-17	Clinically significant emotional and behavioural problems	SDQ
	Shepherd, ^[69] 2012	3993	51	4-17	Clinically significant emotional and behavioural difficulties	SDQ
	Askew, ^[70] 2013	344	52	7.3	Child's behaviour	Parent report
	Hopkins, ^[71] 2013	674	50	12-17	Clinically significant emotional and behavioural difficulties	SDQ

	Hopkins, ^[24] 2014	1021	50	12-17	Clinically significant emotional and behavioural difficulties	SDQ
Hawaii						
	Makinj, ^[72] 1996	1819	45	Grades 9 to 12	Internalising and externalising symptoms	CES-D, STAI, BADS
	Goebert, ^[73] 2000	2634	Not reported	Grades 9 to 12	Internalising and externalising symptoms	CES-D, STAI, BADS
	Carlton, ^[74] 2006	1173	46	Grades 9-12	Internalising and externalising symptoms	CES-D, STAI, BADS
	Hishinuma, ^[75] 2012	3189	46	Grades 9-12	Depression	CES-D

BADS=Braver Aggression Detection Scale, BDI-IA=amended Beck Depression Inventory, BHS=Beck Hopelessness Scale, BRP-2=Behaviour Rating Profile-2nd Edition, CAPA=Child and Adolescent Psychiatric Assessment, CASAFS=Child and Adolescent Social and Adaptive Functioning Scale, CBCL=Child Behaviour Checklist, CDI=Children's Depression Inventory, CES-D=Centre for Epidemiology Studies-Depression, CIS=Columbia Impairment Scale, DBD=Disruptive Behaviour Disorders Rating Scale, DIS-IV=National Institute for Mental Health Diagnostic Interview Schedule, DISC-R=Diagnostic Interview Schedule for Children-Revised, DSM-IV=Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition, FES=Family Environment Scale, HSC=The Hopelessness Scale for Children, IDD=Inventory to Diagnose Depression, MMPI=Minnesota Multiphasic Personality Inventory, PANAS-X=Positive and Negative Affect Schedule, RCMAS-2=Revised Children's Manifest Anxiety Scale Second Edition, RSE=Rosenberg Self-Esteem Scale, SAS-A=Social Anxiety Scale for Adolescents, SDQ=Strengths and Difficulties Questionnaire, SDQ-2=Marsh's Self-Description Questionnaire II, SEQ=Social Experiences Questionnaire, SMFQ=Short Mood and Feelings Questionnaire, SSP=School Success Profile, STAI=Spielberger State-Trait Anxiety Inventory, T-CRS=Teacher-Child Rating Scale, TECSES=Tri-Ethnic Center's Self Esteem Scale, YSR=Youth Self-Report

2.5.2 Study quality assessment

Figure 2.2 presents the results of the Newcastle-Ottawa scale assessment. Scores ranged from 4 to 10 (median: 7). 12 papers (26%) were judged to have low risk of bias, 21 papers (45%) were judged to have medium risk of bias, and 14 papers (30%) were judged to have high risk of bias. 23 papers (49%) failed to report information regarding non-respondents or reported a response rate that was less than 75%, 37 papers (79%) failed to control for age and gender, and/or any socioeconomic variables, though most papers (36, 77%) controlled for at least one other variable, 14 papers (30%) used measures of mental health that were not culturally validated.

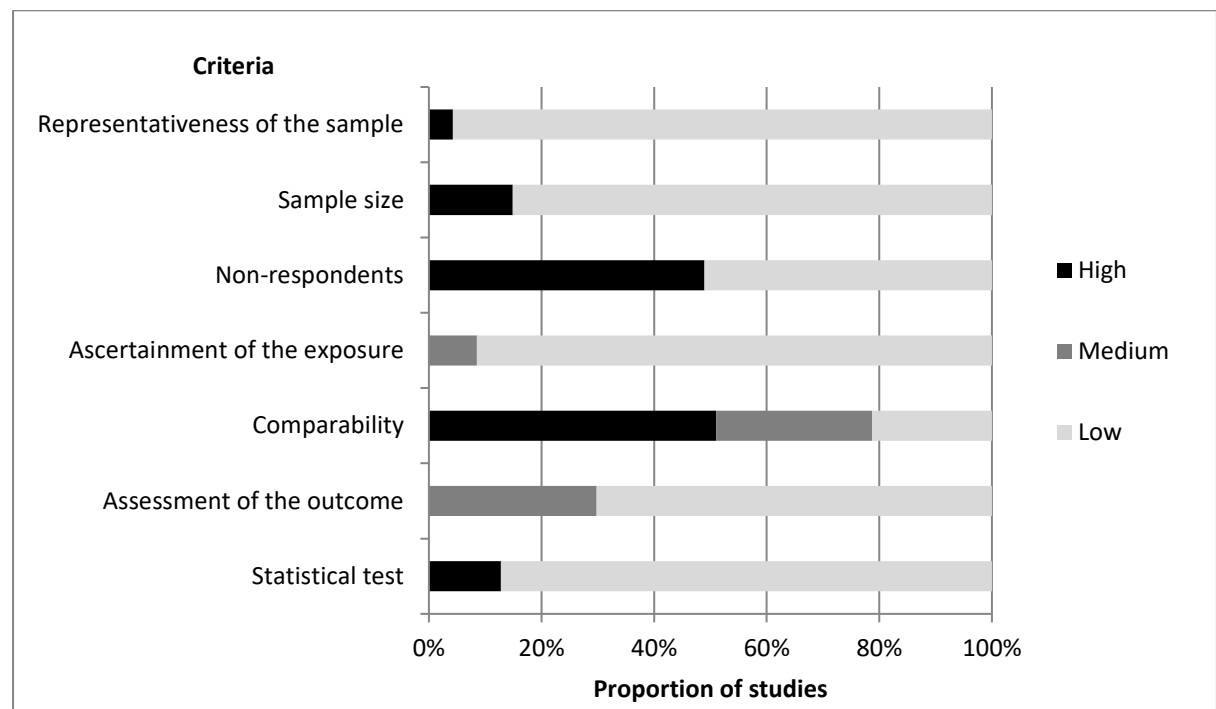


Figure 2.2 Risk of bias

2.5.3 Evidence of effectiveness

Tables 2.2, 2.3, and 2.4 present the GRADE evidence profile for individual, family and community level domains.

Figures 2.3, 2.4 and 2.5 show the number of studies that measured each individual, family, and community-level domain's association with mental health, respectively, and the proportion of studies, within each domain, associated with good mental health, poor

mental health, or those that showed a negligible or inconsistent association. Five papers from Australia used data from same large-scale study, (Western Australian Aboriginal Child Health Survey),^{24,66,68,69,71} two papers from the US (mainland) used data from the same study (Great Smokey Mountains Study),^{31,32} and two papers from Hawaii used data from the same study (Native Hawaiian Mental Health Research Development Program).^{73,74} To avoid overinflating the number of associations, these papers were treated as a single study when they measured the same domain.

Table 2.2 GRADE evidence profile for individual-level domains

Domain	Number of studies	Risk of bias	Inconsistency	Effect size	Quality	Comments
Optimism	7	No serious risk	No serious inconsistency	Small-medium	Moderate	Rated up due to control of confounding factors
Positive attitudes towards school	5	No serious risk	No serious inconsistency	Small-medium	Low	Studies from the US (mainland) only
Self-efficacy	4	No serious risk	No serious inconsistency	Small-medium	Moderate	Rated up due to control of confounding factors Studies from the US (mainland) only
Self-esteem	9	No serious risk	No serious inconsistency	Small-large	Moderate	Rated up due to evidence of a dose-gradient effect
Identification with White culture	6	No serious risk	No serious inconsistency	Negligible-Small	Low	Studies from the US (mainland) only
Scholastic ability	8	No serious risk	Serious inconsistency	Inconsistent	Very low	Rated down due to inconsistent findings
Identification with Indigenous culture	20	No serious risk	Serious inconsistency	Inconsistent	Very low	Rated down due to inconsistent findings
Substance use	9	No serious risk	No serious inconsistency	Small-Large	Moderate	Rated up due to control of confounding factors
Externalising	7	Serious risk of bias	No serious inconsistency	Medium	Very low	Rated down due to serious risk of bias
Internalising	7	No serious risk	No serious inconsistency	Medium-Large	Moderate	Rated up due to medium-large effect sizes
Adverse events	8	No serious risk	No serious inconsistency	Medium-large	High	Rated up due to medium-large effect sizes, a dose-gradient effect and satisfactory control of confounding factors

GRADE=Grades of Recommendation, Assessment, Development, and Evaluation

Table 2.3 GRADE evidence profile for family-level domains

Domain	Number of studies	Risk of bias	Inconsistency	Effect size	Quality	Comments
Family cohesion (positive)	12	No serious risk	No serious inconsistency	Small-large	Moderate	Rated up due to evidence of a dose-gradient effect
Low family SES	8	No serious risk	Serious inconsistency	Inconsistent	Very low	Rated down due to inconsistent findings
Atypical family structure	6	No serious risk	No serious inconsistency	Negligible-small	Moderate	Rated up due to control of confounding factors
Caregiver mental health/behaviour (negative)	8	No serious risk	No serious inconsistency	Small-large	Moderate	Rated up due to control of confounding factors
Family cohesion (negative)	6	No serious risk	No serious inconsistency	Medium-large	High	Rated up due to medium-large effect sizes and a dose-gradient effect
GRADE=Grades of Recommendation Assessment, Development and Evaluation, SES=Socioeconomic Status						

Table 2.4 GRADE evidence profile for community-level domains

Domain	Number of studies	Risk of bias	Inconsistency	Effect size	Quality	Comments
Peer support	5	No serious risk	No serious inconsistency	Small-Medium	Low	
Community cohesion (negative)	4	No serious risk	Serious inconsistency	Negligible-Large	Very low	Rated down due to inconsistent findings Studies from US (mainland) and Canada only
Discrimination	8	No serious risk	No serious inconsistency	Small-Medium	Moderate	Rated up due control of confounding variables
Bullying	4	No serious risk	No serious inconsistency	Small-Large	Low	Studies from US (mainland) and Canada only
GRADE=Grades of Recommendation Assessment, Development and Evaluation						

Individual-level domains

Optimism: Optimism was associated with better mental health outcomes in all studies (7/7) that measured this domain.^{36,37,52,54,56,64,74} Optimism was negatively associated with internalising symptoms in all six studies that measure this outcome.

Positive attitudes towards school: Positive attitudes towards school were consistently associated with better mental health outcomes in all studies (5/5) that measured this domain.^{33,37,42,44,51} This domain was only assessed in studies conducted in the US (mainland).

Self-efficacy: Self-efficacy was associated with good mental health in all studies (4/4) that measured this domain.^{45,50,53,56} Using a cross-sequential longitudinal design one study found increases in self-efficacy predicted decreases in depressive symptoms over a three-year period.⁵⁰ This domain was only assessed in studies conducted in the US (mainland).

Self-esteem: High self-esteem was associated with better mental health outcomes in 7/9 (78%) of the studies that measured this domain.^{24,33,38,42,54,62,64} One study of Aboriginal Australian children showed a dose-gradient effect linking higher levels of self-esteem to greater odds of positive psychosocial functioning.²⁴ Medium to high negative correlations between self-esteem and depressive symptoms were reported (correlation coefficients ranged from -.26 to -.71).

Identification with White culture: Greater identification with White culture was significantly associated with better mental health outcomes in 4/6 (67%) studies.^{42,47-49} This domain was only assessed in studies conducted in the US (mainland).

Scholastic ability: Greater scholastic ability was significantly associated with better mental health outcomes in 4/8 (50%) studies,^{51,56,60,74} however this domain's relationship with mental health was inconsistent with one study showing that higher GPA was significantly associated with increased depressive symptoms.⁴⁶ The highest quality study, a cohort-sequential design, provided evidence that depression negatively affects scholastic ability, not the other way around.⁷⁵

Identification with Indigenous culture: Children's identification with their own Indigenous culture was found to be significantly associated with better mental health outcomes in 10/20 (50%) studies.^{36,38,39,42,48,49,51,54,56,61} Conversely, two studies conducted in the US (mainland) and Hawaii found this domain to be associated with poor mental health.^{44,74} Identification with Indigenous culture appeared more strongly associated with measures of positive mental health (i.e. self-esteem, significantly associated in 6/9 studies) than measures of negative mental health (significantly negatively associated in 5/14 studies).

Substance use: Substance use was associated with poorer mental health in 8/9 (88.9%) studies.^{30,32,37,42,43,53,67,72} Substance use was consistently associated with externalising and global measures of poor mental health (5/5 studies)^{32,37,43,53,67}, but was less consistently associated with depressive symptoms (4/8 studies).^{30,42,67,72}

Externalising: All studies (7/7) that measured externalising symptoms found a positive association between this domain and other negative mental health outcomes.^{30,38,42,53,58,61,72} Externalising symptoms were associated with symptoms of depression in 5/5 studies,^{30,38,42,53,72} with other symptoms of externalising in 2/2 studies,^{58,61} and negatively associated with positive mental health in 1/2 studies.⁴² The evidence for externalising was rated down due to 4/7 (57%) studies having a high risk of bias.^{38,53,61,72}

Internalising: All studies (7/7) that measured internalising symptoms found a positive association between this domain and other negative mental health outcomes.^{30,33,37,43,53,64,72} Internalising symptoms were associated with symptoms of externalising symptoms in 3/3 studies,^{37,53,72} with global measures of poor mental health in 2/2 studies,^{33,43} with other internalising symptoms in 2/2 studies,^{30,72} and were negatively associated with positive mental health in one study.⁶⁴

Adverse events: Children's experience of adverse events was associated with poorer mental health in all (9/9) papers that measured this domain.^{34,40,43,52,57,62,66,68,70} Two papers used data from the same study,^{66,68} therefore, 8/8 studies were ultimately recorded as showing an association between adverse events and mental health. The evidence linking adverse events and negative mental health included large effect sizes

(maximum odds ratio: 8.9; Cohen's *d*: 1.55), and two studies that reported a dose-gradient response between the number of adversities and prevalence of poor mental health.^{57,66}

Figure 2.3 Individual-level associations

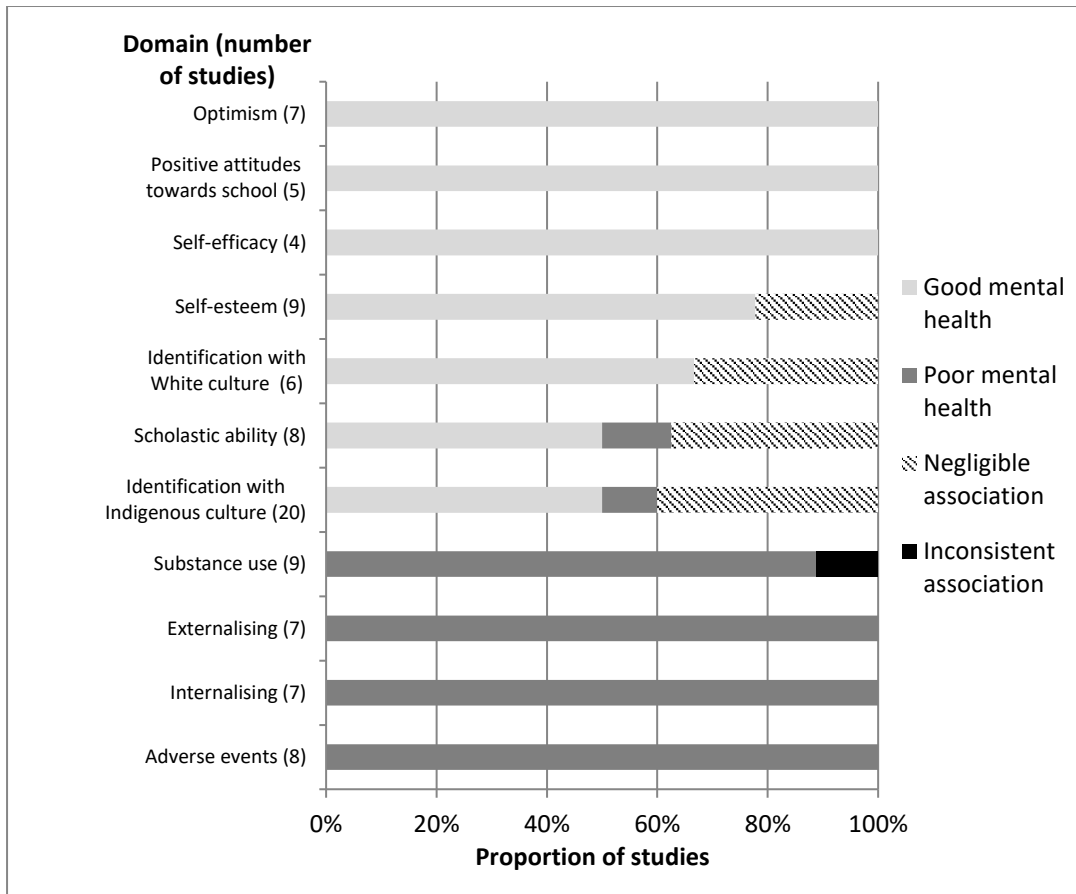


Figure 2.4 Family-level associations

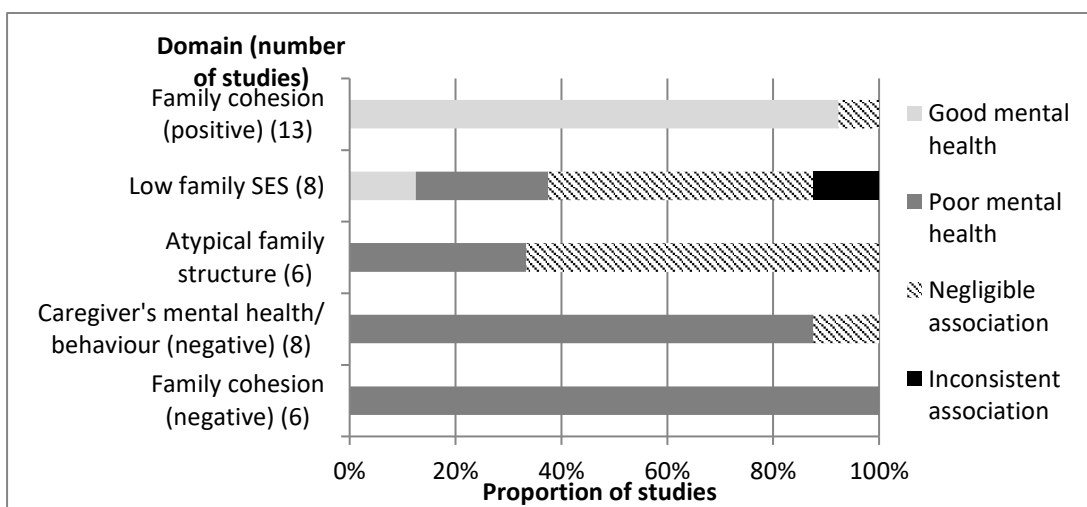
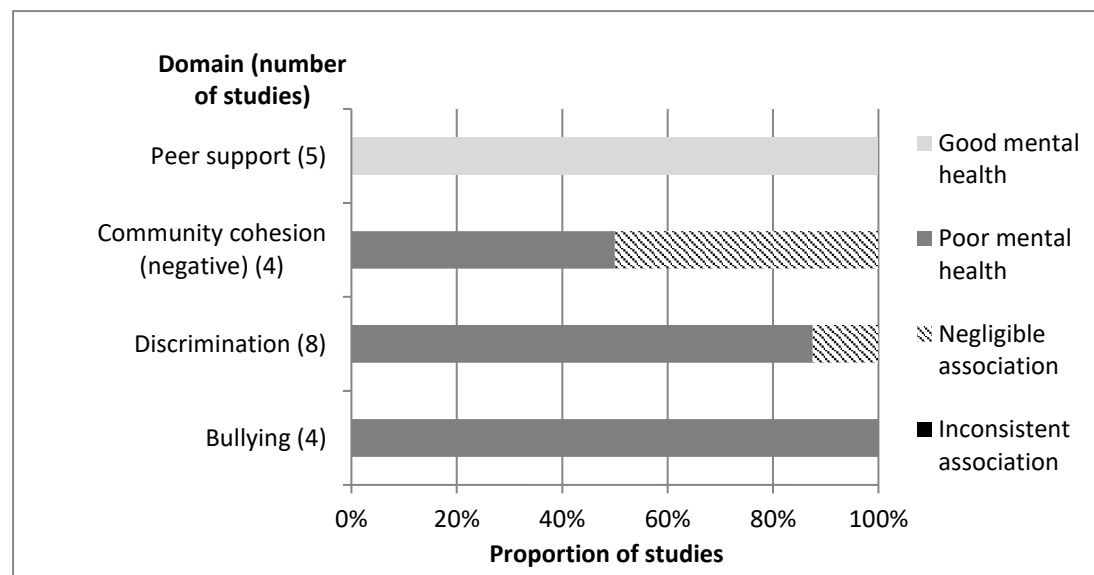


Figure 2.5 Community-level associations**Family-level domains**

Family cohesion (positive): This domain was significantly associated with better mental health outcomes in 12/13 papers.^{33,34,37,39-41,43,51,62,65,73,74} Two papers used data from the same study,^{73,74} therefore, 11/12 (92%) studies were ultimately recorded as showing an association between positive family cohesion and mental health.

Low family SES: Low family SES was significantly associated with poor mental health in 4/11 papers.^{58,69,71,73} Four papers using data from the same study found an inconsistent relationship with mental health,^{24,66,69,71} with two papers showing low SES was associated with less odds of emotional and behavioural problems,^{24,66} and two further papers reporting that low SES was associated with increased odds of emotional or behavioural problems.^{69,71} These four papers were treated as one study showing inconsistent outcomes. Therefore, 2/8 (25%) studies were ultimately recorded as showing an association between low family SES and poor mental health.^{58,73} A Canadian study found that children of caregivers who had some postsecondary education were more likely to have a diagnosed psychological or nervous condition than those who did not have any post-secondary education.⁶⁵ The remaining studies found negligible associations.

Atypical family structure: Atypical family structure was associated with poor mental health in 4/8 papers.^{66,68,71,73} Three papers used data from the same study,^{66,68,71}

therefore, 2/6 (33%) studies were ultimately recorded as showing an association between atypical family structure and poor mental health.

Caregiver's mental health/behaviour (negative): This domain was associated with poor mental health outcomes in 9/10 papers.^{24,31,35,37,57,59,66,71,73} Three papers used data from the same study,^{24,66,71} therefore, 7/8 (88%) studies were recorded as showing an association between caregiver's negative mental health or behaviour and children's mental health. Violence between caregivers, and caregiver's anti-social behaviour produced the strongest association with poor mental health (bivariate odds ratios: 5.6 and 7.1, respectively).^{37,57}

Family cohesion (negative): Negative family cohesion was associated with poor mental health in 7/7 papers.^{38,40,43,57,62,66,71} Two papers used data from the same study,^{66,71} therefore, 6/6 studies were recorded as showing an association between this domain and poor mental health. Effect sizes were medium to large in all studies that reported them (one study did not report effect sizes⁴⁰). Children who stated that they rarely had someone who showed them love and affection⁶² or who reported more family conflict³⁸ showed the strongest associations with poor mental health (odds ratio: 4.8, correlation coefficient: .55, respectively).

Community-level domains

Peer support: All studies (5/5) that investigated peer support found an association between this domain and better mental health outcomes.^{37,38,51,65,71}

Community cohesion (negative): Negative community cohesion was associated with poor mental health in 2/4 (50%) studies.^{40,43} Only studies from the US (mainland) and Canada assessed this domain.

Discrimination: Discrimination was observed to be associated with poor mental health in 8/9 papers.^{24,30,39,40,49,57,58,67} Two papers used data from the same study,^{24,67} therefore, 7/8 (88%) studies were recorded as showing an association between discrimination and mental health. Using an auto-regressive cross-lagged path design, a study of Native American and Canadian Indigenous groups concluded that discrimination caused subsequent aggression and not the other way around.⁵⁸

Bullying: Bullying was associated with poor mental health in 4/4 papers.^{38,55,62,63} Only studies from US (mainland) and Canada assessed this domain.

Resilience

Five studies provided a quantitative measure of both adversity and mental health, meeting the inclusion criteria for 'resilience'. These included one Australian, one Hawaiian, and three studies from the US (Mainland).^{24,39,49,52,73}

Of the three studies conducted with Native American youths, resilient mental health was significantly associated with identification with Indigenous culture, maternal warmth, not experiencing discrimination, optimistic explanatory styles, and identification with White culture (females only).^{39,49,52} One Australian study found resilient Aboriginal youths were more likely to have higher self-esteem, be less likely to be involved in fights, have a prosocial friend, and be less likely to live in the top 50% of neighbourhoods, as rated by an index of neighbourhood SES.²⁴ Identification with Aboriginal culture was not found to be significantly related to resilience in this study. A study of Hawaiian youths found that family support lessened the likelihood of internalising symptoms in children experiencing multiple family adversities.⁷³

2.6 Discussion

Any discussion of Indigenous disadvantage must first acknowledge the longstanding inequalities many Indigenous people continue to face, and the subsequent influence this can have on all aspects of their lives.⁷⁶ Within this context, many risk factors may also be considered as downstream effects of historical trauma.

Moderate to high level evidence exists for associations between a number of psychosocial domains and the mental health of Indigenous children living in high income countries. Of these, domains associated with better mental health outcomes included: children's positive cohesion with their family, higher self-efficacy, self-esteem and optimism. Domains associated with poorer mental health outcomes included: caregiver's negative mental health/behaviour, discrimination, co-morbid internalising symptoms, and substance use. The highest quality evidence indicated that negative family cohesion and children's experiences of adversity predicted poorer mental health,

with both domains consistently producing medium to large effect sizes. Studies focused on adolescents, and predominantly measured symptoms of poor mental health. Despite a growing body of work in this area, the amount of research that investigates the aetiology of Indigenous children's mental health appears small relative to need.

The association between children's identification with their Indigenous culture and mental health was the most commonly assessed association, reflecting the importance that community-led research and Indigenous mental health initiatives place on this relationship.⁷⁷⁻⁷⁹ This domain generally predicted better mental health outcomes however evidence for this association was inconsistent. Children's identification with their Indigenous culture was seen to be a factor that promoted resilient mental health in a sample of American Indian children,³⁹ indicating that cultural identification may be a protective factor when adversity is present, however this finding was not replicated in Australian Aboriginal children.²⁴ Differences in the way cultural constructs are operationalized, and difficulties measuring this construct have been previously reported and may account for the heterogeneous findings.^{80,81} Research that can identify the specific processes that allow Indigenous children's identification with their culture and with White culture to protect against poor mental health is suggested as an area for more detailed investigation.

In contrast, relationships between individual-level psychological factors and mental health outcomes appeared more stable, indicating the importance of fostering optimistic attitudes, self-esteem and self-efficacy in Indigenous young people. These results suggest that community initiatives that seek to empower Indigenous children are likely to prevent some occurrences of poor mental health.

Our results are consistent with findings from non-Indigenous research that show the important influence the familial environment has on children's mental health.⁸²⁻⁸⁵ Of the 18 studies that measured family cohesion, 17 were judged to provide evidence for an association with mental health, including medium to large effect sizes reported in studies from all regions. Moreover, our results illustrate the clear correlation family cohesion has with mental health outcomes: positive cohesion predicted better mental health, whereas negative cohesion predicted worse mental health. Negative caregiver

behaviour, such as criminal activity or the presence of domestic violence and poor mental health was also robustly associated with poorer mental health outcomes in children, as was the domain 'adverse events', which often included adversities that were directly related to parent's behaviour (e.g. neglect). Taken together, these results provide strong evidence that the quality of familial relationships and the presence of stable, supportive family environments are highly predictive of the mental health of Indigenous children.

Low family SES and atypical family structures appeared less consistently associated with mental health. There is a large body of evidence that shows SES is linked to children's mental health in non-Indigenous populations.⁸⁶⁻⁸⁸ While the results provide some evidence in support of this research, socioeconomic and family structure factors do not appear to be as reliable predictors of mental health as the types of relationships and stability caregivers are able to provide for Indigenous children. It is possible that limited variation in Indigenous family's SES, due to ongoing disadvantage, reduced the strength of associations with mental health, resulting in negligible or weak associations. Additionally, variation in the way SES variables were measured may also account for inconsistencies in the results.

At the community level, experiences of discrimination were consistently associated with poor mental health, including evidence from a longitudinal study that suggested a causal relationship with aggressive behaviour,⁵⁸ however, effect sizes were small to medium. This magnitude of effect is consistent with a recent meta-analysis that found an overall zero-order correlation of $-.20$ (95% CI: $-.22$ to $-.17$) between perceived discrimination (predominantly racial) and mental health in adults.⁸⁹ We note that the effect sizes reported in this review refer only to *explicit* discrimination and are not necessarily reflective of the impact of implicit discriminatory attitudes/behaviours, as well as the historical effects of systemic racism.⁹⁰

Despite the growing call from Indigenous groups for more strengths-based research,^{91,92} we found that a comparatively small amount of studies measured positive mental health outcomes, including studies that were specifically designed to assess resilience. Of these, significant associations were identified at the individual, family and community

level, supporting common theoretical frameworks that define resilience as a combination of proximal and distal influences.⁹³ 'Positive family cohesion' was the only domain significantly associated with resilience in more than one study.

This review contains a number of limitations. The heterogeneous manner in which both independent and dependent variables were conceptualised and measured prevented a more fine-grained analysis from being performed, and meant qualitative judgements of quantitative data were employed, potentially introducing bias. This review is vulnerable to publication bias that may result in an overestimate of the number of studies that show significant associations between psychosocial variables and mental health. Most studies were cross-sectional and therefore the results may not be indicative of causal relationships; it is also possible that a bi-directional or reverse causation process may underlie associations. Given similarities between the samples (e.g. socioeconomic status), and that much of the data was self-report, this review may also incur common method bias. Using statistical significance as a primary indicator of an association is problematic as studies that use large samples or employed multiple comparisons are more likely to report significant results. It is therefore likely that this method increased the chance of making a type I error and potentially contributed to a 'best case' scenario for detecting associations. Further, we acknowledge that the reliance on arbitrary p value thresholds has been widely criticised.^{94,95} We believe the inclusion of the GRADE evidence table and reporting effect sizes help to provide a more thorough description of associations that is not based on p values alone. Most studies were conducted in the US (mainland) restricting the generalizability of some domains to other Indigenous groups, similarly some domains were only measured in a small number of studies, this is most notable at the community level. Finally, it is possible that Western ideas and measures of psychopathology do not adequately map onto Indigenous concepts of mental health.⁹⁶ Given that the majority of studies used culturally validated measurement tools (measuring both risk/protective factors and mental health outcomes) we are confident that Indigenous concepts of mental health were, for the most part, adequately measured.

This review highlights several important implications for policy makers, clinicians and Indigenous health researchers. Indigenous children's family environment appeared a

strong universal risk or protective factor for mental health outcomes and comprises a clear target for greater initiatives to promote mental health. Indigenous parents face a number of well-documented stressors that can lead to poor family environments.^{97,98} Further, they face significant cultural and socioeconomic barriers that can prevent them from seeking and receiving adequate health services.^{99,100} While there are programs in place to support caregivers of Indigenous children, such as the Aboriginal Child, Youth and Family Strategy,¹⁰¹ Brighter Futures,¹⁰² and the Child Youth and Family Support (CYFS) program,¹⁰³ given the high rates of mental health challenges amongst Aboriginal adults, more needs to be done to enable caregiver's provision of positive, stable parenting for their children in safe, supportive family environments. This review also supports initiatives that seek to foster positive psychological attributes such as children's self-esteem, and aim to reduce the incidence of substance use and experiences of discrimination. We identified only three studies that employed research methodologies specifically designed to assess the direction of causality.^{50,58,75} While study designs of this type often require greater resources to conduct, more research designed to assess causality can provide a richer understanding of the aetiology of Indigenous mental health that can, in turn, aid the construction of effective mental health initiatives.

Large disparities between Indigenous and non-Indigenous health are unacceptable in high income countries that have both the resources and the responsibility to address this inequality. The results of this review emphasise important individual, family and community level factors that comprise potential targets for health interventions. In particular, the strong evidence linking positive familial relationships and environments to better mental health outcomes support the design and implementation of more initiatives to strengthen Indigenous families. However, the lack of Indigenous mental health research, including the small number of longitudinal designs and strength-based research does not appear commensurate with the research and health needs of Indigenous communities. Given the disproportionately high rates of Indigenous mental health disorders and youth suicide, there is an urgent need to address this research gap and develop more evidence-based strategies to reduce the burden of poor mental health for Indigenous children and their families.

2.7 References

1. Blair EM, Zubrick SR, Cox AH, WAACHS Steering Committee. The western Australian aboriginal child health survey: findings to date on adolescents. *Med J Aust.* 2005; 183:433.
2. Sarche M, Spicer P. Poverty and health disparities for American Indian and Alaska Native children. *Ann NY Acad Sci.* 2008; 1136:126-36.
3. Government of Canada. *The human face of mental health and mental illness in Canada, 2006.* Public Health Agency of Canada Ottawa; 2006. Retrieved from <http://publications.gc.ca/site/eng/296507/publication.html#>.
4. Andrade NN, Hishinuma ES, McDermott JF, et al. The National Center on Indigenous Hawaiian Behavioral Health study of prevalence of psychiatric disorders in native Hawaiian adolescents. *J Am Acad Child Adolesc Psychiatry.* 2006; 45:26-36.
5. Beautrais AL. Child and young adolescent suicide in New Zealand. *Aust N Z J Psychiatry.* 2001; 35:647-53.
6. Hunter E, Harvey D. Indigenous suicide in Australia, New Zealand, Canada, and the United States. *Emerg Med J.* 2002; 14(1):14-23.
7. Silburn S, Glaksin B, Henry D, Drew N. Preventing suicide among Indigenous Australians. In N. Purdie, P. Dudgeon & R. Walker (Eds.), *Working together: Aboriginal and Torres Strait Islander mental health and wellbeing principles and practices* (pp. 91-104). Canberra, Australia: Commonwealth of Australia.
8. King M, Smith A, Gracey M. Indigenous health part 2: the underlying causes of the health gap. *Lancet.* 2009; 374:76-85.
9. Czyzewski K. Colonialism as a broader social determinant of health. *Int Indig Policy J.* 2011;2.
10. Marmot M, Friel S, Bell R, et al. Closing the gap in a generation: health equity through action on the social determinants of health *Lancet.* 2008; 372:1661-9.

11. Stroup DF, Berlin JA, Morton SC, et al. Meta-analysis of observational studies in epidemiology. *JAMA*. 2000; 283:2008–2012.
12. Ulturgasheva O, Rasmus S, Wexler L, Nystad K, Kral M. Arctic indigenous youth resilience and vulnerability: Comparative analysis of adolescent experiences across five circumpolar communities. *Transcult Psychiatry*. 2014;51:735-56.
13. Parens E, Johnston J. Facts, values, and attention-deficit hyperactivity disorder (ADHD): an update on the controversies. *Child Adolesc Psychiatr Ment Health*. 2009; 3:1.
14. Crijnen AA, Achenbach TM, Verhulst FC. Comparisons of problems reported by parents of children in 12 cultures: total problems, externalizing, and internalizing. *JAACAP*. 1997;36:1269-77.
15. Cash SJ, Bridge JA. Epidemiology of youth suicide and suicidal behavior. *Curr Opin Pediatr*. 2009;21:613.
16. Loeber R, Stallings R. Modeling the impact of interventions on local indicators of offending, victimization, and incarceration. In: *Young homicide offenders and victims*: Springer; 2011. p. 137–52.
17. Swanson SA, Crow SJ, Le Grange D, Swendsen J, Merikangas KR. Prevalence and correlates of eating disorders in adolescents: Results from the national comorbidity survey replication adolescent supplement. *Arch Gen Psychiatry*. 2011;68:714-23.
18. Tolan PH, Thomas P. The implications of age of onset for delinquency risk II: Longitudinal data. *J Abnorm Child Psychol*. 1995;23:157-81
19. Oetting ER, Beauvais F. Orthogonal cultural identification theory: the cultural identification of minority adolescents. *Int J Addict*. 1991;25:655–85.
20. Moran JR, Fleming CM, Somervell P, Manson SM. Measuring bicultural ethnic identity among American Indian adolescents: A factor analytic study. *J Adolesc Res*. 1999;14:405-26.

21. Kovacs M, Devlin B. Internalizing disorders in childhood. *J Am Acad Child Adolesc Psychiatry*. 1998;39:47-63.
22. Chen JJ-L. Gender differences in externalising problems among preschool children: implications for early childhood educators. *Early Child Dev Care*. 2010;180:463-74.
23. Luthar SS, Cicchetti D, Becker B. The construct of resilience: A critical evaluation and guidelines for future work. *Child Dev*. 2000; 71:543-62.
24. Hopkins KD, Zubrick SR, Taylor CL. Resilience amongst Australian Aboriginal youth: An ecological analysis of factors associated with psychosocial functioning in high and low family risk contexts. *PLoS One*. 2014;9.
25. Goodman R. The Strengths and Difficulties Questionnaire: a research note. *J Child Psychol. Psychiatry*. 1997;38:581-6.
26. Guyatt GH, Oxman AD, Schünemann HJ, Tugwell P, Knottnerus A. GRADE guidelines: a new series of articles in the Journal of Clinical Epidemiology. *J Clin Epidemiol*. 2011; 64:380-2.
27. Wells G, Shea B, O'connell D, et al. *The Newcastle-Ottawa Scale (NOS) for assessing the quality of nonrandomised studies in meta-analyses*. 2000. Retrived from http://www.ohri.ca/programs/clinical_epidemiology/oxford.asp.
28. VanVoorhis CRW, Morgan BL. Understanding power and rules of thumb for determining sample sizes. *Tutor Quant Methods Psychol* 2007; 3:43-50.
29. Cohen J. *Statistical power analysis for the behavioural sciences* (revised edition), vol. 7. New York: Acedemic Press; 1977.
30. Whitbeck LB, Hoyt DR, McMorris BJ, Chen X, Stubben JD. Perceived discrimination and early substance abuse among American Indian children. *J Health Soc Behav*. 2001; 42:405-24.

31. Costello E, Farmer EM, Angold A, Burns BJ, Erkanli A. Psychiatric disorders among American Indian and White youth in Appalachia: The great Smoky Mountains study. *Am J Public Health*. 1997; 87:827-32.
32. Federman EB, Costello EJ, Angold A, Farmer EM, Erkanli A. Development of substance use and psychiatric comorbidity in an epidemiologic study of white and American Indian young adolescents the Great Smoky Mountains Study. *Drug Alcohol Depend*. 1997; 44:69-78.
33. Cummins JR, Ireland M, Resnick MD, Blum RW. Correlates of physical and emotional health among Native American adolescents. *J Adolesc Health*. 1999; 24:38-44.
34. Fisher PA, Storck M, Bacon JG. In the eye of the beholder: Risk and protective factors in rural American Indian and Caucasian adolescents. *Am J Orthopsychiatr*. 1999; 69:294-304.
35. Wall TL, Garcia-Andrade C, Wong V, Lau P, Ehlers CL. Parental history of alcoholism and problem behaviors in Native-American children and adolescents. *Alcohol Clin Exp Res*. 2000; 24:30-4.
36. Rieckmann TR, Wadsworth ME, Deyhle D. Cultural identity, explanatory style, and depression in Navajo adolescents. *Cultur Divers Ethnic Minor Psychol*. 2004; 10:365.
37. Bearinger LH, Pettingell S, Resnick MD, et al. Violence perpetration among urban American Indian youth: can protection offset risk? *Arch Pediatr Adolesc Med*. 2005; 159:270-7.
38. Newman DL. Ego development and ethnic identity formation in rural American Indian adolescents. *Child Dev*. 2005; 76:734-46.
39. LaFromboise TD, Hoyt DR, Oliver L, Whitbeck LB. Family, community, and school influences on resilience among American Indian adolescents in the upper Midwest. *J Community Psychol*. 2006; 34:193-209.

40. Silmere H, Stiffman AR. Factors associated with successful functioning in American Indian youths. *Am Indian Alsk Native Ment Health Res.* 2006; 13:23-47.
41. Whitesell NR, Mitchell CM, Kaufman CE, Spicer P. Developmental trajectories of personal and collective self-concept among American Indian Adolescents. *Child Dev.* 2006; 77:1487-503.
42. Jones MD, Galliher RV. Ethnic identity and psychosocial functioning in Navajo adolescents. *J Res Adolesc.* 2007; 17:683-96.
43. Stiffman AR, Alexander-Eitzman B, Silmere H, Osborne V, Brown E. From early to late adolescence: American Indian youths' behavioral trajectories and their major influences. *J Am Acad Child Adolesc Psychiatry.* 2007;46:849-58.
44. Stiffman AR, Brown E, Freedenthal S, House L, Ostmann E, Yu MS. American Indian youth: Personal, familial, and environmental strengths. *J Child Fam Stud.* 2007; 16:331-46.
45. Scott WD, Dearing E, Reynolds WR, Lindsay JE, Baird GL, Hamill S. Cognitive Self-Regulation and Depression: Examining Academic Self-Efficacy and Goal Characteristics in Youth of a Northern Plains Tribe. *J Res Adolesc.* 2008; 18:379-94.
46. Hamill SK, Scott WD, Dearing E, Pepper CM. Affective style and depressive symptoms in youth of a North American Plains tribe: The moderating roles of cultural identity, grade level, and behavioral inhibition. *Pers Individ Dif.* 2009; 47:110-5.
47. Albright K, LaFromboise TD. Hopelessness among White- and Indian-identified American Indian adolescents. *Cultur Divers Ethnic Minor Psychol.* 2010; 16:437-42.
48. LaFromboise TD, Albright K, Harris A. Patterns of hopelessness among American Indian adolescents: Relationships by levels of acculturation and residence. *Cultur Divers Ethnic Minor Psychol.* 2010; 16:68.

49. Galliher RV, Jones MD, Dahl A. Concurrent and longitudinal effects of ethnic identity and experiences of discrimination on psychosocial adjustment of Navajo adolescents. *Dev Psychol.* 2011; 47:509-26.
50. Scott WD, Dearing E. A longitudinal study of self-efficacy and depressive symptoms in youth of a North American Plains tribe. *Dev Psychopathol* 2012; 24:607-22.
51. Stumblingbear-Riddle G, Romans JS. Resilience among urban American Indian adolescents: Exploration into the role of culture, self-esteem, subjective well-being, and social support. *Am Indian Alsk Native Ment Health Res.* 2012; 19:1-19.
52. Mileviciute I, Trujillo J. The role of explanatory style and negative life events in depression: A cross-sectional study with youth from a North American plains reservation. *Am Indian Alsk Native Ment Health Res.* 2013; 20:42.
53. Mileviciute I, Scott WD, Mousseau AC. Alcohol use, externalizing problems, and depressive symptoms among American Indian youth: The role of self-efficacy. *Am J Drug Alcohol Abus.* 2014; 40:342-8.
54. Smokowski PR, Evans CB, Cotter KL, Webber KC. Ethnic identity and mental health in American Indian youth: Examining mediation pathways through self-esteem, and future optimism. *J Youth Adolesc.* 2014; 43:343-55.
55. Bell R, Arnold E, Golden S, Langdon S, Anderson A, Bryant A. Perceptions and psychosocial correlates of bullying among Lumbee Indian youth. *Am Indian Alsk Native Ment Health Res* 2014; 21:1-17.
56. Tyser J, Scott WD, Readdy T, McCrea SM. The role of goal representations, cultural identity, and dispositional optimism in the depressive experiences of American Indian youth from a Northern Plains tribe. *J Youth Adolesc.* 2014;43:329-42.

57. Brockie TN, Dana-Sacco G, Wallen GR, Wilcox HC, Campbell JC. The Relationship of Adverse Childhood Experiences to PTSD, Depression, Poly-Drug Use and Suicide Attempt in Reservation-Based Native American Adolescents and Young Adults. *Am J Community Psychol*. 2015; 55:411-21.
58. Hartshorn KJS, Whitbeck LB, Hoyt DR. Exploring the relationships of perceived discrimination, anger, and aggression among North American indigenous adolescents. *Soc Ment Health*. 2012; 2:53-67.
59. Whitbeck LB, Johnson KD, Hoyt DR, Walls ML. Prevalence and Comorbidity of Mental Disorders among American Indian Children in the Northern Midwest. *J Adolesc Health*. 2006; 39:427-34.
60. Mykota DB, Schwean VL. Moderator factors in First Nation students at risk for psychosocial problems. *Can J Sch Psychol*. 2006; 21:4-17.
61. Flanagan T, Iarocci G, D'Arrisso A, et al. Reduced ratings of physical and relational aggression for youths with a strong cultural identity: Evidence from the Naskapi people. *J Adolesc Health*. 2011; 49:155-9.
62. Lemstra ME, Rogers MR, Thompson AT, et al. Prevalence and risk indicators of depressed mood in on-reserve first nations youth. *Can J Public Health*. 2011; 102:258-63.
63. Lemstra M, Rogers M, Redgate L, Garner M, Moraros J. Prevalence, risk indicators and outcomes of bullying among on-reserve First Nations youth. *Can J Public Health*. 2011; 102:462-6.
64. Ames ME, Rawana JS, Gentile P, Morgan AS. The protective role of optimism and self-esteem on depressive symptom pathways among Canadian aboriginal youth. *J Youth Adolesc*. 2013; 1-13.
65. Kaspar V. Mental health of Aboriginal children and adolescents in violent school environments: Protective mediators of violence and psychological/nervous disorders. *Soc Sci Med*. 2013; 81:70-8.

66. Silburn SR, Blair E, Griffin JA, et al. Developmental and environmental factors supporting the health and well-being of Aboriginal adolescents. *Int J Adolesc Med Health*. 2007; 19:345-54.
67. Priest NC, Paradies YC, Gunthorpe W, Cairney SJ, Sayers SM. Racism as a determinant of social and emotional wellbeing for Aboriginal Australian youth. *Med J Aust*. 2011; 194:546-50.
68. Zubrick SR, Mitrou F, Lawrence D, Silburn SR. Maternal death and the onward psychosocial circumstances of Australian Aboriginal children and young people. *Psychol Med*. 2011; 41:1971-80.
69. Shepherd CCJ, Li J, Mitrou F, Zubrick SR. Socioeconomic disparities in the mental health of Indigenous children in Western Australia. *BMC Public Health*. 2012;12.
70. Askew DA, Schluter PJ, Spurling GK, Bond CJ, Brown AD. Urban Aboriginal and Torres Strait Islander children's exposure to stressful events: a cross-sectional study. *Med J Aust*. 2013; 199:42-5.
71. Hopkins KD, Taylor CL, Zubrick SR. The Differential Influence of Contextual Risks on Psychosocial Functioning and Participation of Australian Aboriginal Youth. *Am J Orthopsychiatr*. 2013; 83:459-71.
72. Makini Jr GK, Andrade NN, Nahulu LB, et al. Psychiatric symptoms of Hawaiian adolescents. *Cult Divers Ment Health*. 1996; 2:183.
73. Goebert D, Nahulu L, Hishinuma E, et al. Cumulative effect of family environment on psychiatric symptomatology among multiethnic adolescents. *J Adolesc Health*. 2000; 27:34-42.
74. Carlton BS, Goebert DA, Miyamoto RH, et al. Resilience, family adversity and well-being among Hawaiian and non-Hawaiian adolescents. *Int. J. Soc. Psychiatry*. 2006; 52:291-308.

75. Hishinuma ES, Chang JY, McArdle JJ, Hamagami F. Potential causal relationship between depressive symptoms and academic achievement in the Hawaiian high schools health survey using contemporary longitudinal latent variable change models. *Dev Psychol.* 2012; 48:1327-42.
76. Paradies Y. Colonisation, racism and indigenous health. *J Popul Res.* 2016;33:83-96.
77. Morley SR. *What works in effective Indigenous community-managed programs and organisations*: Australian Institute of Family Studies; 2015.
78. Gone JP. Redressing First Nations historical trauma: Theorizing mechanisms for indigenous culture as mental health treatment. *Transcult Psychiatry.* 2013; 50:683-706.
79. National empowerment Project. The University of Western Australia. Available from: <http://www.nationalempowermentproject.org.au/>
80. Salant T, Lauderdale DS. Measuring culture: a critical review of acculturation and health in Asian immigrant populations. *Soc Sci Med.* 2003; 57:71-90.
81. Weaver HN, Hartz MYHB. Examining two facets of American Indian identity: Exposure to other cultures and the influence of historical trauma. *J Hum Behav Soc Environ.* 1999;2:19-33.
82. Fergusson DM, Horwood JL. The Christchurch Health and Development Study: review of findings on child and adolescent mental health. *Aust N Z J Psychiatry.* 2001; 35:287-96.
83. Bayer JK, Ukoumunne OC, Lucas N, Wake M, Scalzo K, Nicholson JM. Risk factors for childhood mental health symptoms: national longitudinal study of Australian children. *Pediatr.* 2011:peds. 2011-0491.
84. Fatori D, Bordin IA, Curto BM, De Paula CS. Influence of psychosocial risk factors on the trajectory of mental health problems from childhood to adolescence: a longitudinal study. *BMC psychiatry.* 2013; 13:1.

85. Wille D-PN, Bettge S, Ravens-Sieberer U, Group BS. Risk and protective factors for children's and adolescents' mental health: results of the BELLA study. *Eur Child Adolesc Psychiatry*. 2008; 17:133-47.
86. Reiss F. Socioeconomic inequalities and mental health problems in children and adolescents: a systematic review. *Soc Sci Med*. 2013; 90:24-31.
87. Bradley RH, Corwyn RF. Socioeconomic status and child development. *Annu Rev Psychol*. 2002; 53:371-99.
88. McLeod JD, Shanahan MJ. Poverty, parenting, and children's mental health. *Am Sociol Rev*. 1993: 351-66.
89. Pascoe EA, Smart Richman L. Perceived discrimination and health: a meta-analytic review. *Psychol Bull*. 2009; 135:531.
90. Paradies Y, Harris R, Anderson I. *The impact of racism on Indigenous health in Australia and Aotearoa: Towards a research agenda*: Cooperative Research Centre for Aboriginal Health; 2008.
91. Kana'iaupuni SM. Ka'akālai Kū Kanaka: A call for strengths-based approaches from a Native Hawaiian perspective. *Educ Res*. 2005:32-8.
92. Geia LK, Hayes B, Usher K. A strengths based approach to Australian Aboriginal childrearing practices is the answer to better outcomes in Aboriginal family and child health. *Collegian*. 2011; 18:99-100.
93. Werner E. Vulnerable but invincible: high-risk children from birth to adulthood. *Acta Paediatrica* 1997;86:103-5.
94. Gardner MJ, Altman DG. Confidence intervals rather than P values: estimation rather than hypothesis testing. *Br Med J (Clin Res Ed)*. 1986; 292:746-50.
95. Sterne JA, Smith GD. Sifting the evidence—what's wrong with significance tests? *Phys Ther*. 2001; 81:1464-9.
96. Benning T. Western and indigenous conceptualizations of self, depression, and its healing. *Int J Psychosoc Rehabil*. 2013;17(2):129–37.

97. Barnes PM, Powell-Griner E, Adams PF. Health Characteristics of the American Indian and Alaska Native Adult Population, United States, 1999-2003: US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics; 2005.
98. Evans-Campbell T. Historical trauma in American Indian/Native Alaska communities a multilevel framework for exploring impacts on individuals, families, and communities. *J Interpers Violence*. 2008; 23:316-38.
99. Marrone S. Understanding barriers to health care: a review of disparities in health care services among indigenous populations. *Int. J. Circumpolar Health*. 2007; 66.
100. McBain-Rigg KE, Veitch C. Cultural barriers to health care for Aboriginal and Torres Strait Islanders in Mount Isa. *Aust J Rural Health*. 2011; 19:70-4.
101. NSW Government, Family & Community Services. NSW Aboriginal Child, Youth & Family Strategy. Retrieved from <http://www.community.nsw.gov.au/for-agencies-that-work-with-us/our-funding-programs/nsw-aboriginal-child,-youth-and-family-strategy>.
102. NSW Government, Family & Community Services. Brighter Futures Program. Retrieved from <http://www.community.nsw.gov.au/for-agencies-that-work-with-us/our-funding-programs/brighter-futures-program>.
103. NSW Government, Family & Community Services. Child, youth and family support. Retrieved from <http://www.community.nsw.gov.au/for-agencies-that-work-with-us/our-funding-programs/child,-youth-and-family-support>.)

**Chapter 3 – Perspectives on childhood resilience among
the Aboriginal community: an interview study**

Intentionally left blank.

Chapter 3 – Perspectives on childhood resilience among the Aboriginal community: an interview study

Authors

Christian Young,^{1, 2} Allison Tong,^{1, 2} Janice Nixon,³ Peter Fernando,³ Deanna Kalucy,³ Simone Sherriff,^{3, 4} Kathleen Clapham,⁵ Jonathan C. Craig,^{1, 2} and Anna Williamson³ for the SEARCH investigators

Department and Institution

¹ Sydney School of Public Health, The University of Sydney

² Centre for Kidney Research, Westmead Institute for Medical Research

³ The Sax Institute

⁴ Poche Centre for Indigenous Health, Sydney School of Public Health, The University of Sydney

⁵ Australian Health Services Research Institute, The University of Wollongong

3.1 Chapter introduction

As identified in Chapter 2, Indigenous children face a number of adversities that can negatively impact their mental health. Conversely, protective factors such as positive family cohesion are seen to be associated with good mental health and resilience. The investigation into factors that influence health and wellbeing is continued in this chapter with a focus on childhood resilience in urban Australian Aboriginal children. The results from semi-structured interviews with Aboriginal health professionals and community members are presented. Participants describe their perspectives of childhood resilience, factors that are thought to enhance resilience, and potential strategies for initiatives that can build resilience.

The material presented in this chapter has been published as: **Young C, Tong A, Nixon J, Fernando P, Kalucy D, Sherriff S, Clapham K, Craig JC, Williamson A. Perspectives on**

childhood resilience among the Aboriginal community: an interview study. *Aust N Z J Public Health*. 2017;41:405-10. Chapter 3 is structured as per the journal article.

3.1.1 Authors' contributions

CY, KC, JC and AW conceptualised the study. CY, AT, KC, JC and AW contributed to the questionnaire design. CY, JN and PF carried out the data collection. CY, JN, DK and SS, coded the data. CY, AT, JN, DK and SS conducted the analysis. CY drafted the manuscript. All authors interpreted the results and reviewed, revised and approved the final version of the manuscript.

3.2 Abstract

3.2.1 Objective

To describe the perspectives of Aboriginal adults from three urban communities on the outcomes and origins of resilience among Aboriginal children.

3.2.2 Methods

Face-to-face interviews were conducted with 36 Aboriginal adults (15 health service professionals, 8 youth workers and 13 community members) at two urban and one regional Aboriginal Community Controlled Health Service in New South Wales. Interviews were transcribed and analysed thematically.

3.2.3 Results

We identified six themes: withstanding risk (displaying normative development, possessing inner fortitude), adapting to adversity (necessary endurance, masking inner vulnerabilities), positive social influences (secure family environments, role modelling healthy behaviours and relationships), instilling cultural identity (investing in Aboriginal knowledge, building a strong cultural self-concept), community safeguards (offering strategic sustainable services, holistic support, shared responsibility, providing enriching opportunities), and personal empowerment (awareness of positive pathways, developing self-respect, fostering positive decision making).

3.2.4 Conclusions

Community members believed that resilient Aboriginal children possessed the knowledge and self-belief that encouraged positive decision-making despite challenging circumstances. A strong sense of cultural identity and safe, stable and supportive family environments were thought to promote resilient behaviours.

3.3 Introduction

Most Australian Aboriginal children have good mental health and demonstrate positive social and emotional behaviour. However, many are exposed to a number of adversities that have been attributed to the downstream effects of European colonisation.¹⁻³

Childhood adversities increase the risk of negative health and social outcomes which can contribute to longstanding mental and physical health 'gaps' between Aboriginal and non-Aboriginal people.⁴ In particular, urgent attention is required to develop strategies to reduce the high rates of suicidal ideation and completion currently seen in Aboriginal youths.⁵

Despite these challenges many Aboriginal children are resilient and show remarkable adaptation during difficult circumstances.⁶ Both seminal and current resilience literature describe resilience in terms of a contextual and dynamic process that leads to positive adaptation in the presence of significant adversity.^{7,8} In Australia, research has identified risk and protective factors that influence Aboriginal children's health,⁹⁻¹¹ however few studies specifically investigate resilience. Two recent quantitative studies associate resilience with higher self-esteem, prosocial friendships, self-regulation, low community socio-economic status, and the good physical health of children.^{6,12} Qualitative research investigating Australian Aboriginal children's resilience indicates the importance of empowerment and cultural pride in building resilience.^{13,14} Qualitative research provides a number of unique contributions to the study of resilience within Aboriginal communities. These include, empowering the voices of Aboriginal people, avoiding a limited selection of risk and outcome variables, and gaining a deeper understanding of the processes that contribute to resilience within appropriate sociocultural settings.¹⁵

Given the adversity Aboriginal communities are known to face, a better understanding of what helps Aboriginal children do well can help to provide an evidence base for initiatives that enhance childhood resilience and reduce negative mental health outcomes. Currently, our understanding of how Aboriginal communities view childhood resilience is limited. The aim of this study is to describe the perspectives of members of urban and regional Aboriginal communities on childhood resilience. The results may be used to inform programs with the potential to improve mental health outcomes for Aboriginal children.

3.4 Methods

We used the Consolidated Criteria for Reporting Qualitative Studies (COREQ) to inform the design and reporting of this study.¹⁶

3.4.1 Participants

Participants 18 years and older were recruited from two urban and one regional Aboriginal Community Controlled Health Service (ACCHS) in New South Wales who participate in the Study of Environment on Aboriginal Resilience and Child Health (SEARCH).¹⁷ We used purposive sampling to include Aboriginal adults from a wide range of ages who were key informants (i.e. people with experience working with, or who were caregivers of, Aboriginal children). Members of the research team first met with ACCHS staff who were known to each other through their participation in SEARCH. Using the knowledge that ACCHSs have of their community, staff compiled a list of potential participants who they felt could offer useful insights into childhood resilience based on their experience working with or raising children, or from their own experiences of resilience. These included ACCHS staff members and members of the local Aboriginal community. Participants were recruited via telephone or asked in person by the ACCHS staff. Ethics approval for this study was provided by the Aboriginal Health and Medical Research Council (1065/15).

3.4.2 Data collection

We developed an interview guide based on the resilience literature and discussion with the research team (Appendix B.1). Semi-structured interviews were conducted face-to-face at the ACCHS between October and December 2015. Interviews took place within quiet, private meeting or office rooms at each ACCHS to encourage open discussion. One participant was interviewed by phone. C.Y conducted all the interviews with an Aboriginal researcher (J.N or P.F) who were present to ensure the accurate interpretation of participant responses and to guide the line of questioning where necessary. Participants were told that the study was being conducted in order to gather Aboriginal people's perspectives on childhood resilience. As previously noted, resilience is defined by positive adaptation in the presence of adversity. In this study, resilience was operationalised by asking participants to share their perspectives on children who were 'doing well, despite problems they may face'. Questions focused on participant's description of children's positive adaptation and common adversities, factors that helped themselves to be resilient during childhood, factors they believed helped children in their community to be resilient, and ideas for initiatives that could build resilience. Participation was voluntary and all participants provided written, informed consent. Recruitment ceased when data saturation was reached. Interviews were audio-recorded and transcribed verbatim. One interview was recorded using field notes only (at the request of the participant).

3.4.3 Data analysis

We used thematic analysis to analyse the data. Four researchers (CY, JN, SS, and DK), trained in qualitative research methods, independently read the transcripts and coded the data to inductively identify emerging themes. The researchers met regularly to discuss their coding choices, develop a coding structure and produce preliminary themes. The first author (CY) imported the themes into HyperRESEARCH (version 3.5.2; Research-ware Inc.) and coded all the transcripts. CY also identified conceptual links among themes and developed the thematic schema. The authors reviewed the coding choices and provided feedback on the draft themes and schema until an agreement regarding the final version of each was reached. We sent a summary of the preliminary findings to participants (via email or post) to obtain feedback over a two-week

timeframe; one participant responded, and their feedback was incorporated into the final analysis.

3.5 Results

Of the 43 people invited to take part, 36 (84%) participated: 15 health service professionals, 8 youth workers and 13 community members (Table 3.1).

Table 3.1 Participant characteristics (N=36)

Table 1. Participant characteristics (N=36)	
Characteristic	n (%)
Gender	
Male	12 (33)
Female	24 (67)
Age (years)	
18-24	8 (22)
25-34	5 (14)
35-44	8 (22)
45-54	9 (25)
55-64	3 (8)
65+	3 (8)
Occupation	
¹ Health services professional	15 (42)
Aboriginal youth worker	8 (22)
Administration	3 (8)
Early childcare	2 (6)
Pensioner	5 (14)
Unemployed	1 (3)
Other	2 (6)
Highest level of education	
Primary School	1 (3)
High School	6 (17)
² HSC (or equivalent)	8 (22)
Diploma	13 (36)
University degree	7 (19)
Not reported	1 (3)
¹ Aboriginal health, mental health and aged care workers; health service managers	
² HSC: Higher School Certificate	

Those who declined to participate did so due to conflicting appointments. Six participants were known to the researchers through previous participation in SEARCH sub-studies. The average duration of interviews was 24 minutes (range: 8 to 48 minutes).

We identified six themes: withstanding risk, adapting to adversity, positive social influences, instilling cultural identity, community safeguards, and personal empowerment. Themes and subthemes are described below. Illustrative quotes are available in Appendix B.2.

3.5.1 Qualitative themes

Withstanding risk

Displaying normative development

Most participants believed that childhood adversities such as negative family cohesion, discrimination and poor parental mental health, threatened normal development; they felt resilient children were more likely to resist these threats and meet positive social and educational milestones. As such, children who experienced adversity, but who were able to show empathy, take pride in their appearance, show respect for themselves and others, maintain prosocial relationships, regularly attend school and value education were believed to be resilient. Participants acknowledged the challenges Aboriginal communities face regarding youth substance use, consequently they believed that being drug and alcohol-free was an important indicator of resilience in older children.

Possessing inner fortitude

Some participants described resilience as an inexplicable 'inner strength' that allowed children to endure incredible adversity and still show positive outcomes. While some felt this ability could be fostered through social support, cultural knowledge and self-belief, others believed this ability was "just in them". Children with inner fortitude demonstrated a strong work ethic and determination to achieve their goals. They were thought to cope better with stress, adapt to difficult situations, and have effective strategies for managing their emotions. Some participants who had been raised in

difficult circumstances felt the experience of being raised in dysfunctional family environments could serve as a catalyst for these children to eschew negative behaviours and lead more resilient lives.

Adapting to adversity

Necessary endurance

Aboriginal children were believed to face significant levels of adversity (such as discrimination, the effects of intergenerational trauma and disruptive home environments) that could increase the chances of risky behaviours and derail positive outcomes. Because of this elevated threat, some participants viewed Aboriginal children's resilience as more of a "necessity, rather than a strength". Participants felt non-Aboriginal people were often less aware of the amount of resilience Aboriginal children possessed. They thought that many Aboriginal children were fighting hard just to lead normal lives and, consequentially, children's ability to achieve their full potential was likely to be compromised.

Masking inner vulnerabilities

Some participants felt that for Aboriginal children to 'fit in', they would often portray outwardly resilient behaviours that hid inner feelings of instability and the need for greater support from their family and community. Participants also felt some Aboriginal children were adept at hiding developmental issues (such as illiteracy) behind stoic facades; they were concerned this would lead to poorer outcomes if not identified early.

Positive social influences

Secure family environments

Growing up in a safe, structured, supportive and stable family environment was believed to provide the necessary foundation on which resilience could be fostered in Aboriginal children. Participants felt resilience was cultivated through consistent parenting practices, firm but fair discipline, well-defined boundaries, active monitoring of children's whereabouts, and children's perception of their home as safe place.

Substance abuse, domestic violence, financial difficulties and caregivers who were less

engaged in their children's lives were seen as threats to Aboriginal children's ability to develop resilience.

Role-modelling healthy behaviour and relationships

Participants believed that exposure to positive role models raised children's awareness of their potential to lead positive lives and the strategies that could help them despite the challenges they might face. Conversely, they thought Aboriginal children who lacked these role models would be less aware of positive ways of living, and how healthy relationships function. Caregivers and older sibling's values, morals and ethics were thought to heavily influence children's ability to develop resilient attitudes and behaviours. Caregivers could also model negative behaviours that may be passed down. In this way participants described resilience, or the lack of resilience, as a cycle that propagates through generations.

Instilling cultural identity

Investing in Aboriginal knowledge

Most participants believed children who were more aware of their Aboriginal heritage and cultural practices were more likely to be resilient. They believed it was important that children were aware of the history of European colonisation, the impact this has had, and the strength of the Aboriginal people to withstand enormous adversity. Children's connection to Aboriginal culture was believed to foster a sense of belonging, and pride in their ancestry that could serve as a source of strength during challenging times.

Building a strong cultural self-concept

Some participants emphasised the importance of children being 'grounded' in their family, their community and their country. They felt children who had a clear, strong and positive concept of themselves as an Aboriginal person living in a predominantly White culture were more resilient to experiences of discrimination and negative stereotyping.

Community safeguards

Providing strategic, sustainable services

Community programs were believed to help foster resilience in children, and were thought to be crucial for children living in families where parental support was less consistent. Participants suggested that camps designed to teach cultural knowledge, homework centres, school mentors, greater availability of recreational facilities/activities, and places children could go if they felt unsafe at home were potential strategies to promote resilience. They believed children would feel more comfortable attending long-term community programs led by Aboriginal people and given in informal, outdoor settings (where possible). They felt this would provide the impetus for building trusting relationships that could lead to increased engagement and effectiveness of programs.

Holistic services

Given the strong influence participants believed caregivers had on their children's behaviour, community programs that could enhance both caregiver's and children's resilience were desired. They felt that working with a child "in isolation" would be less effective if problems at home were not treated as well. Participants wanted more programs that could address parental mental health issues, as well teaching nurturing parenting techniques.

Shared responsibility

Some participants felt it was the responsibility of the Aboriginal community to pass on their knowledge and experiences of overcoming adversity to the next generation of Aboriginal children. They felt many community members had shown remarkable resilience but were not aware of opportunities to give this knowledge back. Some also noted personal benefits they had experienced while helping young people and felt this had helped them to lead more resilient lives as adults.

Providing enriching opportunities

Providing greater access to activities in which children could foster natural talents and interests, as well as channelling negative emotions, was seen as a potential method of

building resilience. These activities were also believed to provide opportunities that may be less available to some Aboriginal children, including experiences of leadership, goal-setting and achievement that helped build self-esteem. Conversely the absence of available activities was seen as a major contributor to the boredom that could subsequently lead to delinquent and less resilient behaviour.

Personal empowerment

Awareness of positive pathways

Most participants felt that children who were aware of, and valued positive outcomes in their future, were more likely to resist maladaptive behaviours that could jeopardise these outcomes. These included hopes for obtaining specific tertiary education and achieving employment goals once they had left school. When describing their own experiences participants often spoke of epiphanies. These insights led to more resilient behaviour by showing children their “life didn’t have to be this way”. Participants also thought children’s scholastic education and knowledge passed on through family and community members was important for advancing an awareness of positive paths children could follow.

Developing self-respect

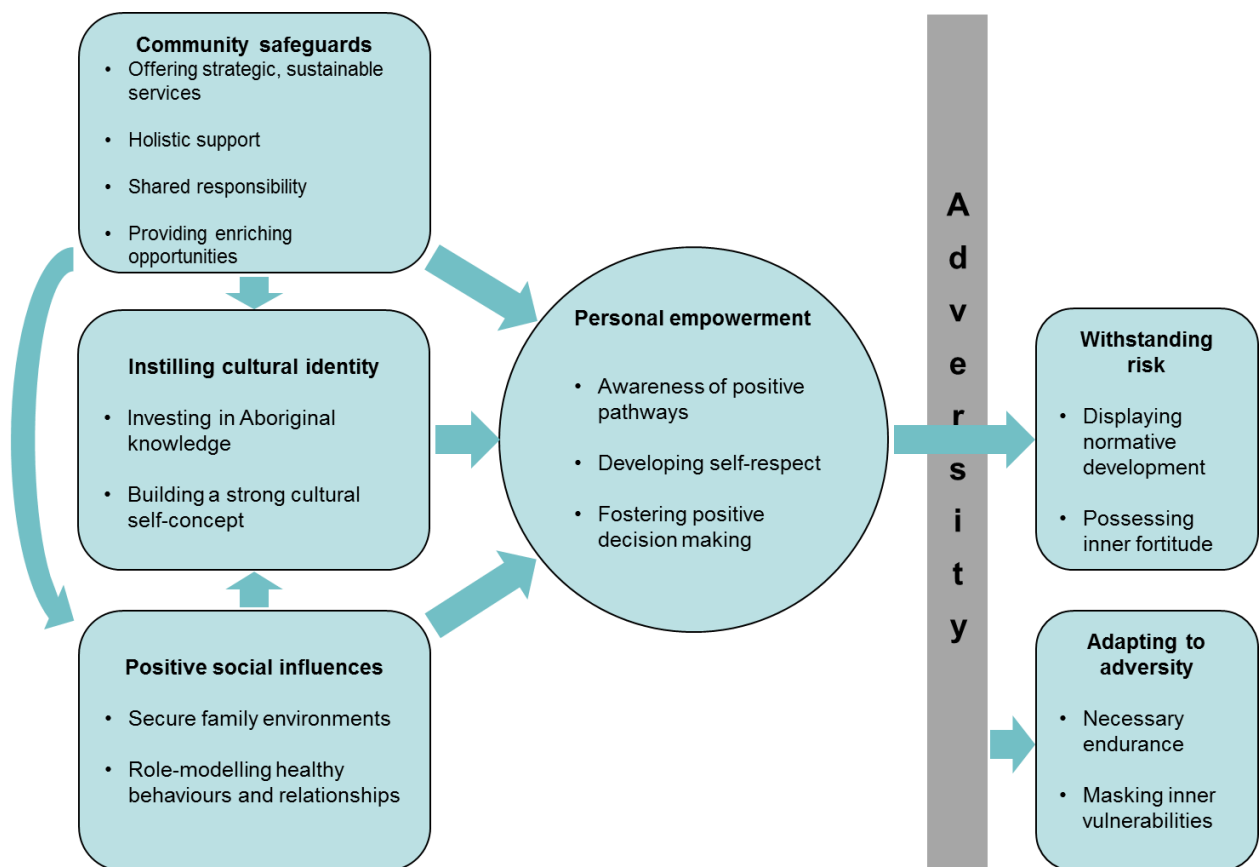
Most participants believed self-esteem and self-efficacy fostered resilience. They thought children who set goals, believed they could be fulfilled, and who felt pride in their achievements, would persevere in the face of adversity. They felt that children who valued their own worth and believed “everyone was equal” were more likely to resist the negative effects of discrimination than children with less self-respect, who were more likely to believe, and internalise racial stereotyping. Resilient children were thought more likely to have regular access to at least one person who valued and believed in them, and this was thought to encourage self-respect. Participants felt the most important person to fulfil this role were the child’s immediate caregivers, however many believed that less resilient Aboriginal children lacked this type of support. In these instances, other family members, peers, teachers and trusted members of the Aboriginal community were potentially thought to fulfil this important role.

Fostering positive decision making

Many participants felt the ability of Aboriginal children to lead a positive life despite adversity was a choice, and that resilience was the strength to choose positive over negative behaviours during difficult circumstances and while facing negative social pressures. Participants believed that building the strength to make these choices was crucial for ensuring resilient outcomes.

The thematic schema in Figure 3.1 shows conceptual links between the themes.

Figure 3.1 Thematic schema



Positive social influences and cultural identity were believed to promote personal empowerment and better decision making which, in turn, aided children's ability to withstand risk. Community safeguards were thought to provide positive cultural and social influences in conjunction with children's family or, more importantly, when family support was absent or inconsistent. Participants noted that for some children the

necessity of being resilient resulted in a continuous struggle that could prevent them from achieving higher goals or led to them to project resilient facades that hid inner trauma.

3.6 Discussion

The majority of people in the current study believe childhood resilience is the ability to endure adversity with minimal disruption to normal development and social functioning, and the strength to choose positive behaviours in the face of challenging circumstances. Participants made little distinction between the factors they felt promoted their own resilience and factors that would help children today. While some participants feel resilience is an innate quality, they also believe resilience could be learned, or nurtured through positive interactions with family and community. Resilience is thought to be fostered by sociocultural factors that instil a strong self-concept, connection to Aboriginal culture, the knowledge of positive behaviours and outcomes, and the desire and self-belief required to achieve these outcomes. However, resilience is not always viewed positively. Some participants believe that many Aboriginal children are forced to develop resilience due to experiences of discrimination, inconsistent or disruptive parenting and poverty. Others feel that some children develop resilient facades that hide psychological trauma, which may go unnoticed and untreated. Community programs that can augment positive family dynamics, or act as a potential buffer against negative or impoverished family environments are desired.

Community members also emphasise the important role of individual choice in childhood resilience. This is not to suggest that participants believe Aboriginal children choose whether they do, or do not, experience trauma when exposed to adverse events. However, children living in at-risk circumstances are thought to be less likely to receive the necessary *tools* that enable the positive decision-making that is indicative of many SEARCH community member's own definitions of resilience.

The views presented in this study reflect observations obtained from previous quantitative research with Aboriginal and non-Aboriginal groups. Community members' perspectives of 'inner fortitude' describes dispositional traits that have been associated with resilient children, including having an internal locus of control,¹⁸ good coping skills¹⁹

and 'grit' (perseverance for long-term goals).²⁰ Descriptions of outwardly resilient children who struggle with inner anxiety have been noted in an influential study of high-risk adolescents.²¹ Cultural identity,^{22,23} family and community support,²⁴ and individual traits such as optimism and self-esteem^{6,25} are also associated with resilience in the literature.

Our study highlights beliefs regarding the potential impact that social challenges have on the decisions and behaviour of Aboriginal children. It is widely acknowledged that many Aboriginal children are routinely exposed to implicit and/or explicit racism and negative stereotyping.^{26,27} Within this social context, children's decision-making processes are likely to be influenced by pervasive and pernicious stereotypes that can shape children's beliefs about who they are, and what they are expected to achieve.^{28,29} Participants felt the availability of positive role-models, education and cultural knowledge buffer against these negative stereotypes and raise children's awareness of their own potential to lead positive lives (e.g. potential career pathways; the possibility of living in safe, drug and alcohol-free environments). Further, these influences were thought to provide opportunities to build the self-belief and self-esteem that empower children to act on this information. In this way, while resilience is sometimes described as an innate or unlearnable strength; participant's perspectives offer insights into an underlying process of Aboriginal children's resilience that is a product of their social environment and could potentially be enhanced through targeted community programs.

These processes accord with social ecological theories of resilience,³⁰ including a recent community program that reported remarkable outcomes when opportunities were provided for unemployed adolescents to set and achieve their own goals within a supportive and autonomous environment;¹³ and the results of a study involving a large representative sample of Western Australian Aboriginal children, which showed a positive relationship between levels of self-esteem and likelihood of being resilient.¹² In keeping with these observations, community members indicated their desire for more programs that could educate and empower at-risk Aboriginal children, as well as programs that can identify risks within the family, providing support for caregivers to lead healthy lives and to raise healthy children.

In light of these findings, we offer several recommendations. Policy makers should consider the potential long term benefits of developing and expanding community initiatives that provide at-risk children and their caregivers with skills and experiences that foster resilience. Our findings suggest that initiatives that allow children to interact with and learn from positive role models, instil pride in their Aboriginal heritage and to set and achieve goals within a supportive environment have the potential to build the self-belief that encourages resilient behaviour. Similarly, more programs that offer support to low socioeconomic families, enable parents to address any mental health challenges they may be facing and encourage nurturing and effective parenting techniques are needed. After-school programs, extra-curricular/sporting groups, mentorship programs and parenting groups were all suggested as opportunities to engage and support Aboriginal families. Given that short-term, stop-start programs may be less effective and can be viewed negatively by the Aboriginal community, sustainable services implemented over the long-term are likely to increase participation and have a greater chance of success.³¹

Program development should take into consideration that children and families experiencing multiple adversities are more likely to face greater barriers to accessing health services such as lack of transport, wariness and lack of parental involvement.³² Combined with participant's beliefs that some children hide underlying trauma behind resilient facades, at-risk Aboriginal children may be more difficult to identify, and thus receive services that promote resilience. This is particularly concerning given the research that links intergenerational grief and trauma, the biological cost of coping with stress, and the of high rates of Aboriginal youth suicide, as youths who require urgent care may go unnoticed and unhelped.³³ Programs that can identify and provide services for at-risk children in school, or offer transport to local services are likely to reduce these barriers. Participation is likely to be greatly enhanced if health initiatives are implemented with input and involvement of the local ACCHSs who are trusted by the Aboriginal community are who are likely to play an essential role in the identification of at-risk children.³⁴

The following caveats should be considered in relation to this study. Firstly, we interviewed Aboriginal adults; this is a potential limitation as the perspectives reported

may not represent those of Aboriginal children. However, a number of young adults (18-24 years) were included, and their perspectives were similar to the older participants. Secondly, we caution that the results from this study, collected in urban and regional areas in New South Wales, may not extrapolate to Aboriginal populations living in remote areas or other urban/regional areas of Australia.

Resilience is a contextual process and, as such, differences in the way resilience is conceptualised may vary across cultural groups.³⁵ Within the sociocultural context of this study, participants perceive Aboriginal children's resilience as the ability to achieve normative social and educational milestones and to make positive choices despite enduring discrimination and/or family adversities. Aboriginal community members are clear in their belief that children who grow up in strong supportive family environments, who are exposed to positive role models, and who value their Aboriginal heritage are more likely to be resilient. Given the current health gap between Aboriginal and non-Aboriginal Australians there is room for health services to assist, especially in circumstances where adversity originates from within the family. While many Aboriginal children are raised in supportive environments, the impact of European colonisation has resulted in downstream adversities that can challenge the capacities of families to provide this kind of care. It is therefore the responsibility of policy makers and health providers to make available sustainable initiatives that ensure Aboriginal children and families who are most at risk receive the support they need to have the best chance of leading healthy, resilient lives.

3.7 References

1. Kelly K, Dudgeon P, Gee G, Glaskin B. Living on the Edge: Social and Emotional Wellbeing and Risk and Protective Factors for Serious Psychological Distress among Aboriginal and Torres Strait Islander People, Discussion Paper No. 10. Darwin (AUST): Cooperative Research Centre for Aboriginal Health; 2009.
2. Henderson G, Robson C, Cox L, Dukes C, Tsey K, Haswell M. Social and emotional wellbeing of Aboriginal and Torres Strait Islander people within the broader context of the social determinants of health. *Beyond band-aids: exploring the*

- underlying social determinants of Aboriginal Health*. Darwin (AUST): Cooperative Research Centre for Aboriginal Health; 2007: 136-64.
3. Marmot M. Social determinants and the health of Indigenous Australians. *Med J Aust*. 2011;194:512-3.
 4. King M, Smith A, Gracey M. Indigenous health part 2: the underlying causes of the health gap. *Lancet*. 2009;374:76-85.
 5. Luke JN, Anderson IP, Gee GJ, Thorpe R, Rowley KG, Reilly RE, et al. Suicide ideation and attempt in a community cohort of urban Aboriginal youth: A cross-sectional study. *Crisis*. 2013; 34(4): 251.
 6. Hopkins KD, Zubrick SR, Taylor CL. Resilience amongst Australian Aboriginal youth: an ecological analysis of factors associated with psychosocial functioning in high and low family risk contexts. *PloS One*. 2014 Jul 28;9(7):e102820.
 7. Luthar SS, Cicchetti D, Becker B. The construct of resilience: A critical evaluation and guidelines for future work. *Child Dev*. 2000;71:543-62.
 8. Aburn G, Gott M, Hoare K. What is resilience? An integrative review of the empirical literature. *J Adv Nurs*. 2016;72(5):980-1000.
 9. Williamson A, D'Este C, Clapham K, et al. What are the factors associated with good mental health among Aboriginal children in urban New South Wales, Australia? Phase I findings from the Study of Environment on Aboriginal Resilience and Child Health (SEARCH). *BMJ Open*. 2016;6(7):e011182.
 10. Priest N, Mackean T, Davis E, Waters E, Briggs L. Strengths and challenges for Koori kids: Harder for Koori kids, Koori kids doing well-Exploring Aboriginal perspectives on social determinants of Aboriginal child health and wellbeing. *Health Sociol Rev*. 2012;21:165-79.
 11. Zubrick S, Lawrence D, Silburn S, et al. *Western Australian Aboriginal Child Health Survey: The Health of Aboriginal Children and Young People*. Perth: Telethon Institute for Child Health Research. 2014.

12. Hopkins KD, Shepherd CC, Taylor CL, Zubrick SR. Relationships between Psychosocial Resilience and Physical Health Status of Western Australian Urban Aboriginal Youth. *PloS One*. 2015;10:e0145382.
13. Gale F, Bolzan N. Social resilience: Challenging neo-colonial thinking and practices around 'risk'. *J Youth Stud*. 2013;16:257-71.
14. Clapham KF, Khavarpour F, Bolt RJ, Stevenson M, Su S. Researching the safety of Indigenous children and youth: An urban perspective. In: McCoy BF, Stewart P, Poroch N, editors. *Urban Health: Strengthening Our Voice, Culture and Partnerships*. Canberra (AUST): Australian Institute of Aboriginal and Torres Strait Islander Studies; 2012. p. 47–57.
15. Ungar M. Qualitative contributions to resilience research. *Qual Soc Work*. 2003; 2:85–102.
16. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *Int J Qual Health C*. 2007;19:349-57.
17. The Study of Environment on Aboriginal Resilience and Child Health (SEARCH): study protocol. *BMC Public Health*. 2010;10:287.
18. Mileviciute I, Trujillo J. The role of explanatory style and negative life events in depression: A cross-sectional study with youth from a North American plains reservation. *Am Indian Alsk Native Ment Health Res*. 2013; 20(3): 42–58.
19. Werner E. Vulnerable but invincible: high-risk children from birth to adulthood. *Acta Paediatr*. 1997;86:103-5.
20. Duckworth AL, Peterson C, Matthews MD, Kelly DR. Grit: perseverance and passion for long-term goals. *J Pers Soc Psychol*. 2007;92:1087.
21. Luthar SS. Vulnerability and resilience: A study of high-risk adolescents. *Child Dev*. 1991;62:600.

22. Osborne E, Taylor DM. The role of cultural identity clarity for self-concept clarity, self-esteem, and subjective well-being. *Pers Soc Psychol B*. 2010;36:883-97.
23. LaFromboise TD, Hoyt DR, Oliver L, Whitbeck LB. Family, community, and school influences on resilience among American Indian adolescents in the upper Midwest. *J Community Psychol*. 2006;34:193-209.
24. Zolkoski SM, Bullock LM. Resilience in children and youth: A review. *Child Youth Serv Rev*. 2012; 34:2295–303.
25. Lee JH, Nam SK, Kim A, Kim B, Lee MY, Lee SM. Resilience: A metaanalytic approach. *J Couns Dev*. 2013; 91:269–79.
26. Dandy J, Durkin K, Barber BL, Houghton S. Academic expectations of Australian students from Aboriginal, Asian and Anglo backgrounds: Perspectives of teachers, trainee-teachers and students. *Intl J Disabil Dev Educ*. 2015; 62:60–82.
27. Priest N, Paradies Y, Stewart P, Luke J. Racism and health among urban Aboriginal young people. *BMC Public Health*. 2011;11:568.
28. Paradies Y, Harris R, Anderson I. *The Impact of Racism on Indigenous Health in Australia and Aotearoa: Towards a Research Agenda*. Darwin (AUST): Cooperative Research Centre for Aboriginal Health; 2008.
29. Jones CP. Levels of racism: a theoretic framework and a gardener's tale. *Am J Public Health*. 2000;90:1212.
30. Ungar M. *The Social Ecology of Resilience: A Handbook of Theory and Practice*. New York (NY): Springer; 2012. p. 463.
31. Young C, Tong A, Gunasekera H, et al. Health professional and community perspectives on reducing barriers to accessing specialist health care in metropolitan Aboriginal communities: A semistructured interview study. *J Paediatr Child Health*. 2017; 53(3): 277–282.
32. Cortis N, Katz I, Patulny R. *Engaging Hard-to-reach Families and Children: Stronger Families and Communities Strategy 2004–2009*. FaHCSIA Occasional Paper 26.

Canberra (AUST): Australian Government Department of Families, Housing, Community Services and Indigenous Affairs; 2009.

33. Hunter E, Milroy H. Aboriginal and Torres Strait Islander suicide in context. *Arch. Suicide Res.* 2006;10:141-57.
34. Panaretto KS, Wenitong M, Button S, Ring IT. Aboriginal community controlled health services: Leading the way in primary care. *Med J Aust.* 2014; 200:649–52.
35. Ungar M. Resilience across cultures. *Br J Soc Work.* 2008; 38:218–35.

**Chapter 4 – The prevalence and protective factors for
resilience in adolescent Aboriginal Australians living in
urban areas**

Intentionally left blank.

Chapter 4 – The prevalence and protective factors for resilience in adolescent Aboriginal Australians living in urban areas

Authors

Christian Young^{1,2}, Jonathan C. Craig^{1,2}, Kathleen Clapham³, Sandra Williams⁴, Anna Williamson⁵ for the SEARCH investigators

Department and Institution

¹ Sydney School of Public Health, The University of Sydney

² Centre for Kidney Research, Westmead Institute for Medical Research

³ Australian Health Services Research Institute, The University of Wollongong

⁴ Tharawal Aboriginal Corporation

⁵ The Sax Institute

4.1 Chapter introduction

Chapter 3 presented Aboriginal health professional and community perspectives on the resilience of Aboriginal children. This chapter builds upon these results by quantitatively assessing the relationship between five protective factors identified in the Chapter 3 and resilience, these are, social support, family encouragement to attend school, exercise and sporting activities, cultural knowledge, and the availability of recreational activities. This study uses adolescent data (ages 12 to 17 years) from the Study of Environment on Aboriginal Resilience and Child Health (SEARCH).

The material presented in this chapter has been published as: **Young C**, Craig J, Clapham K, Williams S, Williamson A, for the SEARCH investigators. The prevalence and protective factors for resilience in adolescent Aboriginal Australians living in urban areas: a cross-sectional study. *Aust NZ J Public Health*. 2018.

4.1.1 Authors' contributions

CY, JC, KC and AW conceptualised and designed the study. CY collated the data, conducted the statistical analysis and wrote the manuscript. All authors interpreted the results and reviewed, revised and approved the final version of the manuscript.

4.2 Abstract

4.2.1 Objectives

To quantitatively estimate the prevalence and determine protective factors for resilience in adolescent Aboriginal people living in urban areas in Australia.

4.2.2 Design, setting and participants

Cross-sectional survey data was collected from 119 Aboriginal adolescents (aged 12 to 17 years) participating in the Study of Environment on Aboriginal Resilience and Child Health (SEARCH). Adolescents lived in urban or large regional areas in New South Wales, Australia.

4.2.3 Main outcome measures

Resilience, defined as 'low risk' Strengths and Difficulties Questionnaire scores on the total difficulties scale (range: 0 to 40) and the prosocial scale (range: 0 to 10).

4.2.4 Results

Most adolescents scored in the low-risk range of the total difficulties (n=85, 73%) and prosocial scales (101, 86%), with 18 (16%) returning a total difficulties score in the high-risk range. After controlling for age, gender, household income and recruitment location, family encouragement to attend school reduced total difficulties scores by 4.3 points (95% CI, 0.22-8.3). Having someone to talk to if there was a problem, and regular strenuous exercise (including playing sports) were associated with higher scores on the prosocial behaviour scale, increasing scores by 1.2 (95% CI, 0.45-2.0) and 1.3 (95% CI, 0.26-2.3) points, respectively.

4.2.5 Conclusions

Most adolescent Aboriginal people in SEARCH displayed resilience. Promoting home environments that foster nurturing relationships and providing programs that incorporate sport, exercise and social support for adolescents are potentially effective strategies to increase adolescent resilience.

4.3 Introduction

Most Aboriginal adolescents grow and flourish in supportive family environments that enable good mental health and social development. However, for some, adolescence is marked by significant threats to mental health^{1,2} that can be caused or exacerbated by experiences of cultural marginalisation, discrimination and low socio-economic environments.³ Evidence suggests that these factors contribute to an increased risk of physical and mental health problems.^{4,5} However, most Aboriginal young people are resilient, that is, they show positive outcomes despite the presence of adversity.^{6,7} Identifying factors that are associated with resilience during adolescence may help inform programs with the potential to improve wellbeing outcomes for Aboriginal young people. Such programs may have positive flow on effects throughout the lifespan.⁸

The Study of Environment on Aboriginal Resilience and Child Health (SEARCH) is a large-scale cohort study that seeks to identify the determinants and trajectories of health in urban Aboriginal children and their caregivers.⁹ Previous qualitative research indicated that SEARCH communities believed resilient Aboriginal children exhibited normative social and emotional development, including maintaining prosocial relationships, despite the presence of challenging circumstances.⁷ Aboriginal community members and health professionals believed resilience was built, in part, through the support available from within the family, schools and the wider community, an awareness of positive pathways, and the self-belief required to set and achieve desired goals. Suggested strategies to enhance resilience in Aboriginal children and adolescents included ensuring children were raised in stable, supportive families, increasing cultural knowledge, providing more youth activities in general, and encouraging more physical activity in particular, including participation in sporting and social groups.

The aim of this study is to determine the prevalence and protective factors for resilience in adolescent Aboriginal people living in urban settings. The results of this study will

contribute towards an evidence base that may be used to develop programs to build resilience among Aboriginal young people.

4.4 Methods

4.4.1 SEARCH

A detailed description of the SEARCH study can be found in the published protocol.⁹ SEARCH is a cohort study conducted in partnership with four Aboriginal Community Controlled Health Services located in urban and large regional centres in NSW. Phase one data was collected from 2006 to 2012 and included over 1600 Aboriginal children (aged 0 to 17 years) and their caregivers. Caregivers of Aboriginal children were approached in partner Aboriginal Community Controlled Health Service (ACCHS) waiting rooms by an Aboriginal research officer who explained the study and provided a Participant Information Sheet. Eligibility criteria for parents/caregivers included being over 16 years old and agreeing to provide contact information to facilitate follow-up interviews. Caregivers gave written consent for themselves and their children to participate. Adolescents (aged 12 to 17 years) were also provided with a Participant Information Sheet and were required to give their own written consent. Survey items covered demographic information and measured outcomes related to socioeconomic status, diet, exercise, substance use, injury, housing, neighbourhood factors, social and emotional wellbeing, psychological distress, and health service use. Caregivers completed separate surveys on their own health and that of their children. Adolescents were given the option of completing an adolescent-specific survey that included additional information relating to mental health, cultural knowledge, recreational activities, social support, drug and alcohol use, education, juvenile justice and sexual health. With the exception of caregiver's household income, only data from the adolescent survey was used in this study. Ethics approval was obtained by the University of Sydney (8506) and the Aboriginal Health and Medical Research Council (586/06).

4.4.2 Measures

Resilience

Resilience is again defined here as positive adaptation in the presence of, or following, adversity.¹⁰ We note that adversity is not explicitly measured in this study, however a rationale for describing positive adaptation, despite the absence of a measure of adversity, among study participants as resilience is provided below.

Resilience is often measured in specific populations that are known to experience disproportionately high levels of adversity^{11,12} such that membership in that group in and of itself may be considered to indicate a very high probability of having experienced significant adversity,^{13,14} or by restricting quantitative analysis to participants who meet specific criteria for significant levels of adversity.^{6,15} This study uses the former approach. Aboriginal communities face well-documented adversities such as racism and socioeconomic disadvantage.^{16,17} There is, however, likely to be variation in the amount of adversity Aboriginal children are exposed to. While SEARCH operates in areas where the Aboriginal community exhibits many positive facets, including the availability of free healthcare through Aboriginal Community Controlled health Services, SEARCH communities are also known to experience greater disadvantage as measured by the Socio-Economic Indexes for Areas (SEIFA) than most other areas in Australia (SEARCH areas rank between the 1st - 53rd percentile of disadvantage in the nation).¹⁸ Thus, many Aboriginal children in this study are likely to face, or have faced, significant adversity.

Additionally, the independent variables used in this study have been explicitly chosen based upon the results of Chapter 3, a qualitative interview study exploring Aboriginal adults' perspectives on resilience among SEARCH children and the factors which promote or impede it.⁷ That is, this study builds upon qualitative data concerning Aboriginal resilience. Moreover, the use of the Strengths and Difficulties Questionnaire (SDQ) as a measure of positive adaptation adheres to SEARCH community member's description of resilience, including normative social and emotional wellbeing. Variables associated with children in SEARCH communities who exhibit low-risk SDQ scores are, therefore, potential protective factors for resilience in Aboriginal children. Further considerations related to this approach are outlined in the discussion.

Protective factors

The term 'protective factor' has been defined in different ways within the resilience research literature.¹⁹ In the context of this study, protective factors are considered to be any variable that is associated with better social and emotional wellbeing outcomes. Five protective factors identified in previous qualitative research⁷ were assessed using SEARCH survey questions. Each of these survey questions was originally adapted from the Western Australian Aboriginal Child Health Survey.⁴ Categorical response options are detailed below. Participants could indicate if they were unsure or did not wish to answer any question(s). Some response options with comparatively few responses (≤ 5) were combined into a single group for subsequent analysis.

Knowledge of Aboriginal culture was measured by the question: "How much do you know about Aboriginal culture and history?" Responses consisted of five categories: "Nothing at all", "A little", "Some", "Quite a lot" or "A great deal".

Satisfaction with recreational activities was measured by the question: "Are you happy with what is available for you to do in your free time, like movies, disco, sports, and places to go?" Responses were grouped into four categories: "Very unhappy/A little bit unhappy", "Neither happy nor unhappy", "A little bit happy" or "Very happy".

Physical activity was assessed by the question: "Over the last 7 days have you exercised or played sport or games that made you sweat and breathe hard (e.g. basketball, netball, football, riding a bike, running)?" Response options consisted of three categories: "No", "1-2 times" or "3+ times".

Family educational support was measured by the question: "How much encouragement do you get from your parents/family to attend school regularly?" Response options were grouped into three categories: "None/A little/Some", "Quite a lot" or "Very much".

Social support was measured by the question: "If you had a problem, is there anyone you can talk to?" Response options were: "Yes" or "No".

Demographic variables

Information was also collected on participant's age, gender, which Aboriginal Community Controlled Health Service they attended and household income. Income was

measured by asking caregivers to describe their household's income for the past two weeks from all sources (e.g. wages, Community Development Employment Programs (CDEP), pensions and study allowances). Response options were grouped into five categories: "\$0-399", "\$400-\$599", "\$600-\$799", "\$800-\$1999" and "\$2000 and over".

The Strengths and Difficulties Questionnaire

Resilience was measured using the Strengths and Weaknesses Questionnaire (SDQ).²⁰ The SDQ consists of 25 questions that assess five subscales related to childhood emotional and behavioural problems: emotional symptoms, conduct problems, hyperactivity, peer problems and prosocial behaviours. We used the following SDQ scores as proxies for resilience: the total difficulties score (the sum of the emotional symptoms, conduct problems, hyperactivity and peer problems subscales; range: 0 to 40; higher scores are indicative of more difficulties), and the prosocial score (range: 0 to 10; higher scores are indicative of more prosocial behaviour). In accordance with the SDQ scoring procedure for self-completed surveys, total difficulties scores were grouped into three categories: 'low-risk' (0 to 15), 'borderline' (16 to 19), and 'high-risk' (20 to 40).²¹ Prosocial scores are similarly grouped: 'low-risk' (6 to 10), 'borderline' (5), and 'high-risk' (0 to 4). Scores in the high-risk range indicate substantial risk of clinically significant behavioural or emotional problems. The SDQ has been found to be an acceptable measure of Aboriginal children's social and emotional wellbeing, and to demonstrate adequate reliability and validity.^{22,23} SDQ subscales scores were only calculated for each participant if no more than two (of five) responses were missing per subscale.

4.4.3 Statistical analysis

We used bivariate and multiple regression analysis to determine the association between independent variables (i.e. the hypothesised protective factors) and resilience, as measured by the SDQ. Results for the SDQ total difficulties and prosocial scores are presented separately. Initially, independent variables were entered into a bivariate model. Variables significant at $p < 0.2$ were then entered into a second model that also controlled for age, gender, ACCHS location and income (omnibus p values were used for variables with multiple levels). To account for correlations between children within the

same family, regression models were conducted within the Generalised Estimating Equations (GEE) framework. In the multivariable models an alpha of 0.05 was used to indicate statistical significance.

4.5. Results

4.5.1 Participant characteristics

See Table 4.1.

Of the 241 adolescents who participated in SEARCH, 120 (50%) completed an adolescent survey (data for the remaining 121 participants was provided by their caregivers only). One participant did not provide sufficient SDQ data to calculate a total difficulties or a prosocial score. Therefore, 119 participants were included in the analysis. No statistically significant differences in age ($t=.16, p=.88$), gender ($\chi^2=.02, p=.90$) or household income ($\chi^2=.3.15, p=.53$) were detected between those who provided self-report data (and are thus included in the current study) and those who did not. Of the included adolescents, three participants did not provide sufficient data to calculate a total difficulties score, one participant did not provide sufficient data to calculate a prosocial score.

Most adolescents were aged 12 to 15 ($n=98, 83\%$), were living with their biological parent (99, 83%) and currently attending school (102, 87%), with 62 (52%) female. Almost half (41, 47%) of the adolescents whose parents provided household income data (87, 73%) lived in houses where the total household income was reported to be less than \$400 per week. Most adolescents exercised or played sport 'three or more' times in the last week (64, 60%), were 'very happy' with local youth recreational activities (63, 57%), had someone to talk to if there was a problem (105, 91%), had 'some' knowledge of Aboriginal culture (47, 40%), and believed their family encouraged them 'very much' to attend school (57, 50%).

A higher proportion of participants who indicated that they had someone to talk to if they had a problem scored in the low-risk/borderline total difficulties category than those in the high-risk category (93% versus 61%).

Table 4.1 Participant characteristics

Variable (n, %)	Low-risk/ borderline total difficulties score (0-19) n=98	High-risk total difficulties score (20-40) n=18	Total ^a n=119	<i>p</i> ^b
Gender				
Female	51 (52)	10 (56)	62 (52)	0.80
Age				
12-13	44 (45)	9 (50)	53 (45)	0.39
14-15	35 (36)	8 (44)	45 (38)	
16-17	19 (19)	1 (6)	21 (18)	
Relationship to carer				
Parent	83 (85)	13 (72)	99 (83)	0.16
Step parent	2 (2)	2 (11)	4 (3)	
Foster parent	2 (2)	1 (6)	3 (3)	
Other relative	11 (11)	2 (11)	13 (11)	
Still attending school				
Yes	85 (87)	16 (89)	102 (86)	1.00
Fortnightly household income				
\$0-\$399	8 (11)	1 (7)	11 (13)	0.79
\$400-\$599	13 (19)	2 (13)	15 (17)	
\$600-\$799	11 (16)	4 (27)	15 (17)	
\$800-\$1999	33 (47)	8 (53)	41 (47)	
\$2000+	5 (7)	0 (0)	5 (6)	
Knowledge of ATSI culture				
None	11 (11)	3 (17)	14 (12)	0.75
A little	21 (22)	3 (17)	25 (21)	
Some	41 (42)	6 (33)	47 (40)	
Quite a lot	18 (19)	4 (22)	22 (19)	
A great deal	6 (6)	2 (11)	9 (8)	
Exercise in past week				
No	20 (22)	4 (27)	25 (23)	0.59
1-2 times	17 (19)	1 (7)	18 (17)	
3 or more times	53 (59)	10 (67)	64 (60)	
Satisfaction with youth activities				
Very unhappy/a little bit unhappy	7 (7)	4 (29)	12 (11)	0.015
Neutral	8 (9)	2 (14)	10 (9)	
A little bit happy	24 (26)	0 (0)	26 (23)	
Very happy	55 (59)	8 (57)	63 (57)	
Family encouragement to attend school				
None/a little/some	13 (14)	4 (24)	17 (15)	0.45
Quite a lot	33 (34)	6 (35)	41 (36)	
Very much	50 (52)	7 (41)	57 (50)	
Someone to talk to if there was a problem				
Yes	91 (93)	11 (61)	105 (91)	0.028

SDQ = Strengths and Difficulties Questionnaire, ATSI = Aboriginal or Torres Strait Islander

^aThree participants did not provide total difficulties scores, therefore numbers may not add up to totals

^b*p* values from Fisher's exact test statistics, %'s are based on available (non-missing) data

4.5.2 SDQ frequency distribution

Figures 4.1 and 4.2 show the frequency distribution of total difficulties and prosocial scores, by gender. Of the participants who provided total difficulties scores, 85 (73%) were in the low-risk range, 13 (11%) were borderline, and 18 (16%) were in the high-risk range. Of the participants who provided prosocial scores, 101 (86%) were in the low-risk range, 7 (6%) were borderline, and 10 (8%) were in the high-risk range.

Figure 4.1 Frequency distribution of SDQ total difficulties scores

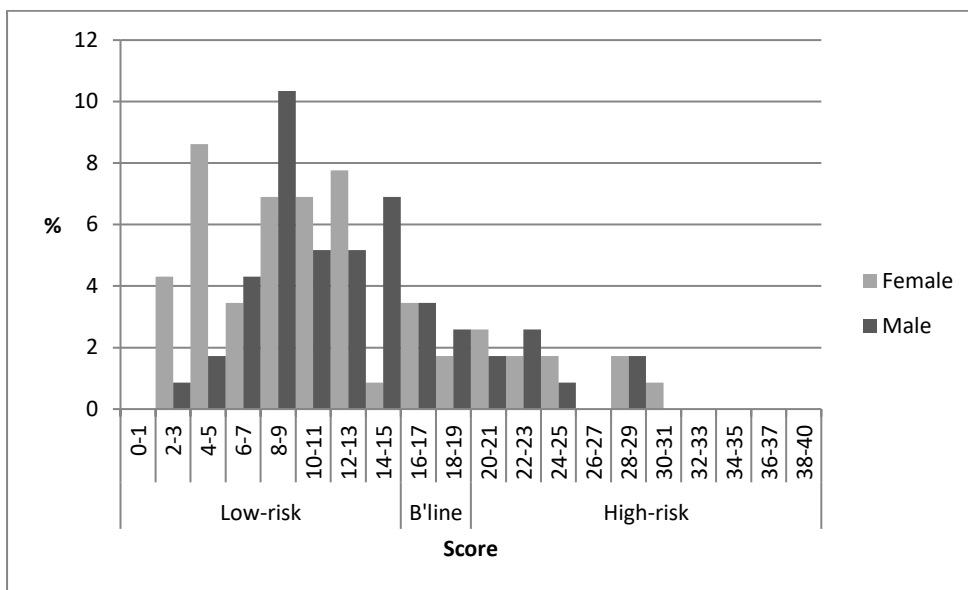
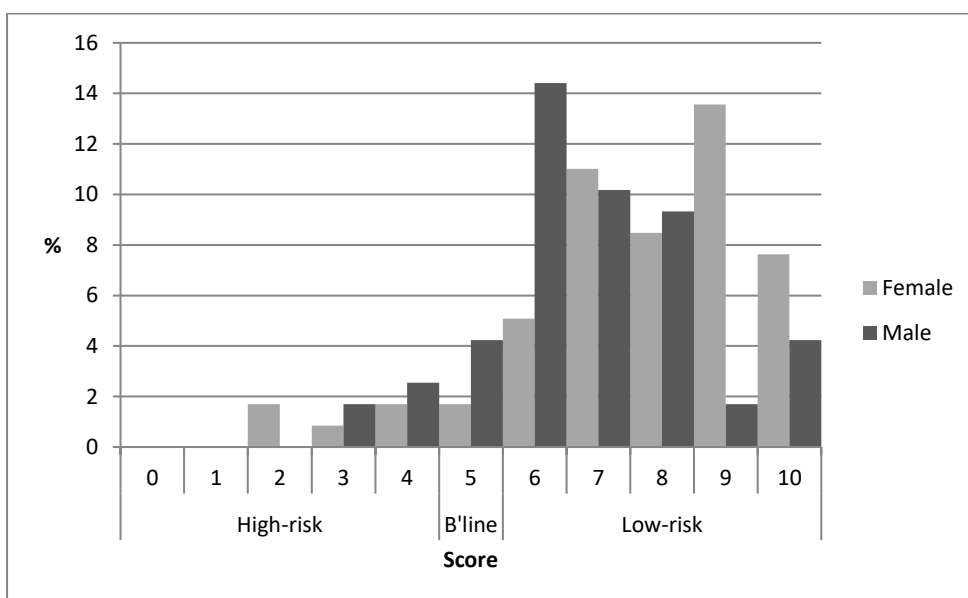


Figure 4.2 Frequency distribution of SDQ prosocial scores



4.5.3 Regression models

Figures 4.3 and 4.4 show the results from the bivariate and multiple regression models predicting total difficulties and prosocial scores, respectively. The forest plots display the difference in SDQ scores (unstandardized beta coefficients, b) compared to a reference category, and 95% confidence intervals. Household income levels (not displayed) were not significant in the total difficulties or the prosocial bivariate models (omnibus statistics: $\chi^2=6.2$, $p=0.18$, and $\chi^2=0.79$, $p=0.94$, respectively).

Figure 4.3 Difference in SDQ scores: total difficulties sub-scale

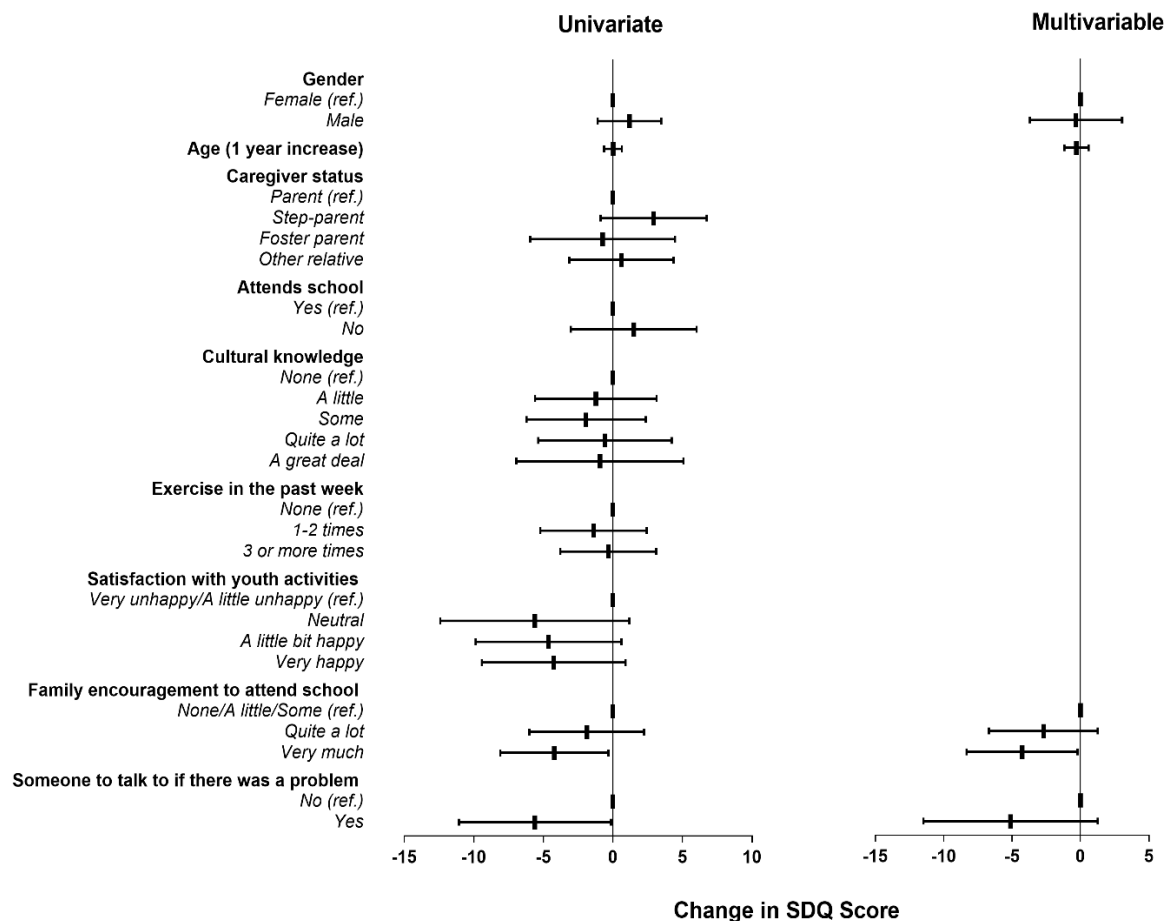
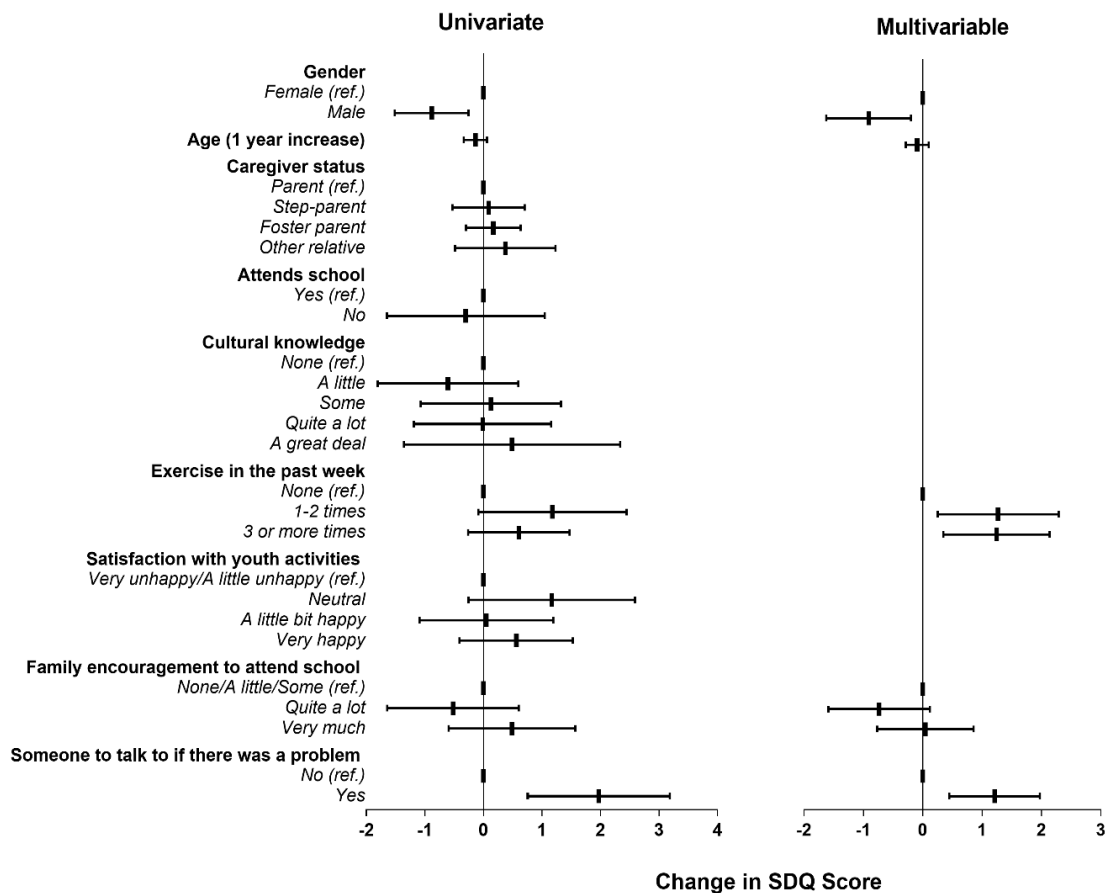


Figure 4.4 Difference in SDQ scores: prosocial sub-scale



Total difficulties scale

In the bivariate model two protective factors were significant at $p < 0.2$, 'family encouragement to attend school' (omnibus statistic: $\chi^2=5.72$, $p=0.05$), and 'someone to talk to if there was a problem' ($\chi^2=2.99$, $p=0.08$). In the final model controlling for age, gender, ACCHS location, household income and independent variables previously significant at $p < 0.2$, family educational support was independently associated with a decrease in total difficulties scores. Adolescents who indicated that that their families "very much" encouraged them to attend school regularly scored 4.3 less points on the total difficulties scale than those who indicated that they received "none/a little/some" encouragement from their family (95% CI, 0.22-8.3, $p=0.039$).

Prosocial scale

In the bivariate model three protective factors were significant at $p < 0.2$, 'exercise in the past week', (omnibus statistic: $\chi^2=3.29$, $p=0.19$), 'family encouragement to attend school' ($\chi^2=5.55$, $p=0.06$) and 'someone to talk to if there was a problem' ($\chi^2=5.33$, $p=0.021$). In the final, multivariable, model, adolescents who exercised or played sport strenuously 1-2, or 3+ times per week had higher prosocial scores than those who did not exercise or play sport (difference in SDQ scores: 1.3, 95% CI, 0.26-2.3, $p=0.014$; and 1.2, 95% CI, 0.35-2.1, $p=0.006$, respectively). Adolescents who had someone to talk to if there was a problem scored, on average, 1.2 points higher on the prosocial scale than adolescents who did not have someone to talk to (95% CI, 0.45-2.0, $p=0.002$). Compared to females, male adolescents scored, on average, 0.9 points lower on the prosocial scale (95% CI, 0.19-1.6, $p=0.013$).

4.6. Discussion

Most adolescents demonstrated resilience, with 85 (73%) scoring in the low-risk range of the SDQ total difficulties scale, and 101 (86%) scoring in the low-risk range of the prosocial scale. Greater resilience was independently associated with family encouragement to attend school regularly, having someone to talk to if there was a problem, and engaging in strenuous exercise or sport on a weekly basis.

While most participants were considered resilient, 16% were at high risk of clinically significant behavioural and emotional problems. This proportion is less than that found among adolescents (12 to 17 years) in the Western Australian Aboriginal Child Health Survey (20.5%), a population representative survey of Aboriginal adolescents,⁴ but is greater than was found in a recent population-based sample of Australian 11 to 17 year olds (10.2%).²⁴ While these results are consistent with literature that finds Aboriginal children experience more behavioural problems than non-Aboriginal children,^{25,26} given the adversities Aboriginal communities are known to face, the high proportion of resilient participants identified in this study highlights the strength of Aboriginal adolescents.

Previous qualitative research with SEARCH Aboriginal communities has indicated that education, and supportive familial and social environments are important for developing resilience in children.⁷ The quantitative data presented here aligns with these findings, as well with other quantitative evidence that associates social support with resilience.^{6,10,11 27-29} While the link between school attendance and educational achievement has been investigated among the Aboriginal population,³⁰ there has been less research investigating familial encouragement to attend school and emotional or behavioural outcomes. Encouragement to attend school may increase school connectedness, which has been previously associated with a reduction in risk taking behaviour in adolescents.³¹ It is also plausible that greater school attendance increases resilience through regular socialisation with peers.³² Familial environments that encourage adolescents to regularly attend school may also be indicative of other factors that build resilience, including nurturing parenting and family cohesion. The importance of a cohesive family environment and positive parenting behaviours in promoting good mental health is well-established.³³⁻³⁵ Among Aboriginal populations, the WAACHS found that higher quality parenting was strongly related to less clinically significant emotional and behavioural problems in children.³⁶ Similarly, a recent literature review found robust evidence linking the mental health and resilience of Indigenous children living in developed countries with positive family cohesion, including family support and positive parenting styles.⁵ Together, this evidence indicates that the quality of the familial environment that Aboriginal adolescents are raised in appears an important predictor of resilience. The lack of a significant association between income and resilience suggests that supportive environments may be more important than socio-economic factors for Aboriginal adolescents.

This study supports an association between resilience and regular physical activity. Research has shown that regular exercise and sport is beneficial for the mental health of adolescents and children.^{37,38} In the current study, the lack of an apparent dose-response effect suggests that engaging in *any* weekly sport or exercise may be a protective factor for adolescents. While the direction of causality cannot be ascertained (i.e. it is possible that prosocial children are more likely to take up sports or participate in exercise programs), sporting and exercise programs offer benefits that could plausibly

build resilience, including increased health and fitness, opportunities to socialise, and improved self-esteem.³²

For Aboriginal people, connection to culture has been identified as an important determinant of health and resilience in qualitative studies that have explored this association.^{7,39,40} In this study the relationship between cultural knowledge and resilience was assessed, with no significant association observed. A recent review noted that while identification with, and knowledge of Indigenous culture was related to children's good mental health, this association was inconsistent,⁵ potentially due to differences in the way this construct was measured. Given the importance of cultural factors as determinants of health and wellbeing for Aboriginal people^{41,42} a deeper understanding of the relationship between cultural knowledge and resilience in urban Aboriginal adolescents is suggested as a potential area for further research.

Given the high prevalence of resilience, and that the majority of adolescents indicated that they had someone to talk to if they had a problem (91%), or believed they were encouraged "quite a lot" or "very much" to attend school regularly (86%), the results of this study are positive. However, the relatively high proportion of adolescents at high-risk for emotional and behavioural problems suggests more can be done to improve Aboriginal adolescents' resilience. Addressing issues that prevent some Aboriginal families from providing support and educational encouragement has the potential to increase resilience in Aboriginal adolescents.⁴³ Importantly, programs that can provide social support, including scholastic encouragement, for children who do not receive this help at home or from extended family or friends are also likely to increase resilience in at-risk Aboriginal youths. Similarly, the provision of physical/sporting programs tailored to Aboriginal young people may offer new experiences and challenges that foster greater self-efficacy and self-esteem that can lead to resilience.^{7,44} Holistic programs that can combine all these factors, potentially including sporting activities with regular counselling and educational services may have the greatest chance of increasing adolescents' resilience.⁴⁵ Programs that are long-term, sustainable, run by Aboriginal people, and are designed with close consultation and leadership from the Aboriginal community are more likely to be successful.⁴⁶⁻⁴⁸ However, while such programs can provide important and effective services, without addressing the widespread social

inequalities that exist between Aboriginal and non-Aboriginal people it is likely that longstanding disparities in mental and physical health outcomes will persist.^{49,50} Meeting this challenge will require major changes in policy and commitment from successive Australian governments.

This study did not explicitly measure adversity, which is a necessary requirement for defining resilience.¹⁹ However, the impact of racial discrimination and poverty are known to constitute ongoing challenges for Aboriginal people.¹⁶ For example, we note that almost half of the household incomes reported in this study fall below the 2013-14 poverty line in Australia for a *single* adult (\$426 per week after tax, or 50% of the median income).⁵¹ While adversity does not necessarily conflate with low income, poverty is associated with many negative social outcomes, and is likely to present considerable adversity for many participants.⁵⁰ As all data were collected via a single survey this research may be vulnerable to common method bias,⁵² including socially desirable responses.⁵³ While the SEARCH survey consists of multiple health and environmental factors prioritised by the Aboriginal community, not all potential protective factors elicited in the original qualitative study were included in the survey, and therefore could not be assessed. This includes cultural connection, a widely recognised component of Aboriginal social and emotional wellbeing.⁵⁴ While children's knowledge of their Aboriginal culture was measured, connection to culture is a complex construct that cannot be inferred from this one survey item. Caution is advised when interpreting the proportions in this study given the relatively small sample size. The relatively small number of participants in this study is also a limitation, though previous research suggests that the results of within-study comparisons are likely to provide reliable estimates of exposure-outcome estimates from larger studies with the same population.⁵⁵ Given the diversity of Aboriginal communities, however, caution should be exercised before generalising the results of this study to other urban Aboriginal populations. This study was cross-sectional and therefore bidirectional effects are possible, and causality cannot be inferred. Upon completion of phase two SEARCH data collection, opportunities to investigate casual pathways are likely to become available.

Aboriginal Adolescents face challenges over and above those that non-Aboriginal children face during the transition from childhood to adulthood. Despite these

adversities, most adolescents participating in SEARCH are resilient. Resilience is associated with supportive relationships among family and peers, and physical activity. Given the current health disparities between Aboriginal and non-Aboriginal people, concerted efforts to ensure support is available to for adolescents who are at risk of emotional and behavioural problems is likely to increase adolescent resilience.

4.7 References

1. Kessler RC, McLaughlin KA, Green JG, et al. Childhood adversities and adult psychopathology in the WHO World Mental Health Surveys. *Br. J. Psychiatry*. 2010;197:378-85.
2. Patton GC, Viner R. Pubertal transitions in health. *The Lancet*. 2007;369:1130-9.
3. Marmot M, Friel S, Bell R, Houweling TA, Taylor S. Closing the gap in a generation: health equity through action on the social determinants of health. *The Lancet*. 2008;372:1661-9.
4. Blair EM, Zubrick SR, Cox AH. The Western Australian Aboriginal Child Health Survey: findings to date on adolescents. *Med J Aust*. 2005;183:433-5.
5. Young C, Hanson C, Craig JC, Clapham K, Williamson A. Psychosocial factors associated with the mental health of indigenous children living in high income countries: a systematic review. *Int J Equity Health*. 2017;16:153.
6. Hopkins KD, Zubrick SR, Taylor CL. Resilience amongst Australian aboriginal youth: an ecological analysis of factors associated with psychosocial functioning in high and low family risk contexts. *PloS One*. 2014;9:e102820.
7. Young C, Tong A, Nixon J, et al. Perspectives on childhood resilience among the Aboriginal community: an interview study. *Aust N Z J Public Health*. 2017.
8. Masten, AS. *Ordinary magic: Resilience in development*. New York, NY: Guilford Press. 2014.
9. The SEARCH Investigators. The Study of Environment on Aboriginal Resilience and Child Health (SEARCH): study protocol. *BMC Public Health*. 2010;10:287.

10. Luthar SS, Cicchetti D, Becker B. The construct of resilience: A critical evaluation and guidelines for future work. *Child Dev.* 2000; 71:543-62.
11. Beard J, Biemba G, Brooks MI, et al. Children of female sex workers and drug users: a review of vulnerability, resilience and family-centred models of care. *J. Int. AIDS Soc.* 2010;13:S6.
12. Hammen, C. Risk and protective factors for children of depressed parents. In S. S. Luthar (Ed.), *Resilience and vulnerability: Adaptation in the context of childhood adversities* (pp. 50–75). New York, NY: Cambridge University Press. 2003.
13. Stumblingbear-Riddle G, Romans JS. Resilience among urban America Indian adolescents: Exploration into the role of culture, self-esteem, subjective well-being, and social support. *Am Indian Alsk Native Ment Health Res.* 2012;19:1-19.
14. Gibson G, Klinck J. Canada's resilient north: The impact of mining on aboriginal communities. *Pimatisiwin.* 2005;3:116-39.
15. Werner EE. Risk, resilience, and recovery: Perspectives from the Kauai Longitudinal Study. *Dev. Psychopathol.* 1993;5:503-15.
16. Larson A, Gillies M, Howard PJ, Coffin J. It's enough to make you sick: the impact of racism on the health of Aboriginal Australians. *Aust N Z J Public Health.* 2007;31:322-9.
17. Atkinson, J. *Trauma trails, recreating song lines: The transgenerational effects of trauma in Indigenous Australia.* North Melbourne: Spinifex Press. 2002.
18. Campbelltown City Council Community Profile .id. retrieved from <https://profile.id.com.au/campbelltown/seifa-disadvantage-small-area?WebID=210&IWebID=10&SeifaKey=40002>.
19. Rutter M. Psychosocial resilience and protective mechanisms. *Am J Orthopsychiatry.* 1987;57:316.
20. Goodman R. The Strengths and Difficulties Questionnaire: a research note. *J Child Psychol Psychiatry.* 1997;38:581-6.
21. Youth in Mind. Secondary scoring the SDQ for age 4-17. Retrieved from <http://www.sdqinfo.org/py/sdqinfo/c0.py>.

22. Williamson A, Redman S, Dadds M, et al. Acceptability of an emotional and behavioural screening tool for children in Aboriginal Community Controlled Health Services in urban NSW. *Aust N Z J Psychiatry*. 2010;44:894-900.
23. Williamson A, McElduff P, Dadds M, et al. The construct validity of the Strengths and Difficulties Questionnaire for aboriginal children living in urban New South Wales, Australia. *Australian Psychologist*. 2014;49:163-70.
24. Lawrence D, Johnson S, Hafekost J, et al. The Mental Health of Children and Adolescents. Report on the second Australian child and adolescent survey of mental health and wellbeing. Canberra, ACT, Australia: Australian Government Department of Health. 2015.
25. Jorm AF, Bourchier SJ, Cvetkovski S, Stewart G. Mental health of Indigenous Australians: a review of findings from community surveys. *Med J Aust*. 2012;196:118-21.
26. Williamson A, D'Este C, Clapham K, et al. What are the factors associated with good mental health among Aboriginal children in urban New South Wales, Australia? Phase I findings from the Study of Environment on Aboriginal Resilience and Child Health (SEARCH). *BMJ Open*. 2016;6:e011182.
27. Pinkerton J, Dolan P. Family support, social capital, resilience and adolescent coping. *Child & Family Social Work*. 2007;12:219-28.
28. Masten AS. Resilience in individual development: Successful adaptation despite risk and adversity. In M. C. Wang & E. W. Gordon (Eds.), *Educational resilience in inner-city America: Challenges and prospects* (pp. 3-25). Hillsdale, NJ, US: Lawrence Erlbaum Associates, Inc. 1994.
29. Orthner DK, Jones-Sanpei H, Williamson S. The resilience and strengths of low-income families. *Family Relations*. 2004;53:159-67.
30. Ladwig JG, Luke A. Does improving school level attendance lead to improved school level achievement? An empirical study of indigenous educational policy in Australia. *The Australian Educational Researcher*. 2014;41:171-94.

31. Chapman RL, Buckley L, Sheehan MC, Shochet IM, Romaniuk M. The impact of school connectedness on violent behavior, transport risk-taking behavior, and associated injuries in adolescence. *Journal of School Psychology*. 2011;49:399-410.
32. Kickett-Tucker CS. How Aboriginal peer interactions in upper primary school sport support Aboriginal identity. *The Australian Journal of Indigenous Education*. 2008;37:138-51.
33. Fergusson DM, Horwood JL. The Christchurch Health and Development Study: review of findings on child and adolescent mental health. *Aust N Z J Psychiatry*. 2001;35:287-96.
34. Bayer JK, Ukoumunne OC, Lucas N, et al. Risk factors for childhood mental health symptoms: National longitudinal study of Australian children. *Pediatrics*. 2011;128:e865-79.
35. Fatori D, Bordin IA, Curto BM, De Paula CS. Influence of psychosocial risk factors on the trajectory of mental health problems from childhood to adolescence: a longitudinal study. *BMC Psychiatry*. 2013;13:1.
36. Zubrick S, Silburn S, Lawrence D, Mitrou F, Dalby R, Blair E. The Western Australian Aboriginal Child Health Survey: the social and emotional wellbeing of Aboriginal children and young people. Perth: Curtin University of Technology and Telethon Institute for Child Health Research, 2005. *Int J Epidemiol*. 2005;35:888-901.
37. Biddle SJ, Asare M. Physical activity and mental health in children and adolescents: A review of reviews. *Br J Sports Med*. 2011;45:886-895.
38. Dalton B, Wilson R, Evans JR, Cochrane S. Australian Indigenous youth's participation in sport and associated health outcomes: Empirical analysis and implications. *Sport Management Review*. 2015;18:57-68.
39. Williamson AB, Raphael B, Redman S, Daniels J, Eades SJ, Mayers N. Emerging themes in Aboriginal child and adolescent mental health: findings from a qualitative study in Sydney, New South Wales. *Med J Aust*. 2010;192:603.

40. McLennan V. Family and community resilience in an Australian Indigenous community. *Australian Indigenous Health Bulletin*. 2015;15(3).
41. National empowerment Project. Cultural, Social and Emotional Wellbeing Program Evaluation 2014-2017. The University of Western Australia, 2017. Retrieved from <http://www.nationalempowermentproject.org.au/>.
42. Colquhoun S, Dockery AM. The link between Indigenous culture and wellbeing: Qualitative evidence for Australian Aboriginal peoples. CLMR Discussion Paper Series 2012/01. Perth: Labour Market Research, Curtin Business School, Curtin University. 2012.
43. Tsey K, Whiteside M, Haswell-Elkins M, Bainbridge R, et al. Empowerment and indigenous Australian health: A synthesis of findings from Family Wellbeing formative research. *Health Soc Care Community*. 2010;18:169-79.
44. Averis R. Youth development for young Indigenous Australians: A discussion paper: Ausyouth. Adelaide; 2003.
45. Mentoring Indigenous Young People: The Tribal Warrior Program [online]. *Judicial Officers Bulletin*, Vol. 23, No. 1, Feb 2011: 5-6.
46. Kylie Lee K, Conigrave KM, et al. Evaluation of a community-driven preventive youth initiative in Arnhem Land, Northern Territory, Australia. *Drug Alcohol Rev*. 2008;27:75-82.
47. Young C, Tong A, Gunasekera H, et al. Health professional and community perspectives on reducing barriers to accessing specialist health care in metropolitan Aboriginal communities: A semi-structured interview study. *J Paediatr Child H*. 2016.
48. Peralta LR, Cinelli RL. An evaluation of an Australian Aboriginal controlled-community organization's remote sports-based programme: a qualitative investigation. *Sport in Society* 2016;19:973-89.
49. Booth A, Carroll N. The Health Status of Indigenous and Non-Indigenous Australians: Discussion Paper No. 486, CAEPR. 2005.

50. Marmot M. Social determinants and the health of Indigenous Australians. *Med J Aust.* 2011;194:512-3.
51. Australian Council of Social Service. Poverty in Australia. 2016. Retrieved from <https://www.acoss.org.au/wp-content/uploads/2016/10/Poverty-in-Australia-2016.pdf>.
52. Podsakoff PM, MacKenzie SB, Lee J-Y, Podsakoff NP. Common method biases in behavioral research: A critical review of the literature and recommended remedies. *J. Appl. Psychol.* 2003;88:879.
53. Van de Mortel TF. Faking it: social desirability response bias in self-report research. *Aust J Adv Nurs.* 2008;25:40.
54. Dudgeon P, Walker R, Scrine C, et al. Effective strategies to strengthen the mental health and wellbeing of Aboriginal and Torres Strait Islander people. Canberra, Australia: Closing the Gap Clearinghouse Issues paper No. 12. 2014.
55. Mealing NM, Banks E, Jorm LR, Steel DG, Clements MS, Rogers KD. Investigation of relative risk estimates from studies of the same population with contrasting response rates and designs. *BMC Med Res Methodol.* 2010;10:26.

**Chapter 5 – Stressful life events and resilience among
carers of Aboriginal children in urban New South Wales:
cross sectional findings from the Study of Environment on
Aboriginal Resilience and Child Health (SEARCH)**

Intentionally left blank.

Chapter 5 – Stressful life events and resilience among carers of Aboriginal children in urban New South Wales: cross sectional findings from the Study of Environment on Aboriginal Resilience and Child Health (SEARCH)

Authors

Christian Young^{1,2}, Jonathan C. Craig^{1,2}, Kathleen Clapham³, Sandra Williams⁴, Anna Williamson⁵ for the SEARCH investigators

Department and Institution

¹ Sydney School of Public Health, The University of Sydney

² Centre for Kidney Research, Westmead Institute for Medical Research

³ Australian Health Services Research Institute, The University of Wollongong

⁴ Tharawal Aboriginal Corporation

⁵ The Sax Institute

5.1 Chapter introduction

Chapters 2, 3 and 4 investigated the resilience of Aboriginal children and potential protective and vulnerability factors. This chapter shifts the focus onto caregivers of Aboriginal children living in urban settings. Using SEARCH caregiver data, a person-based and variable-based research design explores a range of individual, family and community level factors that may be associated with resilience, including factors that may be uniquely protective in the presence of heightened stress. The number and type of stressful events that caregivers of Aboriginal children face are also described.

The material in this chapter has been published as: **Young C**, Craig J, Clapham K, Williams S, Williamson A, for the SEARCH investigators. Stressful life events and resilience among carers of Aboriginal children in urban New South Wales: cross sectional findings from

the Study of Environment on Aboriginal Resilience and Child Health (SEARCH). 2018. Chapter 5 is structured as per the journal article.

5.1.1 Author's contributions

CY, JC, KC and AW conceptualised and designed the study. CY collated the data, conducted the statistical analysis and wrote the manuscript. All authors interpreted the results and reviewed, revised and approved the final version of the manuscript.

5.2 Abstract

5.2.1 Objectives

In caregivers of urban Aboriginal children, to determine the frequency of major stressful life events, the proportion who meet criteria for resilience, and factors that are associated with resilience.

5.2.2 Design, setting and participants

Cross-sectional survey data was collected from 574 caregivers of Aboriginal children participating in the Study of Environment on Aboriginal Resilience and Child Health (SEARCH). Caregivers were recruited from four Aboriginal Community Controlled Health Services located in urban or regional areas in New South Wales, Australia.

5.2.3 Primary outcome measure

Resilience, defined as having experienced three or more stressful life events in the last 12 months, and having scores of ≤ 21 on the Kessler 10 Psychological Distress scale.

5.2.4 Results

Over half (315, 55%) of the caregivers reported three or more stressful life events – the most common being a close family member who was hospitalised with a serious medical problem (259, 45%). Of the participants who experienced three or more stressful life events, almost three quarters (227, 72%) met the criteria for resilience. Using multivariable analysis, two factors were independently associated with resilience: not having a physical health problem that limited normal activities (aOR: 4.3; 95%CI: 2.0-

9.0), and not having problems caused by alcohol within the home (aOR: 5.3; 95%CI: 2.2-12.8). Having a child whose behaviour placed a great deal of burden on the family was associated with less resilience (aOR: 0.25; 95%CI 0.09-0.68).

5.2.5 Conclusions

Caregivers of urban Aboriginal children experienced a large number of stressful events, the most common being the poor health of close family members, but most exhibited resilience. Resilience was associated with stable family environments and good physical health. The high number of stressful life events that caregivers experience is reflective of broader inequalities that Aboriginal communities face. The availability of easily-accessible and long-term health and support services may go some way to reducing this inequality and improving social and emotional wellbeing for Aboriginal families.

5.3 Introduction

Aboriginal families often consist of expansive yet close-knit networks that provide strong and supportive environments for all family members.¹ However, Aboriginal families often face high levels of stress due to cultural marginalisation, discrimination and the challenges that stem from living in low socioeconomic environments.^{2,3} Consequently, there is some evidence to suggest that caregivers of Aboriginal children experience high levels of psychological distress⁴ which can in turn negatively impact the social and emotional wellbeing of children in their care.^{5,6} The ability to maintain positive psychological functioning during times of stress and adversity is conceptualised as resilience.⁷ Given the challenges Aboriginal communities face, identifying factors that help caregivers of Aboriginal children maintain positive functioning despite adversity can aid initiatives designed to enhance resilience.

While the importance of resilience as a framework for individual, family and community level health is increasingly recognised,⁸ the various methods with which adversity and positive adaption can be defined and measured pose conceptual challenges for quantitative research of resilience in this context.⁹ In Australia, most research in the area of resilience has been conducted using qualitative designs. These studies highlight the importance of family and community connectedness, social support, role modelling,

autonomy, and empowerment as factors that are believed to build resilience.¹⁰⁻¹³ To date, no studies have quantitatively investigated the resilience of caregivers of Aboriginal children, limiting our understanding of the impact individual, family and community-level factors may have on resilience, and the magnitude of potential effects.

This study aimed to measure the resilience of caregivers of Aboriginal children and to determine individual, family and community level factors that are associated with resilience. The results may be used to better understand how resilience is fostered, where threats to caregivers' resilience exist, and to help inform strategies that can boost positive psychological health within Aboriginal families who are exposed to stressful events.

5.4 Methods

5.4.1 SEARCH

This study was conducted as part of the Study of Environment on Aboriginal Resilience and Child Health (SEARCH).¹⁴ SEARCH is the largest cohort study of urban Aboriginal children in Australia. It is built on community-identified research priorities and strong partnerships with four Aboriginal communities in urban and regional New South Wales (NSW). SEARCH aims to investigate factors that are related to the physical and mental health outcomes of Aboriginal children and their caregivers. Survey data were collected on a range of domains including socioeconomic, health, family and community factors. Clinical measures such as height, Body Mass Index (BMI), blood pressure, blood lipids and urinary albumin are also taken. Where possible, the SEARCH survey was based on the NSW Health Survey¹⁵ and the Western Australian Aboriginal Child Health Survey (WAACHS)¹⁶ to facilitate comparability. SEARCH is described in further detail in the published protocol.¹⁴

Phase one SEARCH survey data was collected from over 1600 Aboriginal children and their caregivers from 2006 to 2012. Caregivers of Aboriginal children were approached by an Aboriginal research officer while attending one of four Aboriginal Community Controlled Health Services (ACCHS) and invited to participate. Eligibility criteria included being 16 years or older and agreeing to participate in follow-up interviews during

subsequent phases of data collection. The Aboriginal research officers collected caregiver's written informed consent to participate on behalf of themselves and their children; adolescents (aged 12 to 17 years) also provided consent to participate. Caregivers completed a survey that asked about themselves and their family and community environments. Caregivers also completed a survey for each of their children (aged 0 to 17 years). Adolescents completed a separate self-report survey. Ethics approval was obtained by the University of Sydney (8506) and the Aboriginal Health and Medical Research Council (586/06).

Patient and public involvement

Identifying factors that contribute to resilience was identified as a research priority through extensive consultation with the ACCHSs that partner with SEARCH. The results of SEARCH studies are fed back to communities via an Aboriginal knowledge broker, presentations for ACCHS staff or at public events, or as advised by the ACCHSs. Study participants were not involved in the research design or recruitment.

5.4.2 Measures

Exposures

Putative risk and protective factors were drawn from the SEARCH carer-report survey items which measured individual, family and community-level variables. These included variables that captured demographic information, and information about socioeconomic status, history of forced removal or displacement, health, alcohol and gambling, housing, neighbourhood factors and involvement in social groups. In order to measure potential stress caused by children's behaviour, two questions from the Strength and Difficulties questionnaire's impact supplement were used.¹⁷ These questions asked whether caregivers believed any child in their care has an emotional or behavioural problem, and, if so, how much burden this places on the family. Responses were, "No burden", "Only a little burden", "Quite a lot of burden", and "A great deal of burden".

Stressful Life Events (SLE) scale

The SLE scale describes 14 stressful events that are likely to create considerable stress for the carer and the family as a whole, e.g. “A close family member was badly hurt, injured or sick”. The SLE scale used in this study is the same as used in the Western Australian Aboriginal Child Health Survey (WAACHS),¹⁷ and is available in Appendix C.1. Among caregivers living in Western Australia, previous research has found that three or more stressful life events within a 12-month period increased the risk of a number of psychological and social problems.¹⁹ Participating carers were asked whether they had experienced each of the 14 events. Participants could refuse to answer or indicate that they were unsure if they had experienced a stressful life event. Based on the total number of stressful life events experienced in the past 12-months participants were divided into two groups, those who had experienced two or less stressful life events (lower stress group), and those that had experienced three or more stressful life events (high stress group). In this way, the number of stressful life events was used as a proxy for adversity, which is necessary when defining resilience.²⁰ Participants who could not be categorised due to missing or incomplete data were excluded from the analysis.

The Kessler 10 Psychological Distress Scale (K10)

The K10 is a widely used screening tool used to detect the frequency and severity of symptoms of anxiety and depression.²¹ Scores range between 10 and 50, with higher scores indicating more distress. The K10 has demonstrated sound psychometric properties in Australian Aboriginal adults.²² We followed the Australian Bureau of Statistics’ scoring procedure and classified scores of ≤ 21 as indicative of low/moderate psychological distress, and scores ≥ 22 as indicative of high psychological distress.²³

Resilience status

Resilience is again defined as positive adaption in the presence of adversity.⁷ Participants were divided into two groups, ‘resilient’ or ‘less resilient’ based on the number of stressful life events experienced, and their K10 score. ‘Resilient’ participants were defined as those in the high stress group who scored ≤ 21 on the K10, indicating low psychological stress despite having experienced three or more stressful events in the past 12 months. ‘Less resilient’ participants were those in the high stress group who scored ≥ 22 on the K10. In this way, positive adaption was inferred by low

psychopathology and adversity was inferred by the number of stressful life events. Participants in the lower stress group (i.e. who experienced two or less stressful life events), did not meet criteria for adversity and were therefore excluded from the initial analysis. However, the final analysis investigated statistical interactions between level of stress and variables found to be significantly associated with resilience. Therefore, *all* participants were included in this analysis, i.e. participants from both the lower and the high stress groups.

5.4.3 Statistical measures

The number of stressful life events and K10 scores were determined for each participant. The effect of stressful life events on psychological distress was assessed using a two-sample t-test with stress group (lower versus high stress) as the independent variable and K10 scores as the outcome.

Independent variables were initially analysed in three separate categories representing individual, family, and community-levels. Age, gender and ACCHS location were included as covariates in all analysis. Variables were first entered into multivariate logistic regression models that tested for an association with resilience status. Variables significant at $p < .05$ were then entered into a second model that controlled for significant variables within the individual, family or community category. The final model consisted of one multivariable logistic regression that included all statistically significant variables from all categories. Only the second and third model are shown in the results. A list of all the variables and statistics from the first model is available in Appendix C.2.

Interaction models

In addition to research that seeks to identify main effects, resilience research also investigates whether the effects of the factors associated with resilience differ in the presence of adversity, compared to lower risk environments.²⁴ The purpose of such investigation is to understand whether factors have a protective or detrimental effect that is *more pronounced* in adverse environments when compared to less challenging circumstances. These assessments are often made by examining statistical interactions between categorical levels of adversity, and those of an independent variable.²⁰ In order

to assess the presence of an interaction, a separate analysis that included all SEARCH caregivers was conducted (i.e. from both stress categories). Independent variables that were significant in the final model of the previous analysis were entered into separate logistic regression models that included an interaction term between levels of adversity (lower vs. high stress groups) and the categorical levels of the independent variable. The hypothesis regarding the interaction models is that any factor found to be associated with greater resilience in the initial analysis will have a statistically larger effect in the presence of adversity (i.e. ≥ 3 SLEs) than when less adversity is present (≤ 2 SLEs). All analyses were performed with SAS 9.4 software (SAS Institute), statistical significance was set at .05.

5.4.4 *Aboriginal representation*

This study has been conducted as part of SEARCH and has therefore involved the Aboriginal community at all stages of its development. SEARCH began extensive consultations with five Aboriginal Community Controlled Health Services (ACCHSs) in 2004 in order to identify community research priorities. Resilience, and the risk and protective factors associated with it, was identified from the outset as a key research priority. Partner communities were heavily involved in drafting and approving the SEARCH questionnaires. Two authors on this paper are Aboriginal people and have contributed to the study design (KC) and interpretation of results (KC, SW). Partner ACCHSs own the data arising from SEARCH. The final draft of this manuscript was approved by the governing bodies of each partner ACCHSs and the Aboriginal Health and Medical Research Council of New South Wales.

5.5 Results

5.5.1 *Participant characteristics*

See Table 5.1.

Of the 627 caregivers who completed the SEARCH survey, 574 (92%) provided sufficient K10 and stressful life event data for resilience status to be determined. Most participants were female (522, 91%), Aboriginal or Torres Strait Islander (445, 78%) and

aged 20 to 39 years old (417, 73%). Overall, 113 (20%) participants reported high psychological distress, 25 (10%) in the lower stress group, and 88 (28%) in the high stress group.

Table 5.1 Participant characteristics

Characteristic (n, %)	Number of stressful life events			Total (n=574)
	0-2 (n=259)	Three or more		
		Resilient ¹ (n=227)	Less Resilient (n=88)	
Individual-level				
High psychological distress	25 (10)	0 (0)	88 (100)	113 (20)
Age, years				
16-19	7 (3)	6 (3)	1 (1)	14 (2)
20-29	103 (40)	73 (32)	33 (38)	209 (36)
30-39	87 (34)	90 (40)	31 (35)	208 (36)
40-49	41 (16)	30 (13)	20 (23)	91 (16)
50-59	18 (7)	23 (10)	3 (3)	44 (8)
60+	3 (1)	5 (2)	0 (0)	8 (1)
Female	236 (91)	204 (90)	82 (93)	522 (91)
Aboriginal and Torres Strait Islander	191 (74)	179 (79)	75 (85)	445 (78)
Employed or studying	90 (35)	84 (37)	21 (24)	195 (34)
Any tertiary qualification	116 (45)	103 (45)	46 (52)	265 (46)
Parent(s) removed from their natural family	22 (8)	26 (11)	22 (25)	70 (12)
Forced to move from traditional country or homeland				
Participant	2 (1)	3 (1)	4 (5)	9 (2)
Participant's parents	10 (4)	12 (5)	6 (7)	28 (5)
Chronic medical condition	61 (24)	83 (37)	51 (58)	195 (34)
Limitation of normal daily activities due to health problem	22 (8)	34 (15)	35 (40)	91 (16)
Family-level				
Burden placed on family due to child(ren)'s behaviour				
None	187 (72)	156 (69)	43 (49)	386 (67)
A little	37 (14)	34 (15)	15 (17)	86 (15)
Quite a lot	25 (10)	24 (11)	14 (16)	63 (11)
A great deal	10 (4)	13 (6)	16 (18)	39 (7)
Alcohol problems in household	9 (3)	16 (7)	23 (26)	48 (8)
Gambling problems in household	1 (0)	15 (7)	12 (14)	28 (5)
Three or more housing problems	94 (36)	128 (56)	71 (81)	293 (51)
Community-level				
Feeling of safety in the neighbourhood	203 (78)	160 (70)	45 (51)	408 (71)
Feeling of belonging in the neighbourhood	180 (69)	132 (58)	37 (42)	349 (61)
Feeling of helpfulness in the neighbourhood	144 (56)	95 (42)	27 (31)	266 (46)
Feeling of trust in the neighbourhood	137 (53)	88 (39)	26 (30)	251 (44)
Regular participation in sporting groups	98 (38)	80 (35)	18 (20)	196 (34)
Neighbourhood problems: gangs	86 (33)	109 (48)	55 (63)	250 (44)
Neighbourhood problems: assaults	60 (23)	79 (35)	46 (52)	185 (32)

¹Resilience, as indicated by scores of ≤ 21 on the Kessler 10 Psychological Distress Scale

5.5.2 Frequency, spectrum and correlations between stressful life events

See Figures 5.1 and 5.2, Table 5.2.

On average, caregivers reported 3.1 stressful life events in the 12 months prior to completing the survey. Figure 5.1 displays the proportion of participants experiencing each of the 14 stressful life events. Figure 5.2 displays the frequency distribution of the number of stressful life events experienced by participants. The most commonly reported stressful life events related to family members' health with 259 (45%) participants reporting that a close family member was in hospital with a serious medical problem (illness or accident), 231 participants (40%) reporting that a close family member was badly hurt, injured or sick, and 197 (34%) participants reporting that an important family member has passed away.

Table 5.2 shows correlations between each of the stressful life events. Almost all of the correlation coefficients were positive with strengths ranging from negligible to medium. Health related stressful events appeared to cluster together with the largest association between participants who had a family member who was hurt or sick, and those who had a family member in hospital ($r=.72, p<.001$). Drug and alcohol problems were associated with children who had been upset due to family arguments ($r=.41, p<.001$), and a family member who had been arrested or was in gaol ($r=.39, p<.001$).

Figure 5.1 Proportion of participants experiencing each of the 14 stressful life events

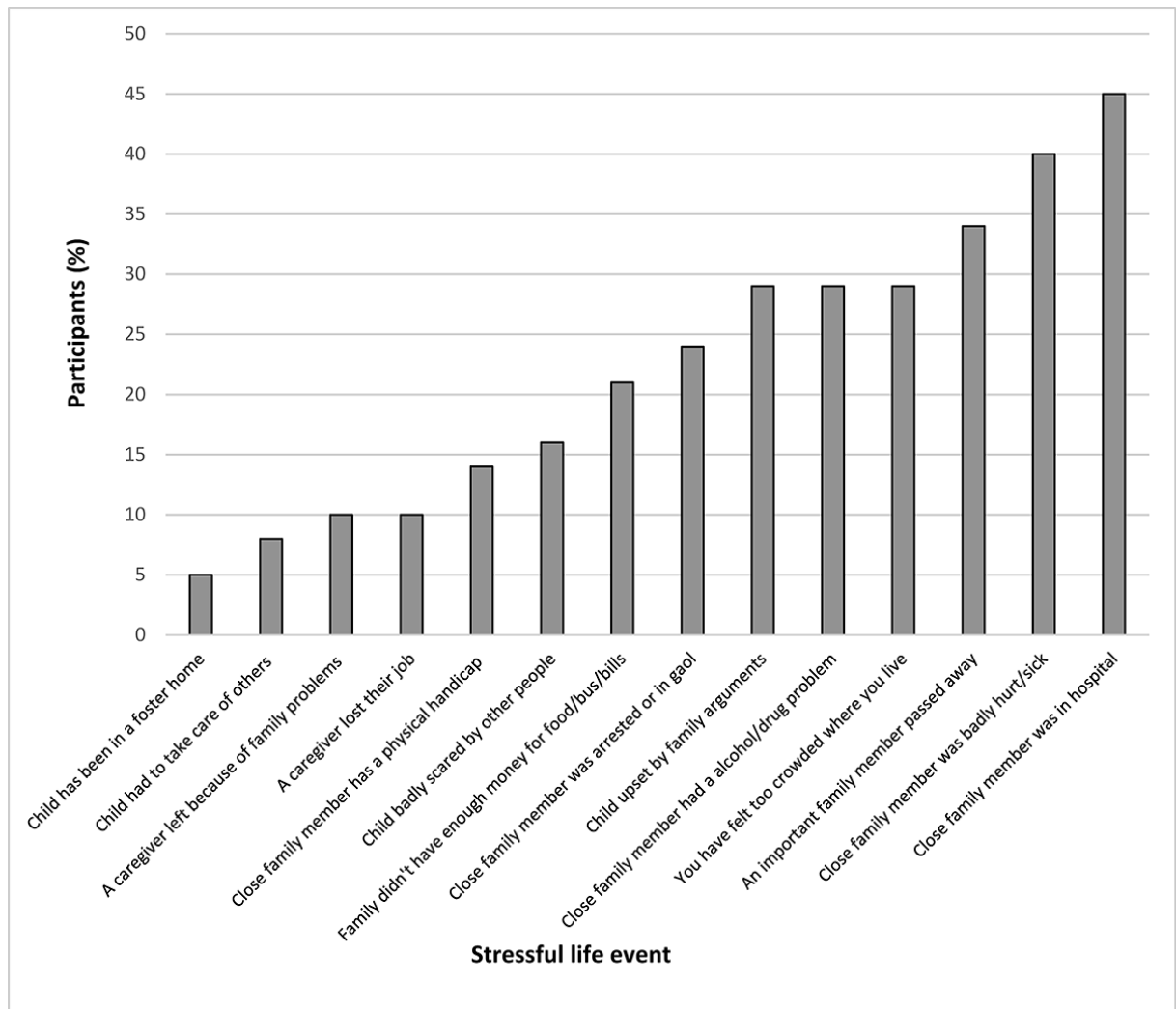


Figure 5.2 Frequency distribution of the number of stressful life events experienced in the past 12 months

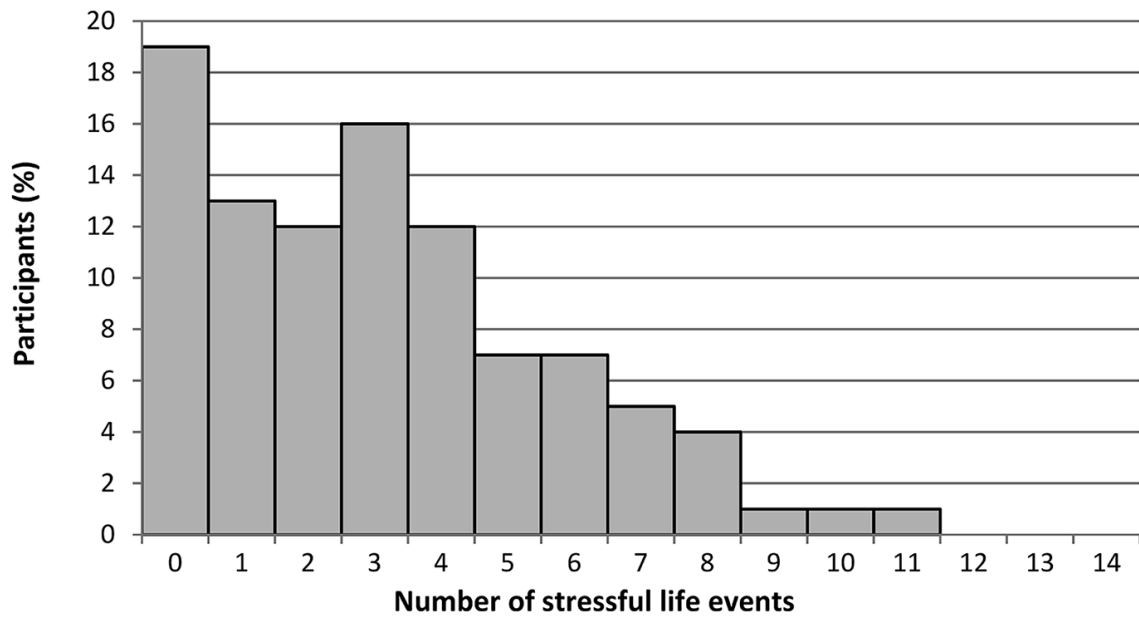


Table 5.2 Correlation between stressful life events

	Family member passed away	Family member was in hospital	Family member was badly hurt/sick	Family member has a physical handicap	Caregiver lost their job	Child has been in a foster home	Child had to take care of others	Caregiver left because of family problems	Family didn't have enough money for basics	Felt too crowded where you live	Child upset by family arguments	Child badly scarred by other people	Family member was arrested or in gaol	Family member had a alcohol/drug problem
Family member passed away	1.00													
Family member was in hospital	0.33	1.00												
Family member was badly hurt/sick	0.33	0.72	1.00											
Family member has a physical handicap	0.16	0.26	0.26	1.00										
Caregiver lost their job	0.01	0.06	0.10	0.05	1.00									
Child has been in a foster home	0.02	-0.03	-0.08	0.07	0.06	1.00								
Child had to take care of others	0.12	0.15	0.18	0.11	0.08	0.06	1.00							
Caregiver left because of family problems	-0.01	0.02	-0.01	0.08	0.06	0.08	0.06	1.00						
Not enough money for basics	0.13	0.19	0.20	0.21	0.14	0.05	0.21	0.12	1.00					
Felt too crowded where you live	0.05	0.22	0.17	0.11	0.12	0.03	0.23	0.06	0.20	1.00				
Child upset by family arguments	0.06	0.19	0.13	0.21	0.08	0.08	0.21	0.30	0.29	0.28	1.00			
Child badly scarred by other people	0.10	0.16	0.13	0.21	0.11	0.24	0.22	0.24	0.30	0.28	0.37	1.00		
Family member was arrested or in gaol	0.12	0.22	0.21	0.20	0.13	-0.02	0.09	0.06	0.17	0.13	0.22	0.16	1.00	
Family member had a alcohol/drug problem	0.08	0.22	0.17	0.24	0.17	0.07	0.17	0.22	0.23	0.16	0.41	0.24	0.39	1.00

Darker cells indicate stronger associations. Correlation coefficients in bold are significant at $p < .05$

5.5.3 Resilience: frequency and predictors

315 (55%) participants reported that they had experienced three or more stressful life events, of these, 227 (72%) met the criteria for resilience. The mean K10 score for caregivers in the lower stress group and the high stress group was 14.1 and 18.8, respectively (Cohen's $d = .67$, $p < .001$).

Individual-level variables (Table 5.3)

In the final model (adjusting for age, gender, ACCHS and all significant covariates) caregivers who were not functionally limited by health problems were significantly more likely to be resilient than those who were limited (aOR: 4.3; 95%CI: 2.0-9.0). No other individual-level variables were significant.

Family-level variables (Table 5.4)

In the final model, caregivers who reported that overuse of alcohol did not cause problems in their household were significantly more likely to be resilient than those that did report such problems (aOR: 5.3; 95%CI: 2.2-12.8). Caregivers who reported they had a child or children whose behaviour placed a great deal of burden on the family (compared to caregivers who did not report a burden of this nature) were less likely to meet the criteria for resilience (aOR, 0.25; 95%CI, 0.09-0.68, respectively). Caregivers whose children's behaviour placed 'a little' or 'quite a lot' of burden on the family were not at significantly elevated risk of less resilience. Participants who reported three or more housing problems were significantly less likely to meet the criteria for resilience in the first two models, but this association was not significant ($p=.07$) in the fully adjusted model.

Table 5.3. Associations between resilience and individual-level variables in caregivers in the high stress group (n=315)

Variable	Adjusted for age, sex, ACCHS, and all significant individual-level variables aOR (95% CI)	<i>p</i>	Adjusted for age, sex, ACCHS, and all significant variables aOR (95% CI)	<i>p</i>
Gender				
<i>Female</i>	ref			
<i>Male</i>	1.9 (0.42-8.2)	0.42		
Employment status				
<i>Employed/studying</i>	ref			
<i>Unemployed/retired/unable to work</i>	0.43 (0.13-1.4)	0.16		
<i>Home duties</i>	0.42 (0.17-1.0)	0.06		
Carer's parents or other relatives removed from their natural family				
<i>No</i>	ref			
<i>Either, or both parents</i>	0.46 (0.15-1.4)	0.17		
<i>Other relatives</i>	1.5 (0.51-4.2)	0.48		
Forced to move from traditional country or homeland				
<i>No</i>	ref			
<i>Yes, participant</i>	0.26 (0.02-3.0)	0.28		
<i>Yes, parents</i>	0.54 (0.12-2.4)	0.42		
<i>Yes, other relatives</i>	0.93 (0.30-2.9)	0.90		
Chronic medical condition				
<i>Yes</i>	ref			
<i>No</i>	2.0 (0.84-4.9)	0.12		
Limitation of normal daily activities due to health problem				
<i>Yes</i>	ref		ref	
<i>No</i>	3.6 (1.3-9.4)	0.011	4.3 (2.0-9.0)	<.001

ACCHS=Aboriginal Community Controlled Health Service, aOR=Adjusted odds ratio, CI=Confidence interval

Table 5.4. Associations between resilience and family-level variables in caregivers in the high stress group (n=315)

Variable	Adjusted for age, sex, ACCHS, and all significant family-level variables		Adjusted for age, sex, ACCHS, and all significant variables	
	aOR (95% CI)	<i>p</i>	aOR (95% CI)	<i>p</i>
Burden placed on family due to child(ren)'s behaviour				
<i>None</i>	ref		ref	
<i>A little</i>	0.83 (0.38-1.8)	0.65	0.55 (0.23-1.3)	0.18
<i>Quite a lot</i>	0.45 (0.19-1.1)	0.07	0.50 (0.19-1.4)	0.17
<i>A great deal</i>	0.14 (0.05-0.36)	<0.001	0.25 (0.09-0.68)	<0.001
Overuse of alcohol cause problems in the household				
<i>Yes</i>	ref		ref	
<i>No</i>	4.7 (2.1-10.6)	<0.001	5.3 (2.2-12.8)	<0.001
Betting or gambling causes problems in the household				
<i>Yes</i>	ref			
<i>No</i>	1.2 (0.45-3.3)	0.70		
Housing problems				
<i>None</i>	ref		ref	
<i>1-2</i>	0.56 (0.16-2.0)	0.38	0.72 (0.18-2.9)	0.64
<i>3+</i>	0.22 (0.07-0.69)	<0.01	0.31 (0.09-1.1)	0.07

ACCHS=Aboriginal Community Controlled Health Service, aOR=Adjusted odds ratio, CI=Confidence interval

Community-level variables (Table 5.5)

In the final model, no community-level variables retained significance. Caregivers who regularly participated in sporting groups were more likely to meet the criteria for resilience in the first two models, but this association was not significant ($p=.07$) in the fully adjusted model.

Table 5.5. Associations between resilience and community-level variables in caregivers in the high stress group (n=315)

Variable	Adjusted for age, sex, ACCHS, and all significant community-level variables		Adjusted for age, sex, ACCHS, and all significant variables	
	aOR (95% CI)	<i>p</i>	aOR (95% CI)	<i>p</i>
I feel safe in this neighbourhood				
<i>Disagree</i>	ref			
<i>Neutral</i>	1.7 (0.51-5.6)	0.39		
<i>Agree</i>	1.6 (0.53-4.7)	0.42		
I belong in this neighbourhood				
<i>Disagree</i>	ref			
<i>Neutral</i>	1.2 (0.40-3.6)	0.76		
<i>Agree</i>	2.6 (0.78-8.7)	0.12		
People in this neighbourhood are very willing to help others				
<i>Disagree</i>	ref			
<i>Neutral</i>	0.78 (0.29-2.1)	0.63		
<i>Agree</i>	0.92 (0.27-3.1)	0.89		
I trust most of the people in my neighbourhood				
<i>Disagree</i>	ref			
<i>Neutral</i>	1.4 (0.44-4.6)	0.56		
<i>Agree</i>	0.56 (0.16-1.9)	0.35		
Participated in sporting groups (last 12 months)				
<i>Occasionally or never</i>	ref			
<i>Monthly or more</i>	3.2 (1.4-7.1)	<0.01	2.6 (0.95-4.1)	0.07
Neighbourhood problems: gangs				
<i>Problem</i>	ref			
<i>No problem</i>	1.5 (0.57-3.9)	0.42		
Neighbourhood problems: assaults				
<i>Problem</i>	ref			
<i>No problem</i>	1.6 (0.57-4.8)	0.36		

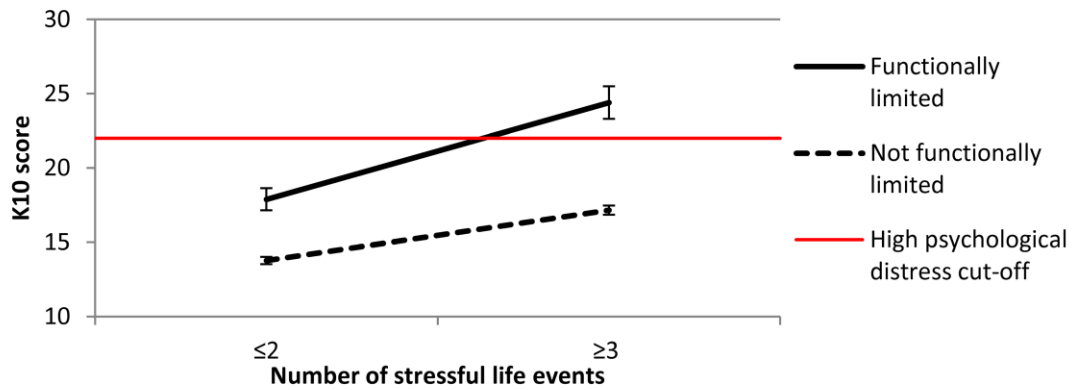
ACCHS=Aboriginal Community Controlled Health Service, aOR=Adjusted odds ratio, CI=Confidence interval

Interaction models (Figure 5.3)

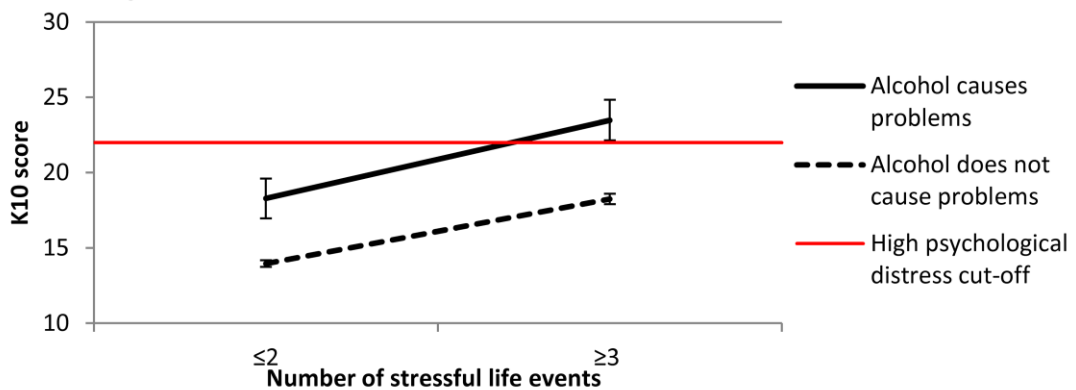
The interaction models assessed whether the effect of significant factors identified through the previous analysis differed when measured in the two stress groups (lower versus high), hence these models used data from *all* caregivers. None of the interaction terms were found to be significant (all p values > 0.20). Figure 5.3 shows the mean K10 scores of participants grouped by levels of the factors associated with resilience and stress group. In each case the effects of being in the high stress group and the presence of alcohol problems, functional limitations or burdensome child behavioural problems appeared to have an additive effect on psychological distress.

Figure 5.3 Mean K10 scores by stressful life events and: functional limitations, alcohol problems, and family burden due to children’s behaviour. K10 = Kessler 10 Psychological Distress Scale. K10 scores range from 10 – 50, scores >22 are indicative of high psychological distress. Error bars represent 1 standard error.

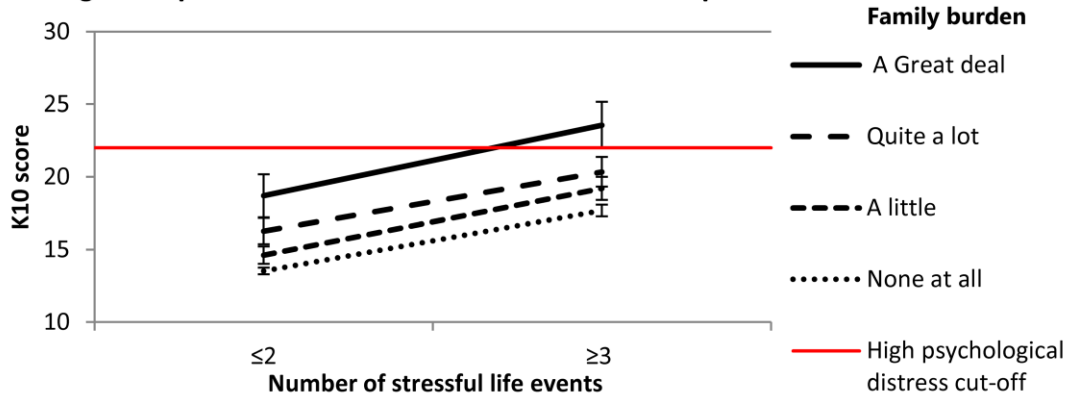
A. Functional limitations



B. Alcohol problems



C. Caregiver reported child’s emotional or behavioural problem



5.6 Discussion

To our knowledge, this is the first study in Australia to quantitatively explore the resilience profile of caregivers of urban Aboriginal children. Over half of the caregivers reported experiencing three or more stressful life events in the past year. Of these, almost three quarters met the criteria for resilience. Participants who were not limited by health problems or who lived in households where alcohol overuse did not cause problems had significantly higher odds of meeting criteria for resilience. Caregivers whose children's behaviour placed a great deal of burden on their family had significantly lower odds of meeting criteria for resilience. No interaction was detected between stress and each of the factors associated with resilience, with mean K10 scores increasing additively in the presence of three or more stressful events.

On average, caregivers reported experiencing a slightly lower number of stressful life events over twelve months than primary caregivers in the Western Australian Aboriginal Child Health Survey (means: 3.1 and 3.9, respectively).¹⁶ In comparison, caregivers of non-Aboriginal children have reported a much lower number of stressful life events, an average 1.2 stressful life events during the previous year.¹⁸ The three most frequently reported stressful life events in this study corresponded to those reported in the WAACHS study, though proportionally fewer participants in our study (between 11% to 16% less) experienced each event. These events, related to the poor health of family members, reflect well-documented disparities between Aboriginal and non-Aboriginal health outcomes.²⁵ Between one quarter and one third of participants reported that they felt too crowded where they lived, that a close family member had a drug or alcohol problem, and that their children had been involved in or upset by family arguments. Stressful life events were seen to aggregate, with the presence of one event often being associated with one or more other stressful events, however, most correlations were not strong. Aligning with results from the WAACHS, health-related stressful events appeared to cluster together. Similarly, other associations between substance use and incarceration, and between having children who were badly scared and having children who were upset by family arguments were also observed.¹⁵ Despite the high incidence of stressful life events among carers of Aboriginal children, this study

highlights their ability to cope with stress and maintain positive psychological functioning during times of adversity. Given the many adversities Aboriginal families are known to face, including those not measured by SEARCH, it is likely that many caregivers of Aboriginal children are extremely resilient.

The three factors associated with resilience indicate that caregivers of urban Aboriginal children who experience good health and who live in stable home environments are more likely to be resilient in the presence of other stressors. The lack of a significant interaction suggests that these factors are associated with improved mental health in the presence of few, or many stressful events. While proportionally few of the participants reported children whose behaviour placed a great deal of burden on the family (7%), or experienced problems in their household caused by alcohol overuse (8%), a greater number of participants reported being functionally limited due to health problems (16%). This result aligns with research that has shown that the prevalence of serious physical limitations is higher in Aboriginal than non-Aboriginal Australians.²⁶ This is concerning given previous evidence that links functional limitations to poor mental health,^{2,27} and the results of this study that highlight the compounding risk of psychological distress when stressful life events and limiting health issues co-occur.

The results suggest that participation in sporting groups and living in homes with few problems is associated with resilience, though these factors may co-vary with other predictors. While not statistically significant in the fully adjusted model, the influence of these factors on mental health has been identified in previous research with Aboriginal people.²⁸⁻³⁰ Providing more opportunities for social support through sporting and other community groups, and addressing housing problems, including overcrowding, is a potentially beneficial strategy to reducing psychological distress among caregivers who are under stress.

Given the associations found in this study, it is plausible that poor physical health contributes to psychological distress both directly, through functionally limiting health problems, and indirectly, through the stress of living with or looking after a sick family member. Addressing health issues within Aboriginal communities remains a difficult and longstanding challenge for Australia governments. A legacy of discrimination and

cultural marginalisation has resulted in unequal living conditions for Aboriginal people,³¹ including socio-economic disparities that are believed to account for between one third and one half of the health gap between Aboriginal and non-Aboriginal Australians³² This inequality is reflected in the disproportionate number of stressful life events that caregivers of Aboriginal children experience. Given our findings, initiatives that seek to improve physical health or minimise the impact of functional limitations (such as occupational therapy services), reduce problem drinking and provide caregivers with resources to assist in caring for children experiencing emotional or behavioural problems may improve carer resilience. However, as health disparities experienced by Aboriginal families are known to be rooted in socio-economic disparities, it is likely that while these persist, so too will disparities in health.^{32,33} Addressing the social determinants of health for Aboriginal people must remain a key priority if real progress is to be made in closing the health gap.³⁴

A challenge facing health professionals who work with Aboriginal communities is identifying and providing support for families who experience heightened stress, health or alcohol problems, given they are also likely to face significant barriers that can prevent seeking and accessing services.³⁵ Initiatives that can address these barriers by being low cost, culturally safe, and by providing personalised support for families i.e. by offering free transportation, have a greater chance of success.³⁶ General practitioners and ACCHS health staff should be aware that caregivers presenting with functional limitations are facing additional challenges to resilience and may need extra support.

While SEARCH measured a wide range of variables that align with resilience theory including individual, family and community level factors - personality traits and individual abilities were not assessed by the survey. Given that individual traits such as optimism, self-esteem and having an internal locus of control have been identified in the literature as being robust predictors of resilience,^{20,37,38} this limits the interpretation of our results. However, as survey items were determined by the ACCHSs the results of this study are directly relevant to the concerns and priorities voiced by the communities that are partners in SEARCH. Due to the range of variables that can be used to measure positive adaptation and adversity it is possible to define resilience using contrasting methodologies, and thus derive different results based upon the criteria employed.

Using the Stressful Life Events (SLE) scale as a measure of adversity may have introduced error as the list of events was not exhaustive and some participants may have experienced stressful events that were not included. Furthermore, stressful events concerning the health of family members may refer to the same incident, potentially leading to some events being counted more than once. Additionally, the SLE measures events in relation to caregivers, and some that apply to children in their care. While some stressful events immediately effect either children or their caregivers, the events included in the SLE scale are likely to have significant negative repercussions throughout the whole family (e.g. the removal of a child). This scale has been used before in the WAACHS study¹⁸ and was therefore unaltered for comparative purposes. We note that other, non-mental health measures could be used to measure positive adaptation. Given concerns regarding the prevalence of poor mental health in Aboriginal communities³⁹ and that the K10 has been validated with Aboriginal populations,²² we believe that the K10 is appropriate for measuring resilience in this setting. Further, the measures used in this study were chosen in partnership with the Aboriginal community – the K10 was considered acceptable given its brevity, clear language and face validity. We note that the limitations mentioned above may contribute to classification error. Given the involvement and acceptance of the Aboriginal community in helping select these measures, and the number of resilience studies that have used similar methods, we believe this approach is justified. This study is cross-sectional and therefore associations may not infer causality. For example, it is plausible that a bi-directional relationship exists between parent's psychological distress and children's emotional or behavioural problems. Study participants were recruited from four partner urban/regional ACCHS and most of the participants were female (91%), therefore the results may not be representative of the broader population of caregivers of Aboriginal children. However, results drawn from internal (within-study) comparisons have been found to remain generalisable to study populations, despite the presence of a relatively distinct sample.⁴⁰ However, due the diversity of Aboriginal groups, caution should be exercised before generalising the results of this study to other Aboriginal communities.

Our findings indicate that caregivers of urban Aboriginal children experience a greater number of stressful events than Australian parents in general, however, most are

resilient. Providing easily accessible services for caregivers who experience health and social problems may provide some gains in resilience. However, real improvements in health are likely to result from sustainable strategies that address the broader social inequalities between Aboriginal and non-Aboriginal people.

5.7 References

1. Lohar S, Butera N, Kennedy E. Strengths of Australian Aboriginal cultural practices in family life and child rearing: Australian Institute of Family Studies Melbourne, VIC, Australia; 2014.
2. Zubrick SR, Dudgeon P, Gee G, et al. *Social determinants of Aboriginal and Torres Strait Islander social and emotional wellbeing*. Working together: Aboriginal and Torres Strait Islander mental health and wellbeing principles and practice 2010;75-90.
3. Anderson I, Baum F, Bentley M (eds). *Beyond Band-aids: Exploring the Underlying Social Determinants of Aboriginal Health*. Papers from the Social Determinants of Aboriginal Health Workshop, Adelaide, July 2004, CRC for Aboriginal Health, Darwin. 2007.
4. Williamson AB, D'Este CA, Clapham KF, Eades SJ, Redman S, Raphael B. Psychological distress in carers of Aboriginal children in urban New South Wales: findings from SEARCH (phase one). *Med J Aust*. 2016;205:27-32.
5. Silburn SR, Blair E, Griffin JA, et al. Developmental and environmental factors supporting the health and well-being of Aboriginal adolescents. *Int J Pediatr Adolesc Med*. 2007;19:345-54.
6. Hopkins KD, Taylor CL, Zubrick SR. The differential influence of contextual risks on psychosocial functioning and participation of Australian aboriginal youth. *Am J Orthopsychiatry*. 2013;83:459-71.
7. Aburn G, Gott M, Hoare K. What is resilience? An integrative review of the empirical literature. *J. Adv. Nurs*. 2016;72(5):980-1000.

8. Lisa E, Schipper F, Langston L. *A comparative overview of resilience measurement frameworks*. Working Paper 422. London, United Kingdom: Overseas Development Institute; 2015.
9. Luthar S. Methodological and conceptual issues in research on childhood resilience. *J. Child Psychol. Psychiatry*. 1993;34:441-53.
10. McLennan, V. Family and community resilience in an Australian Indigenous Community. *Australian Indigenous Health Bulletin*. 2015;15(3):1-8.
11. Bond C, Brough M, Spurling G, Hayman N. 'It had to be my choice' Indigenous smoking cessation and negotiations of risk, resistance and resilience. *Health Risk Soc*. 2012;14:565-81.
12. Gale F, Bolzan N. Social resilience: Challenging neo-colonial thinking and practices around 'risk'. *J Youth Stud*. 2013;16:257-71.
13. Young C, Tong A, Nixon J, et al. Perspectives on childhood resilience among the Aboriginal community: an interview study. *Aust N Z J Public Health*. 2017;41(4):405-410.
14. The Study of Environment on Aboriginal Resilience and Child Health (SEARCH): study protocol. *BMC Public Health*. 2010;10:287.
15. Centre for Epidemiology and Research. 2005–2006 Report on Child Health from the New South Wales Population Health Survey. Sydney, NSW Department of Health 2008.
16. Zubrick SR, Silburn SR, Lawrence D, et al. The Western Australian Aboriginal Child Health Survey: the social and emotional wellbeing of Aboriginal children and young people. Perth: Curtin University of Technology and Telethon Institute for Child Health Research, 2005.
17. Goodman R. The extended version of the Strengths and Difficulties Questionnaire as a guide to child psychiatric caseness and consequent burden. *J Child Psychol Psychiatry*. 1999;40:791-9.

18. Silburn SR, Zubrick SR, De Maio JA, et al. The Western Australian Aboriginal Child Health Survey: Strengthening the Capacity of Aboriginal Children, Families and Communities. Perth: Curtin University of Technology and Telethon Institute for Child Health Research, 2006.
19. Zubrick SR, Silburn SR, Garton AF, Burton P, Dalby R, Carlton J, Sheperd C, Lawrence D. *Western Australian Child Health Survey: family and community health*: Australian Bureau of Statistics; 1996.
20. Rutter M. Psychosocial resilience and protective mechanisms. *Am J Orthopsychiatry*. 1987;57:316.
21. Kessler RC, Andrews G, Colpe LJ, et al. Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychol Med*. 2002;32:959-76.
22. McNamara BJ, Banks E, Gubhaju L, et al. Measuring psychological distress in older Aboriginal and Torres Strait Islanders Australians: a comparison of the K-10 and K-5. *Aust N Z J Public Health*. 2014;38:567-73.
23. Australian Bureau of Statistics. *Use of the Kessler Psychological Distress Scale in ABS health surveys*. Retrieved Feb 2017 from <http://www.abs.gov.au/ausstats/abs@.nsf/mf/4817.0.55.001>.
24. Luthar SS, Cicchetti D, Becker B. The construct of resilience: A critical evaluation and guidelines for future work. *Child Dev*. 2000;71:543-62.
25. Australian Indigenous HealthInfoNet. Summary of Aboriginal and Torres Strait Islander health, 2016. Retrieved Feb 2017 from <http://www.healthinfonet.ecu.edu.au/health-facts/summary>
26. Gubhaju L, Banks E, MacNiven R, et al. Physical functional limitations among Aboriginal and non-Aboriginal older adults: associations with socio-demographic factors and health. *PloS One*. 2015;10:e0139364.

27. Byles JE, Robinson I, Banks E, et al. Psychological distress and comorbid physical conditions: disease or disability? *Depress Anxiety*. 2014;31:524-32.
28. Andersen MJ, Williamson AB, Fernando P, Redman S, Vincent F. "There's a housing crisis going on in Sydney for Aboriginal people": focus group accounts of housing and perceived associations with health. *BMC Public Health*. 2016;16:429.
29. Peralta LR, Cinelli RL. An evaluation of an Australian Aboriginal controlled-community organization's remote sports-based programme: a qualitative investigation. *Sport in Society* 2016;19:973-89.
30. Ware, V. *Housing strategies that improve Indigenous health outcomes, Resource sheet no. 25*: AIHW & Australian Institute of Family Studies, Canberra & Melbourne. 2013.
31. Raphael B, Swan P, Martinek N. *Intergenerational aspects of trauma for Australian Aboriginal people*. International handbook of multigenerational legacies of trauma: Springer; 1998:327-39.
32. Booth, A. and Carroll, N. The Health Status of Indigenous and Non-Indigenous Australians: Discussion Paper No. 486, CAEPR. 2005. Retrieved from <http://www.anu.edu.au/caepr/>.
33. Marmot M. The status syndrome: how your social standing affects your health and life expectancy. London: Bloomsbury, 2004.
34. Calma T, Dick D. *Social determinants and the health of Indigenous peoples in Australia—A human rights based approach*. Workshop paper presented by Mr Darren Dick on behalf of Mr Tom Calma, Aboriginal and Torres Strait Islander Social Justice Commissioner; 2007.
35. Aspin C, Brown N, Jowsey T, Yen L, Leeder S. Strategic approaches to enhanced health service delivery for Aboriginal and Torres Strait Islander people with chronic illness: a qualitative study. *BMC Health Serv Res*. 2012;12:143.

36. Young C, Tong A, Gunasekera H, Sherriff S, Kalucy D, Fernando P, Craig JC. Health professional and community perspectives on reducing barriers to accessing specialist health care in metropolitan Aboriginal communities: a semi-structured interview study. *J Paediatr Child Health*. 2016;53(3):277–282.
37. Finn JD, Rock DA. Academic success among students at risk for school failure. *J Appl Psychol*. 1997;82:221.
38. Luthar SS, Zigler E. Vulnerability and competence: a review of research on resilience in childhood. *Am J Orthopsychiatry*. 1991;61:6.
39. Jorm AF, Bourchier SJ, Cvetkovski S, Stewart G. Mental health of Indigenous Australians: a review of findings from community surveys. *MJA*. 2012;196:118-21.
40. Mealing NM, Banks E, Jorm LR, Steel DG, Clements MS, Rogers KD. Investigation of relative risk estimates from studies of the same population with contrasting response rates and designs. *BMC Med Res Methodol*. 2010;10:26

**Chapter 6 – Improving the social and emotional wellbeing
of young Aboriginal people living in Australia: A
systematic review**

Intentionally left blank.

Chapter 6 – Improving the social and emotional wellbeing of young Aboriginal people living in Australia: A systematic review

Authors

Christian Young,^{1,2} Jonathan C. Craig,^{1,2} Kathleen Clapham,³ Anna Williamson⁴

Department and Institution

¹ Sydney School of Public Health, The University of Sydney

² Centre for Kidney Research, Westmead Institute for Medical Research

³ Australian Health Services Research Institute, The University of Wollongong

⁴ The Sax Institute

6.1 Chapter introduction

Chapter 5 investigated the resilience of caregivers of Aboriginal children. Aligning with the findings from Chapters 2-4, stable home environments are seen to play a role in predicting resilience in Aboriginal children *and* their caregivers. Like Aboriginal children, most caregivers met criteria for resilience. In this chapter, the focus returns to Aboriginal children, in particular, programs that aim to improve Aboriginal children's social and emotional wellbeing - an Aboriginal definition of health that also includes resilience.¹ A systematic review of evaluated social and emotional wellbeing programs is presented and the efficacy of each program is appraised.

6.1.1 Authors' contributions

CY, **JC**, **KC** and **AW** conceptualised and designed the study. **CY** conducted the search. **CY** and **AW** identified the included studies. **CY** appraised the evidence and wrote the manuscript. All authors interpreted the results and reviewed, revised and approved the final version of the manuscript.

6.2 Abstract

6.2.1 Aims

To identify evaluations of social and emotional wellbeing programs for Aboriginal young people, to describe the strategies used, and to appraise the efficacy of each program including the strength of evidence.

6.2.2 Methods

A systematic review of studies published in peer reviewed journals between 2007 and 2017 that evaluated social and emotional wellbeing programs for Aboriginal young people (4 to 25 years old) was conducted. The quality of evidence was appraised using an adapted version of the Grading of Recommendations Assessment, Development and Evaluation (GRADE) guidelines.

6.2.3 Results

Nine evaluations were identified, each reporting on a different program. Most programs included an educational component (n=7), other strategies included sports-based activities (n=4), mentoring (n=3), cultural activities (n=3), arts and musical activities (n=2), role models (n=1), counselling (n=1) and the provision of resources and social support (n=1). Most programs used more than one strategy. Six studies reported quantitative outcomes, and six studies reported qualitative outcomes, with three mixed methods designs. All studies reported an improvement in social and emotional wellbeing from pre- to post-intervention. Most studies (n=5) were rated as providing 'low' quality evidence. Small samples sizes (imprecision), the lack of a control group and lack of clarity around qualitative methodology contributed to lower quality evidence ratings. The highest quality evidence was provided by the Triple P Parenting program and a sports-based program involving Aboriginal and non-Aboriginal role models. One program that provided mentoring and one program that provided counselling were seen to produce the largest improvements in social and emotional wellbeing, though both evaluations were rated as having high risk of bias.

6.2.4 Conclusions

Promising initiatives exist to promote the social and emotional wellbeing of young Aboriginal people but confidence in the magnitude of benefit obtained is hampered by the quality of the studies. Higher quality evaluations are needed in order to develop a reliable evidence base that can support sustainable programs to improve the social and emotional wellbeing of Aboriginal young people.

6.3 Introduction

Among Aboriginal communities, the term 'social and emotional wellbeing' encapsulates a holistic concept of health that includes psychological wellbeing, cultural identity, connection to land and community, community wellbeing, and resilience.^{1,2} Threats to Aboriginal social and emotional wellbeing, such as cultural marginalisation, discrimination and the effects of socio-economic disadvantage are believed to contribute to the well-documented health gaps between Aboriginal and non-Aboriginal people.^{3,4} For example, evidence suggests that Aboriginal children and adolescents are more likely to be at high risk of emotional or behavioural problems than other children in Australia, and have higher suicide rates.⁵⁻⁹ Improving the social and emotional wellbeing of Aboriginal young people is often cited as a necessary strategy to improve Aboriginal health.^{2,10-12}

While a number of studies have measured risk and protective factors associated with social and emotional wellbeing, the evidence base that supports practical strategies to improve the wellbeing of Aboriginal young people is lacking.^{13,14} Previous reviews of social and emotional programs have largely focused on adults.^{2,13-15} Reviews that focus on young people emphasise the importance of programs that are strengths-based, holistic, community driven, sustainable, and offer culturally appropriate content that is applicable to Aboriginal people.^{16,17} However, these reviews do not appraise the quality of evidence provided by program evaluations. A better understanding of the efficacy of strategies to improve the social and emotional wellbeing of young Aboriginal people is likely to aid program development in this area. The aim of this review is to identify peer reviewed evaluations of social and emotional wellbeing programs for Aboriginal young people published between 2007 and 2017, to describe the strategies used, and to appraise the efficacy of each program, including the strength of evidence.

6.4. Methods

We followed the Preferred Reporting Items of Systematic reviews and Meta-Analyses (PRISMA) guidelines¹⁸ (see Appendix D.1).

6.4.1 Study inclusion and exclusion criteria

Peer reviewed journal articles that quantitatively or qualitatively assessed the impact of programs that aimed wholly, or in part, to improve the social and emotional wellbeing of Aboriginal young people in Australia were included. Programs included early intervention, treatment programs, programs that targeted caregivers, individual, school and community programs. Studies were included if Aboriginal young people made up at least 75% of the sample, or if a separate analysis was available for Aboriginal participants. Studies with data collected from, or referring to, young people 4 to 25 years of age were included. Social and emotional wellbeing included measures of mental health, self-esteem, resilience, cultural identity and quality of life. Outcomes relating to substance use were excluded. Studies published from April 2007 to December 2017 were included. This start date was chosen to provide an indication of the amount of social and emotional programs that have been evaluated since the formal launch of the Close the Gap campaign.¹⁹

6.4.2 Search strategy

Publications were identified through PubMed, Embase and PsycInfo databases. Field tags (e.g. 'MeSH Terms') were adapted for each data base. See Appendix D.2 for the full search strategy.

6.4.3 Data extraction

One author (CY) conducted the search and identified the studies for full text review. The title, abstract and, where necessary, the full text of each paper was read to assess eligibility. The reference lists of included papers were checked for potentially eligible studies. The final list of included studies was identified through discussion with a second author (AW). Due to the heterogeneous nature of the social and emotional outcomes, and the interventions designed to promote social and emotional wellbeing, the results

for each study are presented separately and quantitative data are not combined to generate summary effect measures. Effect sizes and measures of variability (e.g. confidence intervals) are presented where available. A summary of the results is given for studies that present qualitative data.

6.4.4 Quality assessment

Studies reporting quantitative and qualitative outcomes were assessed separately. One author (CY) rated the quality of evidence based on the following criteria.

Quantitative outcomes

Risk of bias was assessed using the Cochrane risk of bias tool for randomised trials.²⁰ An adapted version of the Newcastle Ottawa Scale (NOS)²¹ was used for non-randomised designs. The NOS categories assessed were sample size, representativeness of the sample, non-respondents, comparability, assessment of the outcome, follow-up length, attrition, and the statistical test used (Appendix D.3). NOS scores are rated out of 10. Scores of 9-10 were rated as low risk of bias, scores of 7-8 were rated as moderate risk of bias and scores ≤ 6 were rated as high risk of bias.

We adapted the Grading of Recommendations Assessment, Development and Evaluation (GRADE) criteria to assess the quality of evidence for each quantitative study.²² GRADE criteria rates the quality of evidence as being 'high', 'moderate', 'low', or 'very low'. Randomised controlled trials (RCTs) were rated as 'high', quasi-experimental designs were rated as 'moderate', all other study designs were rated as 'low'. Studies could be rated down due to moderate or high risk of bias. Studies with large effect sizes and low risk of bias could be rated up.

Qualitative outcomes

The Critical Appraisal Skills Program (CASP) tool was used to appraise qualitative studies.²³ CASP categories assess the inclusion of a clear statement of the research aims and findings; the appropriateness of using a qualitative methodology; the appropriateness of the research design, recruitment strategy, and data collection; the

relationship between researchers and participants; ethical considerations; whether rigorous analysis methods had been used; and the contribution the research makes.

Studies were rated using the CASP criteria. Qualitative studies started at 'low' quality but could be rated up if all CASP criteria was met. Using the CASP Checklist, studies that used unsystematic or unclear methods of recording, analysing and reporting data were rated down.

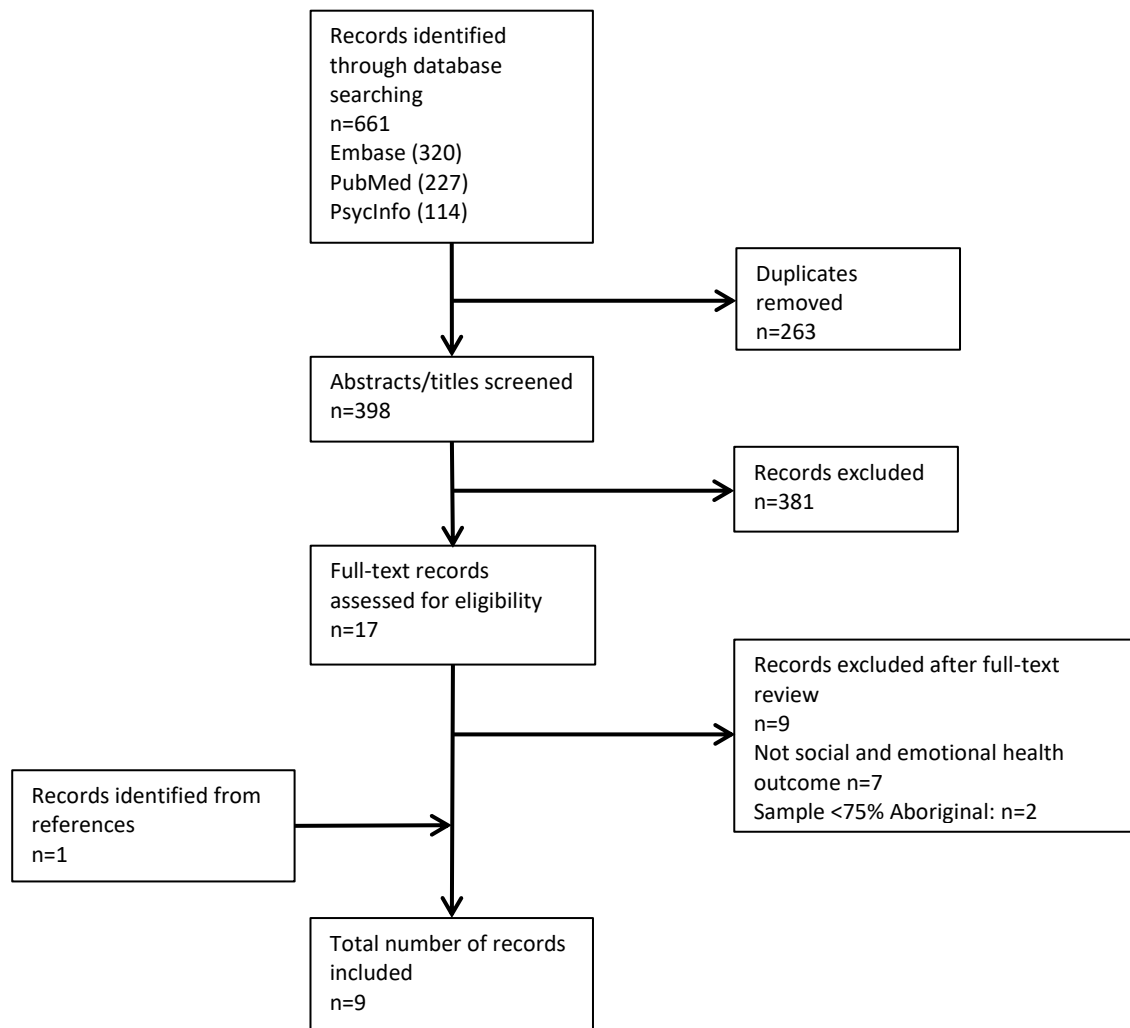
Qualitative and quantitative data that did not measure social and emotional wellbeing was not examined as part of this study.

6.5 Results

6.5.1 Search results

The search identified 661 papers, in total. Nine were included in the review. See Figure 6.1.

Figure 6.1 Search results



6.5.2 Description of studies

Studies were conducted in urban, regional and remote settings in six Australian states and territories. Most were conducted in Queensland (n=5), with one each recorded in New South Wales and South Australia. No studies were recorded from Tasmania, Canberra or Victoria. Six studies used quantitative outcomes and six studies use qualitative outcomes (three studies used mixed methods). Sample sizes ranged from 14 to 81 (quantitative), and 1 to 78 (qualitative) participants. Young people's ages ranged from 1 to 25 years. Seven studies used data collected from adults (reporting on young people's social and emotional wellbeing), five studies used data collected from young people and three studies used both.

The content of each program differed in its focus with most programs using a combination of strategies to improve social and emotional wellbeing. Three programs primarily used education-based strategies,²⁴⁻²⁶ including one program for caregivers only. In total, seven programs provided some form of education-based activity, including the promotion of cultural awareness, healthy lifestyles and choices, emotional regulation and responsibility.²⁷⁻³⁰ Four programs used sports-based activities as either the main or an auxiliary component of the program,^{26,28-30} three programs included mentoring,^{27,29,30} three programs included cultural activities,^{27,29,30} and two programs incorporated musical and artistic activities.^{29,30} Counselling,³¹ interactions with role models²⁸ and the provision of resources and social support³² were strategies used by a single study each. One study described a national program that included a range of strategies to improve social and emotional wellbeing.²⁹ All programs were developed in consultation with Aboriginal people and five studies involved the Aboriginal community in the evaluation process.^{24,27-29,32} All but one study employed at least one strengths-based outcome,³¹ see Table 6.1.

Table 6.1 Description of studies^a

First author, year	Intervention	Setting	Informants		Young people		Program strategy	Primary outcome (intervention)	SEWB outcome (evaluation)	Outcome data
			Characteristics	n	Age, n					
Turner, ²⁴ 2007	Group Triple P	Urban (QLD)	Caregivers of children at risk of severe behavioural problems	38	Mean age (intervention) 5.52 yrs, n=38		Education	Changes in self- reported parenting resources and skills	Improved child behaviour, as measured by the ECBI (intensity and problem scores) and the SDQ (total difficulties and total impact scores)	Quantitative
Chenhall, ²⁷ 2010	Youth Diversion Program	Urban (NT)	Adolescents who had engaged criminal behaviour, and camp staff	15 ^b	14-19 yrs, n=15		Education; cultural activities; mentorship	Reduced reoffending and risky behaviours	Quantitative: changes in quality of life, as measured by the SEIQoL. Qualitative: impact of the SEIQoL- DW tool	Quantitative and qualitative
Thorpe, ³² 2013	Communities for Children (CfC)	Remote (QLD)	Family members, school staff, CfC staff	24	4-12 yrs, n=14- 29		Resources; social support	Increased school attendance	Changes in social connectedness and social capital. Changes in depression (CDI, BDI), anxiety (BAI), internalising and externalising behaviour (CBCL), and trauma (TSCC)	Qualitative
Kemp, ³¹ 2014	Equine Facilitated Therapy	Urban (QLD)	Children and adolescents who had suffered abuse	30	8-17 yrs, n=30		Counselling	Reduced psychopathology		Quantitative
Malseed, ²⁶ 2014	Deadly Choices	Urban (QLD)	School students	81	11-18 yrs, n=81		Education; sporting activities	Increased healthier choices	Changes in leadership confidence (bespoke measure)	Quantitative

Mathiasen, ²⁵ 2014	Hospital Familiarization Program	Remote (WA)	School principal	1	5-16 yrs, n=150	Education	Improved health and wellbeing. Greater familiarity with health services	Changes in social and emotional wellbeing	Qualitative
Blignault, ²⁹ 2016	SAM Our Way	"Accessible" through "very remote" (NT, QLD, SA, WA)	Red Cross staff members, other health professionals and community members	78	Indigenous youth in 14 communities	Education; arts, sports and musical activities; mentorship	Improved social and emotional wellbeing	Changes in social and emotional wellbeing	Qualitative
Peralta, ²⁸ 2016	Sports-based program	Remote (NT)	Community members, school and program staff, government engagement officers, school students	24	8-18 yrs, n=undisclosed	Education; sporting activities; role models	Improved health and wellbeing	Changes in social and cultural wellbeing	Qualitative
Whiteside, ³⁰ 2016	Family Wellbeing Empowerment Program	Urban/ regional (NSW)	Program managers and facilitators, steer group members and at- risk young men	41	16-25 yrs, n=30	Education; sporting, cultural and musical activities; mentorship	Greater control and responsibility for health and social and emotional wellbeing	Quantitative: changes in psychological distress (K5), 9 post- program progress items. Qualitative: improved mental health and relationship outcomes	Quantitative and qualitative

BAI Beck Anxiety Intervention;³³ BDI Beck Depression Inventory;³⁴ CBCL Child Behaviour Checklist;³⁵ CDI Children's Depression Inventory;³⁶ CfC Communities for Children;³⁷ ECBI Eyeberg Child Behaviour Inventory;³⁸ K5 Kessler Psychological Distress Scale (5 item);³⁹ SDQ Strengths and Difficulties Questionnaire;⁴⁰ SEIQoL-DW Schedule for Individual Quality of Life;⁴¹ TSCC Trauma Symptom Checklist⁴²

Australian states: NSW New South Wales; NT Northern Territory; QLD Queensland; SA South Australia; WA Western Australia

^aSee results for a more detailed description of programs. ^bNumber of staff members not reported.

6.5.3 *Quality assessment*

Quantitative outcomes (Table 6.2)

Of the studies that assessed quantitative outcomes, one randomised controlled trial (RCT) was conducted,²⁴ two studies used a quasi-experimental design^{26,31} and three used before/after designs.^{27,30,32} Social and emotional wellbeing outcomes included quality of life, the number and strength of children's friendships, internalising and externalising behaviours, depression, anxiety, trauma, psychological distress and leadership confidence. One study did not use a validated measure of social and emotional wellbeing,²⁶ all other studies used measures previously validated with non-Aboriginal populations. Two studies used a culturally validated tool as part of a battery of assessments.^{24,30} The quality of evidence was rated 'very low' to 'moderate'. Four studies were rated down for having small, unrepresentative samples,^{27,30-32} two studies did not report *p* values or confidence intervals^{27,32} and three studies reported high attrition (>20%).^{26,30,32} All studies used self-report or caregiver reported outcomes.

Qualitative outcomes (Table 6.3)

Qualitative outcomes included social and emotional wellbeing, quality of life and social connectedness. The quality of evidence was rated 'very low' to 'moderate'. One study met all CASP criteria²⁸ and was rated up, two studies were rated down due to unclear data collection or analysis methods, and descriptive reporting.^{25,27} The remaining three studies used systematic data collection and analysis methods, but did not provide information regarding the relationship between researchers and participants, and two did not present sufficient data to support the social and emotional findings.^{29,30} CASP criteria for each study is available in Appendix D.4.

Studies that reported both quantitative and qualitative outcomes are presented in both Tables 6.2 and 6.3.

Table 6.2 Assessment of quantitative outcomes

First author, year	Design	Comparison	Intervention	Outcome	Quality of evidence
Turner, 2007	RCT	Waitlist control group	Eight training sessions (30min-2.5 hours) involving 17 core child management strategies.	Reduction in ECBI intensity scores: Intervention, 25.9 $d=.75$; Control, -.56 $d=-.02$. Reduction in ECBI problem scores: Intervention, 5.32 $d=.62$; Control, 2.99 $d=.34$. Change in SDQ total difficulties scores: Intervention, 2.83 $d=.43$; Control, 1.41 $d= .26$. Only the intervention group showed a significant reduction in ECBI and SDQ scores pre to post intervention. The reduction in ECBI scores was maintained at 6 month follow-up.	Moderate. Rated down due to lack of blinding.
Chenhall, 2010	Before/after	Within group pre-intervention scores	9 day camps designed to reduce recidivism, build self-esteem, and identify and explore important priorities for youth through cultural activities and mentorship.	SEIQoL-DW scores increased from 70.3 to 82.6 (range 0-100). No measure of variability was recorded.	Very low. Rated down due to high RoB: small sample size, unrepresentative sample, no control group, no reporting of p values or confidence intervals. NOS score 4/10.
Kemp, 2014	Quasi-experimental	Within group change scores between T1 (intake) and T2 (pre-intervention)	9-10 90 min EFT sessions designed to teach horsemanship skills, develop a therapeutic alliance between the practitioner and the participant, and to relieve psychological trauma in children who have been abused.	Reduction in CDI scores: Intervention, 11.27 $d=.705$; Control .13. Reduction in CBCL scores: Intervention, 7.93 $d=.646$; Control 1.6. Reduction in BDI scores: Intervention, 14.9 $d=.784$; Control 2.7. Reduction in BAI scores: Intervention, 16.8 $d=.798$; Control 1.6 All TSCC subscales in the intervention group were significantly lower (effect sizes: .818-.905).	Low. Rated down due to moderate RoB: small sample size, unrepresentative sample. NOS score 7/10.

Malseed, 2014	Quasi-experimental	Waitlist control group	Seven weekly 90 min programs combining educational and physical activity. Educational components were, leadership, chronic disease, physical activity, nutrition, harmful substances and health services.	Increase in leadership confidence: Intervention, .067 (95%CI: -.44 to .58, $p=.80$); Control, .48 (95%CI: .25 to .72, $p<.001$). The difference between intervention and control group change scores was not significant (.42, 95%CI: -.07 to .93, $p=.09$).	Low. Rated down due to moderate RoB: no information on non-responders, attrition, NOS score 7/10.
Whiteside, 2016	Before/after, observational	Within group pre-intervention scores	Four groups run consecutively over 10 weeks. Physical and cultural activities including playing sports, writing and performing music, and mentorship.	Reduction in psychological distress (K5 total score): .73 $d=1.02$ ($p=.003$). 55% of the participants believed they had made major improvements in their mental health, relationships (75%), and dealing with emotions (65%).	Very low. Rated down due to high RoB: small sample size, unrepresentative sample, no control group, high attrition. NOS score 3/10.
BAI Beck Anxiety Intervention; ³³ BDI Beck Depression Inventory; ³⁴ CBCL Child Behaviour Checklist; ³⁵ CDI Children's Depression Inventory; ³⁶ ECBI Eyeberg Child Behaviour Inventory; ³⁸ EFT Equine Facilitated Therapy; K5 Kessler Psychological Distress Scale (5 item); ³⁹ RCT Randomised Controlled Trial; RoB Risk of bias; SDQ Strengths and Difficulties Questionnaire; ⁴⁰ SEIQoL-DW Schedule for Individual Quality of Life ⁴¹					

Table 6.3 Assessment of qualitative outcomes

First author, year	Design	Comparison	Intervention	Outcome	Quality of evidence
Chenhall, 2010	Unstructured interviews, descriptive analysis	Perceived pre-intervention social and emotional wellbeing	Camps designed to reduce recidivism, build self-esteem, and identify and explore new important possibilities for youth through cultural activities and mentorship.	The QoL tool was thought to give youths the capacity to aspire to new life categories and opportunities. This enabled mentors to explore the relevant life domains with the participants and identify strategies to make positive changes.	Very low. Unstructured interviews, unclear analysis, unclear relationship between researchers and participants, descriptive reporting.
Thorpe, 2013	Semi-structured interviews, thematic analysis	Aboriginal and non-Aboriginal control groups, perceived pre-intervention social and emotional wellbeing	Provision of materials and resources to support school attendance (e.g. food, school uniforms, transport).	Teachers believed the intervention increased children's social bonding within the intervention group and promoted stronger relationships with other Aboriginal and non-Aboriginal children. This, in turn, was believed to build children's sense of belonging within the school environment.	Low. Unclear relationship between researchers and participants.
Mathiasen, 2014	Author's observations, descriptive analysis	Perceived pre-intervention social and emotional wellbeing	Lessons involving the biology of emotions, anger management and the interplay between emotions and behaviour.	Students were believed to be more confident, less aggressive and have learnt "self-talk" behaviours that allowed them to make better decisions.	Very low. Data based on a single author's observations, unclear analysis, descriptive reporting.
Blignault, 2016	Semi-structured interviews and focus groups, thematic analysis	Perceived pre-intervention social and emotional wellbeing	Diverse implementation and activities tailored to community needs, including art, music, sports, camps and multifaceted events aimed to improve SEWB, and stakeholder engagement in youth mental health.	Participants were perceived to have gained more self-esteem, confidence, and better coping skills. Young Aboriginal staff members who participated in running the program also noted that they had gained confidence.	Low. Insufficient data to support social and emotional findings.

Peralta, 2016	Semi-structured interviews and focus groups, thematic analysis	Perceived pre-intervention social and emotional wellbeing	Program coordinators worked with classroom teachers to present physical education, sport and health-based lessons. Sporting sessions were given in after school hours.	Community members believed the program developed self-esteem as well as enhancing community well-being and pride. Children's exposure to positive role models was thought to promote a greater awareness of their own potential.	Moderate.
Whiteside, 2016	Semi-structured interviews, descriptive analysis	Perceived pre-intervention social and emotional wellbeing	Four groups run consecutively over 10 weeks. Physical and cultural activities including playing sports, writing and performing music, and mentorship.	Participants believed they had developed new coping skills including more control over their emotions as a result of the program.	Low. Insufficient data to support social and emotional findings, unclear relationship between researchers and participants.
CASP Critical Appraisal Skills program; ²³ QoL Quality of Life; SEWB Social and Emotional Wellbeing					

All the programs reported an improvement in Aboriginal young people's social and emotional wellbeing post-intervention. Of the studies that used a control group, one program involving weekly health education sessions for young people did not report a significantly higher improvement in social and emotional wellbeing relative to controls.²⁶ Two studies, one quantitative and one qualitative were rated as having 'moderate' quality evidence, the highest rating given in this review. These programs included the Triple P program and a sports-based program run by an Aboriginal community controlled organisation. Two further programs, the Family Wellbeing Program and the Equine Facilitated Therapy program recorded large effect sizes (Cohen's $d > .8$) however the quality of evidence provided by both these studies was rated down due to moderate or high risk of bias. The studies are described below.

6.5.4 Study summaries

Turner et al. (2007)

The Triple P program consisted of eight educational training sessions (.5 to 2.5 hours) for caregivers of Aboriginal children that focused on child management strategies. This version of the Triple P program was the first to be specifically tailored for Aboriginal families and, as such, involved Aboriginal people as facilitators and included a separate evaluation of cultural appropriateness. Participation in the program was associated with a reduction in the number and frequency of children's disruptive behaviours (as measured by the Eyberg Child Behaviour Inventory, effect sizes: $d=.62$ to $.75$) and emotional and behaviour problems (as measured by the Strengths and Difficulties Questionnaire, effect size: $d=.43$). Participation was also associated with a reduction in some dysfunctional parenting techniques (e.g. overly long reprimands). Improvements in children's behaviour and parenting practices were maintained at six-month follow-up, though only children's behaviour, as measured by the Eyberg Child Behaviour Inventory, and parenting 'laxness' were seen to significantly improve from pre-intervention to six-month follow-up. The small sample size may have prevented other improvements from being statistically significant. Anecdotally, the authors noted that some caregivers, who were reluctant to attend mainstream services, did so after completing this program,

indicating that the program removed some barriers Aboriginal families can face when seeking health services.^{43,44}

Chenhall et al. (2010)

This evaluation assessed the impact of a camp designed to reduce risky behaviour and reoffending in a group of at-risk Aboriginal youths (Youth Diversion Program). The ability of the Schedule for Individual Quality of life (SEIQoL-DW) tool to help children to identify culturally specific quality of life domains was also assessed. Children attended nine-day camps where they participated in traditional cultural activities that were designed to build self-esteem, and spent time with mentors. Quality of life scores were seen to improve post-intervention (pre: 70.3, post: 82.6, range 0-100). Post-intervention, participants described a greater awareness of their own potential, and of aspects of their life that were important to them.

Thorpe et al. (2013)

This program, embedded within the Communities for Children initiative,³⁷ sought to enhance the social connectedness and social capital of non-attending school children by providing resources (e.g. school uniforms, transportation) and social support that would encourage regular school attendance. The treatment group, who were living in a remote Queensland community, were compared against Aboriginal and non-Aboriginal children who regularly attended the same school and who were living within an integrated town community. Semi-structured interviews with family members, school staff and program coordinators, and quantitative data measuring children's friendships revealed that children in the intervention group were seen to expand their friendships beyond their social group over a two-year period. These children were also observed to have developed greater social connectedness than other Aboriginal children who lived in town, over the period of the study.

Kemp et al. (2014)

The Equine Facilitated Program involved Aboriginal (n=8) and non-Aboriginal children (n=22) who had been sexually abused and included 9 to 10 90-minute sessions in which participants learnt basic horsemanship skills with the aid of a therapeutic team.

Interactions with the horses were believed to aid the therapeutic process, facilitating an alliance between counsellors and children in order to address issues such as trust, boundaries and communication. Participation in the program was associated with reduced internalising and externalising behaviour as measured by the Beck Anxiety Intervention, the Beck Depression Inventory, the Child Behaviour Checklist, the Children's Depression Inventory and the Trauma Symptom Checklist (effect sizes: $d=.65$ to $.91$). Despite the sample consisting of $\leq 75\%$ Aboriginal young people, this study was included as no statistical differences were found in efficacy between the Aboriginal and non-Aboriginal children on any measure. The quality of evidence was rated down due to the small sample size ($n=30$), and the unrepresentativeness of the Aboriginal sample.

Malseed et al. (2014)

The Deadly Choices program aimed to empower young people (11 to 18 years old) to make healthier choices through seven 90-minute education modules covering topics such as leadership, physical activity, harmful substances, and nutrition. Participation in the program was seen to improve children's leadership confidence, however, this change was not significantly different to that observed in the control group (between group change: 0.42, 95% CI: $-.07$ to 0.93).

Mathiasen (2014)

This study evaluated a social and emotional wellbeing program that aimed to increase student's self-esteem, self-concept and respect for others. Students attending a small school in remote Western Australia were given lessons involving emotional regulation which incorporated hands-on activities, role-playing and cartoon vignettes. Over the course of the program, children's confidence, emotional regulation and socialisation skills were seen to improve.

Blignault et al. (2016)

The SAM Our Way program⁴⁵ constitutes a national program incorporating a range of activities and educational initiatives that seek to support the social and emotional wellbeing of Aboriginal young people and their families. Strategies included sporting, cultural, music and art-based activities, and the availability of mentors and role models,

but were also flexible with different sites responsible for tailoring the length and focus of each program to their community's needs. Outcomes included strengthened relationships, connection to culture, developing leadership skills and building resilience to stressful life events. Participants (program managers, participants and their parents, and community members) believed these programs improved self-esteem, confidence and coping skills in Aboriginal children. Aboriginal young people who were involved in running the SAM Our Way program also noted increased confidence as a result of their participation.

Peralta & Cineli (2016)

This sports-based program involving Aboriginal and non-Aboriginal role models conducted in remote communities in the Northern Territory was believed to improve self-esteem and promote community wellbeing. Participants also felt that the role models promoted children's awareness of their own potential by showing them a "larger world". The program included physical education and health-based lessons that were given at school in conjunction with teachers, and during after-school sports activities. The authors of the study believed this to be the first evaluation of a sports-based program that was designed and run by an Aboriginal and Torres Strait Islander organisation.

Whiteside et al. (2016)

The Family Wellbeing Program involved an education and mentorship program tailored for young men at-risk of self-harm. The program incorporated sporting and musical activities, enabled access to educational and vocational services, and allowed young people to be active participants in the delivery of the program. The aim was to increase participant's responsibility surrounding personal health, relationships and emotional wellbeing. Comparisons between pre and post-intervention assessments revealed reduced psychological distress scores, as measured by the Kessler Psychological 5-item distress scale (K5), by .73 points ($d=1.02$). However, the small sample size (13 participants completed a pre and post-intervention K5 assessment), lack of a separate control group, and high attrition (33%) reduced the quality of evidence.

6.6 Discussion

This review identified evaluated social and emotional wellbeing programs for Aboriginal young people, described the strategies used, and appraised the efficacy of each program, including the strength of evidence. Of the nine evaluated programs identified, all reported an improvement in social and emotional wellbeing. While the majority of studies were rated as having low quality evidence, primarily due to less than optimal research designs and moderate to high risk of bias, we note that Aboriginal social and emotional wellbeing research, and in particular, related intervention research, is in its infancy, and thus the presence of large studies with optimal research designs are rare at this early stage.

The programs incorporated various methods to improve social and emotional wellbeing. The most common included education-based strategies, sports-based activities and the provision of mentors and cultural activities. Aligning with these results, a recent qualitative study found that Aboriginal health professionals and community members believed that more programs of this type could help to build resilience in young Aboriginal people.⁴⁶

Reflecting the multi-dimensional nature of social and emotional wellbeing, most programs incorporated more than one strategy. A positive finding from this review is that all studies reported Aboriginal community involvement in the development or implementation of each program. Given a history of research that is conducted 'on', rather than 'with' Aboriginal communities,^{47,48} the involvement of Aboriginal communities in the design and implementation of social and emotional wellbeing research is promising. Similarly, we note that all but one study³¹ employed at least one strengths-based outcome, in accordance with recommendations for more strengths-based Aboriginal social and emotional wellbeing programs and evaluations.¹⁶

The small number of studies identified, and the heterogeneous methods used to improve and measure social and emotional wellbeing, limits our ability to identify which strategies were the most effective. The highest quality evidence suggests that culturally appropriate parenting programs, and sports-based programs that involve role models are likely to improve young Aboriginal people's social and emotional wellbeing. The

efficacy of a mentoring program for at-risk young men (combined with sports, cultural and musical activities) and equine therapy for abused children was supported by large improvements in social and emotional wellbeing, post-intervention. However, both these studies were rated as having moderate or high risk of bias.

A history of cultural marginalisation has resulted in ongoing social inequalities between Aboriginal and non-Aboriginal people that are believed to significantly impact the wellbeing of Aboriginal families.^{4,49} Further, caregivers of Aboriginal children are known to face a greater number of stressors, the presence of which is associated with more emotional and behavioural problems in children.⁵⁰ Given the strong influence caregivers have on their children's emotional health and development,⁵¹ providing culturally appropriate parenting practices for caregivers may be an achievable strategy to improve the social and emotional wellbeing of children *and* their families. This finding accords with both qualitative and quantitative research the emphasises the importance of family functioning and parenting quality as crucial factors to promote good social and emotional wellbeing and resilience.^{16,46,52}

For Aboriginal young people, mentoring programs have been recommended by the Australian Government in order to reduce risk and improve social and emotional wellbeing.⁵³ However, aligning with findings from this review, the literature surrounding the efficacies of different mentoring strategies for Aboriginal young people is lacking⁵⁴ and further longitudinal research involving mentoring programs has been called for.⁵³ Qualitative research has highlighted the importance of mentorship for good social and emotional wellbeing among Aboriginal children.^{53,55} This research highlights the importance of engaging community members, including Aboriginal Elders, in the provision of mentoring for younger Aboriginal children. Taken together, more social and emotional wellbeing initiatives that include Aboriginal community members who can provide positive role models for children are recommended.

The inclusion of sports-based activities in social and emotional wellbeing programs reflects longstanding attitudes towards sport as an effective vehicle for improving health and educational outcomes in Aboriginal communities.⁵⁶ While there is evidence that such programs can have positive health benefits when Aboriginal communities are

involved in the design and the implementation of the program, some sports programs have received criticism for having limited, or no Aboriginal representation.⁵⁷ Given the success of sporting programs seen here and, in particular, the study by Peralta and Cinelli²⁸ that evaluated a sports program wholly designed and implemented by an Aboriginal controlled organisation, the findings support the importance of Aboriginal-led sporting programs.

Programs that can involve children in their culture, instilling greater knowledge and a deeper connection with their cultural heritage are thought to be crucial for young Aboriginal people's social and emotional wellbeing.^{16,17} Six programs did not include cultural activities, for the most part, social and emotional wellbeing was not considered a primary outcome in these programs,^{24-26,32} or the program included a mostly non-Aboriginal sample.³¹ There is a rich qualitative literature that connects Aboriginal people's culture and connection with Country with health and wellbeing.⁵⁸⁻⁶⁰ Given this association, incorporating Aboriginal cultural learning, and/or time on Country, in any program that involves Aboriginal young people's health and wellbeing is likely to bolster social and emotional wellbeing outcomes.

While the small number of evaluated programs published in the peer reviewed literature is concerning, especially given the disproportionate burden of social and emotional wellbeing problems that Aboriginal young people experience,⁶¹ the number and type of studies is indicative of a promising, but nascent area of Aboriginal health research.^{16,62,63} Further, it should be noted that there are a number of programs available to Aboriginal children that seek to improve social and emotional wellbeing that have not been formally evaluated.¹⁶ Given that an early evidence base for social and emotional wellbeing programs is still being established through small pilot studies, including those identified here, large scale studies with rigorous designs are unlikely to be funded at this stage. Additionally, evaluative social and emotional wellbeing research depends upon building strong research partnerships with Aboriginal communities that are likely to take time to establish. Further, it is not always feasible or ethical to randomise individual participants to treatment or control groups, particularly in Aboriginal communities who experience higher health burdens. Taken together, the number and type of evaluations

are reflective of the challenges that are inherent in Aboriginal social and emotional wellbeing research, and the infancy of this work.

For policy makers and health professionals, the lack of high-quality evidence for improving social and emotional wellbeing in Aboriginal communities represents a barrier to efforts to close the gap. Furthermore, without a greater number of high quality program evaluations to guide work in this area, the expenditure involved with designing and implementing untested initiatives may not lead to improvements in wellbeing, wasting resources and potentially harming the Aboriginal community.⁶³ In order to address this issue, program designers and funders may wish to give greater consideration to the inclusion of evaluation methods at early stages of the program development. This should involve consultation with the Aboriginal community early and often to ensure the validity and cultural appropriateness of the evaluation. Additionally, given the widespread inequalities between Aboriginal and non-Aboriginal people, large-scale initiatives that target families or communities may have a greater impact than programs that are more individualistic in focus. This review highlights a number of promising strategies that may be possible to scale up to in order to provide effective social and emotional wellbeing programs with greater scope. Further, the strong desire for, and evidence supporting community initiatives that apply principles of Aboriginal knowledge and involvement provides an opportunity for policy makers to target education, health and employment gaps by committing more funds towards the education and training of the Aboriginal healthcare workforce. Such investment has been named as a key priority for NSW Health and has been shown to be successful at training and retaining workers.⁶⁴ Healthcare programs could be expanded to incorporate more social and emotional wellbeing outcomes by providing greater funding to train Aboriginal community members to advise or deliver youth programs as role-models and leaders in their community.

Due to time constraints, the search strategy did not include programs published in the grey literature. This is a limitation as many reports on Aboriginal programs, including program evaluations, are commissioned by government or non-government health agencies and may not be published in the peer reviewed literature. It is therefore likely that a significant proportion of the existing evaluations were not identified. While this is

a limitation of this paper, it is also a potential issue in the way that Aboriginal health data is disseminated. Given that many health professionals and researchers access Aboriginal data via peer reviewed articles, important information about children's social and emotional wellbeing may be missed, impeding the formation of an evidence base from which new strategies may be designed and implemented. Further, aiming to publish evaluative research in peer-reviewed journals helps to ensure a high standard of reporting and research design. We acknowledge that, given the relative infancy of Aboriginal social and emotional wellbeing research, the GRADE guidelines may have limited relevance in this space, particularly when adapted for qualitative studies. We note that the relatively short time frame (2007 to 2017) limits the number of studies identified. A further limitation is that our inclusion criteria did not take into account some aspects of social and emotional wellbeing, including drug and alcohol use.

Despite a greater prevalence of mental health concerns in the Aboriginal population, services that aim to improve the social and emotional wellbeing of young Aboriginal people are often perceived to be lacking.¹⁴ A number of promising initiatives have been developed, including culturally appropriate parenting, mentoring and sports-based programs. However, the small number of evaluated programs identified, and the low quality of evidence provided prevents a more thorough understanding of what works to improve the wellbeing of young Aboriginal people. Greater commitment from funding bodies and policy makers has the capacity to implement more rigorous evaluations and to build an evidence base that can to drive effective social and emotional wellbeing programs, improving the lives of Aboriginal young people, and helping to close the gap.

6.7 References

1. Victoria State Government Department of Health and human Services. *Balit Murrup Aboriginal social and emotional wellbeing framework 2017–2027*. Melbourne. Victorian Government. 2017
2. Garvey D. A review of the social and emotional wellbeing of Indigenous Australian peoples. Australian Indigenous HealthInfoNet. 2008.

3. Dudgeon P, Walker R, Scrine C et al. Effective strategies to strengthen the mental health and wellbeing of Aboriginal and Torres Strait Islander people. Issues paper no. 12. Produced for the Closing the Gap Clearinghouse. Canberra: Australian Institute of Health and Welfare & Melbourne: Australian Institute of Family Studies, 2014: 1–72.
4. Marmot M. Social determinants and the health of Indigenous Australians. *Med J Aust.* 2011;194:512-3.
5. Blair EM, Zubrick SR, Cox AH, Committee WS. The western Australian aboriginal child health survey: findings to date on adolescents. *Med J Aust.* 2005;183:433.
6. Williamson A, D'Este C, Clapham K, et al. What are the factors associated with good mental health among Aboriginal children in urban New South Wales, Australia? Phase I findings from the Study of Environment on Aboriginal Resilience and Child Health (SEARCH). *BMJ Open.* 2016;6:e011182.
7. Williamson AB, D'Este CA, Clapham KF, Eades SJ, Redman S, Raphael B. Psychological distress in carers of Aboriginal children in urban New South Wales: findings from SEARCH (phase one). *Med J Aust.* 2016;205:27-32.
8. Australian Bureau of Statistics. *Aboriginal and Torres Strait islander Suicide deaths*, Cat. No. 3309.0. Canberra: Commonwealth of Australia. 2010
9. Priest N, Baxter J, Hayes L. Social and emotional outcomes of Australian children from Indigenous and culturally and linguistically diverse backgrounds. *Aust N Z J Public Health.* 2012;36:183-90.
10. Young C, Tong A, Nixon J, et al. Perspectives on childhood resilience among the Aboriginal community: an interview study. *Aust N Z J Public Health.* 2017.
11. Young C, Hanson C, Craig JC, Clapham K, Williamson A. Psychosocial factors associated with the mental health of indigenous children living in high income countries: a systematic review. *Int J Equity Health.* 2017;16:153.
12. Fletcher FR, Shannon C, Dunbar TE. The National Health and Medical Research Council Road Map: a strategic framework for improving Aboriginal and Torres Strait Islander health through research. *Med J Aust.* 2008;188:525-6.

13. Australian Institute of Health and Welfare. *Strategies and practices for promoting the social and emotional wellbeing of Aboriginal and Torres Strait Islander people*. Resource sheet no. 19 produced for the Closing the Gap Clearinghouse. 2013.
14. Day A, Francisco A. Social and emotional wellbeing in Indigenous Australians: identifying promising interventions. *Aust N Z J Public Health*. 2013;37:350-5.
15. Farnbach S, Eades AM, Fernando JK, Gwynn JD, Glozier N, Hackett ML. The quality of Australian Indigenous primary health care research focusing on social and emotional wellbeing: a systematic review. *Public Health Res Pract*. 2017;27.
16. Haswell MR, Blignault I, Fitzpatrick S and Jackson Pulver L. *The Social and Emotional Wellbeing of Indigenous Youth: Reviewing and Extending the Evidence and Examining its Implications for Policy and Practice*. Muru Marri, UNSW Sydney. 2013.
17. Lindstedt S, Moeller-Saxone K, Black C, Herrman H, Szwarc J. Realist Review of Programs, Policies, and Interventions to Enhance the Social, Emotional, and Spiritual Well-Being of Aboriginal and Torres Strait Islander Young People Living in Out-of-Home Care. *The International Indigenous Policy Journal* 2017;8:5.
18. Moher D, Liberati A, Tetzlaff J, Altman DG, Group P. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *PLoS Med*. 2009;6:e1000097.
19. Australian HealthInfoNet. *History of Closing the Gap*. Retrieved from <http://www.healthinfonet.ecu.edu.au/closing-the-gap/key-facts/what-is-the-history-of-closing-the-gap>.
20. Higgins JP, Altman DG, Gøtzsche PC, et al. The Cochrane Collaboration's tool for assessing risk of bias in randomised trials. *BMJ*. 2011;343:d5928.
21. Wells G, Shea B, O'Connell D, Peterson J, Welch J, Loso M, et al. *The Newcastle-Ottawa Scale (NOS) for assessing the quality of nonrandomized studies in meta-analysis*. 2011. Retrieved from http://www.ohri.ca/programs/clinical_epidemiology/oxford.asp.

22. Guyatt GH, Oxman AD, Schünemann HJ, Tugwell P, Knottnerus A. GRADE guidelines: a new series of articles in the Journal of Clinical Epidemiology. *J Clin Epidemiol.* 2011;64:380-2.
23. CASP UK (2013). *Critical Appraisal Skills Programme (CASP): Making sense of evidence.* Better Value Healthcare Ltd. Retrieved from http://media.wix.com/ugd/dded87_951541699e9edc71ce66c9bac4734c69.pdf.
24. Turner KMT, Richards M, Sanders MR. Randomised clinical trial of a group parent education programme for Australian Indigenous families. *J Paediatr Child Health.* 2007;43:243-51.
25. Mathiasen L. Prevention is Better than Cure: A Hands-On, Play-Based, Innovative, Health and Well-Being Program in Remote Australia. *Children.* 2014;3:318-38.
26. Malseed C, Nelson A, Ware R. Evaluation of a school-based health education program for urban Indigenous young people in Australia. *Health.* 2014;6:587.
27. Chenhall RD, Senior K, Cole D, Cunningham T, O'Boyle C. Individual quality of life among at risk indigenous youth in Australia. *Appl Res Qual Life.* 2010;5:171-83.
28. Peralta LR, Cinelli RL. An evaluation of an Australian Aboriginal controlled-community organization's remote sports-based programme: a qualitative investigation. *Sport in Society* 2016;19:973-89.
29. Blignault I, Haswell M, Pulver LJ. The value of partnerships: lessons from a multi-site evaluation of a national social and emotional wellbeing program for Indigenous youth. *Aust N Z J Public Health.* 2016;40.
30. Whiteside M, Klieve H, Millgate N, et al. Connecting and strengthening young aboriginal men: A Family Wellbeing pilot study. *Australian Social Work* 2016;69:241-52.
31. Kemp K, Signal T, Botros H, Taylor N, Prentice K. Equine facilitated therapy with children and adolescents who have been sexually abused: A program evaluation study. *J. Child Fam. Stud.* 2014;23:558-66.

32. Thorpe K, Bell-Booth R, Staton S, Thompson C. Bonding and bridging: Transition to school and social capital formation among a community of indigenous Australian children. *Journal of Community Psychology*. 2013;41:827-43.
33. Beck AT, Steer RA. *Manual for the revised Beck Anxiety Inventory*. San Antonio, TX: Psychological Corporation. 1990.
34. Beck AT, Steer RA, Brown GK. *BDI-II: Beck depression inventory*: Pearson; 1996.
35. Achenbach TM, Edelbrock CS. *Manual for the child behavior checklist: and revised child behavior profile*: University of Vermont, Department of Psychiatry; 1983.
36. Kovacs M, Staff M. *Children's Depression Inventory 2 (CDI2)*: Multi-Health Systems, Incorporated; 2003.
37. The Smith Family. *Communities for Children*. Retrieved from <https://www.thesmithfamily.com.au/programs/community/communities-for-children>.
38. Eyberg S, Boggs SR, Reynolds LA. *Eyberg child behavior inventory*: University of Oregon Health Sciences Center Portland, Oregon; 1980.
39. Kessler RC, Andrews G, Colpe LJ, et al. Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychol. Med*. 2002;32:959-76.
40. Goodman R. The Strengths and Difficulties Questionnaire: a research note. *J. Child Psychol. Psychiatry*. 1997;38:581-6.
41. O'Boyle CA, McGee HM, Hickey A, Joyce CRB, Brown J, O'Malley K. *The schedule for the evaluation of individual quality of life. User manual*. Dublin: Department of Psychology, Royal College of Surgeons in Ireland, 1993.
42. Briere, J. *Trauma Symptoms Checklist for Children (TSCC): Professional manual*. Odessa, FL: Psychological Assessment Resources. 1996.

43. Ou L, Chen J, Garrett P, Hillman K. Ethnic and Indigenous access to early childhood healthcare services in Australia: parents' perceived unmet needs and related barriers. *Aust N Z J Public Health*. 2011;35:30-7.
44. Hayman NE, White NE, Spurling GK. Improving Indigenous patients' access to mainstream health services: the Inala experience. *Med J Aust*. 2009;190:604-6.
45. Australian HealthInfoNet. *Save-A-Mate (SAM) and SAM Our Way*. Retrived from <http://www.healthinfonet.ecu.edu.au/key-resources/programs-projects?pid=618>.
46. Young C, Tong A, Nixon J, et al. Perspectives on childhood resilience among the Aboriginal community: an interview study. *Aust N Z J Public Health*. 2017;41:405-10.
47. Thomas DP, Bainbridge R, Tsey K. Changing discourses in Aboriginal and Torres Strait Islander health research, 1914–2014. *Med J Aust*. 2014;201:S15-8.
48. Thomas D. *The beginnings of Aboriginal health research in Australia*: VicHealth Koori Health Research & Community Development Unit, Centre for the Study of Health & Society, University of Melbourne; 2000.
49. Wilkie M. Bringing them home: Report of the national inquiry into the separation of Aboriginal and Torres Strait Islander children from their families: Human Rights and Equal Opportunity Commission; 1997.
50. Zubrick S, Silburn S, Lawrence D, Mitrou F, Dalby R, Blair E. The Western Australian Aboriginal Child Health Survey: the social and emotional wellbeing of Aboriginal children and young people. Perth: Curtin University of Technology and Telethon Institute for Child Health Research, 2005. *Int J Epidemiol*. 2005;35:888-901.
51. Bowlby, J. *A secure base: Parent-child attachment and healthy human development*. New York: Basic Books. 1988.
52. Walker R, Shepherd C. *Strengthening Aboriginal family functioning: What works and why?*: Australian Institute of Family Studies; 2008.
53. Ware VA. *Mentoring programs for Indigenous youth at risk*. In: vol. 22. Canberra: Closing the Gap Clearinghouse. Australian Institute of Health and Welfare & Melbourne: Australian Institute of Family Studies. 2013.

54. Bainbridge R, Tsey K, McCalman J, Towle S. The quantity, quality and characteristics of Aboriginal and Torres Strait Islander Australian mentoring literature: a systematic review. *BMC Public Health*. 2014;14:1263.
55. Peralta L, Cinelli R, Bennie A. Mentoring as a tool to engage Aboriginal youth in remote Australian communities: a qualitative investigation of community members, mentees, teachers, and mentors' perspectives. *Mentoring & Tutoring: Partnership in Learning* 2018;26:30-49.
56. Rossi T. Expecting too much? Can Indigenous sport programmes in Australia deliver development and social outcomes? *International journal of sport policy and politics*. 2015;7:181-95.
57. Thomson A, Darcy S, Pearce S. Ganma theory and third-sector sport-development programmes for Aboriginal and Torres Strait Islander youth: Implications for sports management. *Sport Management Review*. 2010;13:313-30.
58. Priest N, Mackean T, Davis E, Briggs L, Waters E. Aboriginal perspectives of child health and wellbeing in an urban setting: Developing a conceptual framework. *Health Social Rev*. 2012;21:180-95.
59. Williamson AB, Raphael B, Redman S, Daniels J, Eades SJ, Mayers N. Emerging themes in Aboriginal child and adolescent mental health: findings from a qualitative study in Sydney, New South Wales. *Med. J. Aust*. 2010;192:603.
60. Colquhoun S, Dockery AM. *The link between Indigenous culture and wellbeing: Qualitative evidence for Australian Aboriginal peoples*. CLMR Discussion Paper Series 2012/01. Perth: Labour Market Research, Curtin Business School, Curtin University. 2012.
61. Silburn S, Glaskin B, Henry D, Drew N. *Preventing suicide among Indigenous Australians*. In N. Purdie, P. Dudgeon, & R. Walker (Eds.). *Working together: Aboriginal and Torres Strait Islander mental health and wellbeing principles and practice*. Canberra: Commonwealth of Australia. 2010.
62. Lokuge K, Thurber K, Calabria B, et al. Indigenous health program evaluation design and methods in Australia: a systematic review of the evidence. *Aust N Z J Public Health*. 2017.

63. Hudson, S. Mapping the Indigenous program and funding maze – Research Report 18. Sydney: The Centre for Independent Studies. 2016.
64. Lia B, Cashmore A, Arnemana D, Bryan-Clothierc W, McCalluma LK, Milata A. The Aboriginal Population Health Training Initiative: a NSW Health program established to strengthen the Aboriginal public health workforce. *Public Health Res Pract.* 2016;1:8-9.

Intentionally left blank.

Chapter 7 – General Discussion

Intentionally left blank.

Chapter 7 – General Discussion

7.1 Overview of research

This thesis sought to generate new knowledge about Aboriginal resilience within an urban Australian setting. The research component began with a broad scope, systematically reviewing what was known about psychosocial correlates of mental health and resilience among Indigenous children living in countries that share a history of European colonisation. This was followed by a mixed methods investigation of urban Aboriginal children's resilience, including potential methods to enhance resilience. The factors associated with resilience amongst caregivers of Aboriginal children and their exposure to stressful events were then assessed. To conclude, a systematic review of peer reviewed studies that evaluated programs designed to enhance social and emotional wellbeing among Aboriginal young people, was conducted. This research offers important insights into the adversities Aboriginal children and their caregivers experience, the factors associated with resilience within this setting, and the current state of evidence for programs that can build social and emotional wellbeing, including resilience in Aboriginal young people. Together, this thesis provides a comprehensive body of work to underpin the development of culturally appropriate policies and programs designed to enhance the resilience in Aboriginal children and their caregivers.

Specifically, the aims were:

1. Identify psychosocial factors associated with the mental health of Indigenous children who share a common history of European colonisation (Chapter 2)
2. Investigate and describe children's resilience within an urban Australian Aboriginal context, including the prevalence of resilience, factors that are associated with fostering resilience, the processes whereby resilience manifests, and potential strategies to enhance resilience (Chapters 3 and 4)
3. Investigate the prevalence of resilience and stressful life events among caregivers of Aboriginal children and identify psychosocial, health and demographic factors associated with resilience (Chapter 5)

4. Review current evidence surrounding what works to improve Aboriginal children's social and emotional wellbeing and resilience (Chapter 6)

7.2 Summary of key findings and contributions

Addressing the first aim, Chapter 2 presents the first systematic review to investigate associations between psychosocial factors and mental health outcomes in Indigenous children living in Australia, the United States (US) and Canada. Using the Grades of Recommendation Assessment, Development and Evaluation (GRADE) guidelines, the highest quality evidence supported an association between children's family cohesion and mental health. The results also reflect the positive effects of self-esteem,^{1,2} optimism,³ and supportive peer relationships^{4,5} on children's mental health, and the negative impact of substance use,^{6,7} adverse events⁸ and discrimination^{9,10} that are widely reported in child development research. Socioeconomic status and children's identification with Indigenous culture, variables often associated with mental health in non-Indigenous children^{11,12} and in qualitative studies involving Indigenous children,¹³⁻¹⁶ were both found to have inconsistent associations with mental health. While there is good evidence that low socio-economic status accounts for a significant proportion of the health gap between Aboriginal and non-Aboriginal people,¹⁷ the association between socio-economic status and health *within* Aboriginal communities has been shown to be less consistent,¹⁸ potentially due to less socio-economic variation within these communities.

There is a rich literature that documents the influence that caregivers have on their children's development and wellbeing.¹⁹⁻²² The results outlined in Chapter 2 add to this knowledge by providing evidence that strongly supports the importance of stable families, caregiver's psychological functioning and good familial relationships on Indigenous children's mental health. These results align with qualitative studies that emphasise the importance of strong family relationships for Aboriginal children's social and emotional wellbeing.^{15,23,24} Amidst growing calls for more strengths-based Indigenous health research,²⁵⁻²⁸ this review highlights the lack of strengths-based studies in Indigenous mental health research within Australia, Canada and the US. Furthermore,

the small amount of quantitative mental health research conducted in these nations does not appear commensurate with the health needs of Indigenous children.^{29,30}

Chapters 3 and 4 provide a mixed methods approach to Aboriginal resilience research. This consisted of interviews with Aboriginal health professionals and community members (Chapter 3), and a cross-sectional analysis of the SEARCH adolescent data that assessed the association between protective factors, identified from the interviews, and resilience (Chapter 4). Community members and health professionals emphasised the importance of stable, supportive family environments, social support and cultural identity for building resilience in young people. Additionally, the provision of community programs that could engage children in their culture, offer opportunities to develop self-esteem through sports or other recreational activities, and offer holistic support services for the whole family were thought necessary. Three factors were quantitatively associated with resilience: social support, family educational support, and regular strenuous exercise. Cultural knowledge and satisfaction with recreational activities were not seen to be associated with resilience in these quantitative models.

The agreement between community opinions and the quantitative findings from SEARCH adolescents provides robust data supporting the importance of social support, having a family that is engaged in children's education, and regular exercise, on urban Aboriginal children's resilience. Additionally, findings from both studies suggest that Aboriginal children display remarkable resilience during often challenging circumstances. The results accord with findings from Chapter 2 that emphasise the importance of stable and supportive families for good mental health and resilience. Participant's beliefs that resilience is developed through positive social influences and personal empowerment, align with Hopkins et al. who found that higher self-esteem and the presence of a prosocial friend was associated with resilience in a large study of Aboriginal children,³¹ and Thomas (unpublished PhD) who found that social support predicted resilience in the presence of high levels of stress.³² The protective function of family support and having someone to talk to during difficult times is reflective of the importance of Aboriginal family and community relationships and their influence on good health and wellbeing.^{14,15,33,34}

Aligning with Hopkins et al.,³¹ cultural knowledge was not seen to be associated with resilience in the quantitative study (Chapter 4), perhaps due to difficulties in measuring this complex construct quantitatively. Additionally, this study did not measure levels of adversity. It is possible that greater cultural knowledge may have offered a protective effect that is more apparent in the presence of adversity, and thus was less likely to be detected given the methodology used. Children's cultural knowledge and cultural self-concept were believed to be important components of resilience, as explained by Aboriginal health professionals and community members (Chapter 3). Given the body of qualitative work that links Indigenous cultural factors to good mental health,^{13-16,35} and the beliefs of the Aboriginal people who participated in this study, the results are interpreted as providing support for the importance of cultural factors in building resilience, despite the lack of a statistical association with cultural knowledge in Chapter 4.

The perspectives of Aboriginal people described in Chapter 3 provide an insight into the processes that may underlie childhood resilience in this setting. This included children's knowledge of positive pathways (e.g. via positive role models) and the self-belief (fostered through activities and relationships that build self-esteem) to follow these pathways in order to achieve a desired goal. Together, these factors were thought to enable children to make positive decisions that align with their goals in the presence of challenging circumstances. Such decisions were thought to be indicative of resilience. The importance of gaining a deeper understanding of resilience processes has been emphasised in the literature³⁶ and is important for policy and programs that aim to boost resilience.³⁷ Given the success of programs that raise awareness of healthier behaviours, and seek to empower Aboriginal youths,^{24,38,39} more initiatives that can do both are potentially needed, and were desired, by the Aboriginal people in SEARCH communities.

The third aim was explored using SEARCH caregiver data (Chapter 5). This study is the first to quantitatively assess the resilience of caregivers of Aboriginal children. Most caregivers displayed resilient psychological functioning despite the presence of high levels of stress, which was often related to family members' poor health. The results showed that the absence of alcohol problems in the home, children's behavioural

problems or any functional health limitation increased caregiver's likelihood of being resilient in the presence of heightened stress. While proportionally few caregivers reported experiencing these problems (7% to 16%), recent research has shown that the prevalence of each is higher in Aboriginal people than non-Aboriginal people.⁴⁰⁻⁴² Similarly, our results confirm the elevated levels of stress caregivers of Aboriginal children experience, as reported in the Western Australian Aboriginal Child Health Survey (WAACHS).⁴³ This study highlights both the resilience of caregivers, but also the detrimental *additive* effects of high levels of stress on poor health or unstable home environments. Considering the findings from Chapters 2 and 3 that emphasise the impact of caregiver's mental health on children's wellbeing and resilience, reducing any of the identified risk factors, or stress, is likely to provide mental health benefits to caregivers that may carry down to their children. Given evidence that these factors (i.e. poor physical health and alcohol problems) are largely attributed to higher order determinants of health, such as low socioeconomic status and cultural marginalisation,⁴⁴⁻⁴⁶ policy with the vision, commitment and capacity to address these issues is likely to make the most impact on caregiver's resilience and psychological wellbeing.

Addressing the fourth aim, Chapter 6 presents a systematic review of peer reviewed studies that evaluated social and emotional wellbeing programs for Aboriginal young people. Of the nine studies identified, all reported an increase in children's social and emotional wellbeing post-intervention. In agreement with the types of programs Aboriginal people nominated as likely to build resilience in children (Chapter 3), most programs used a combination of education, sports and cultural activities, and mentorship/role-modelling. Similarly, programs that aimed to raise children's awareness of their own potential and promote self-esteem reflect the views of Aboriginal participants discussed in Chapter 3, and the consistent association between self-esteem and good mental health presented in Chapter 2. While the Triple P parenting program was conducted with a small sample from one Aboriginal community, the promising results offer a potential initiative to improve resilience, given that the presence of children whose behaviour placed a large burden on the family was one factor associated with less resilience in Chapter 5. The small number of evaluation studies found in the

peer reviewed literature accords with the findings of previous reviews of Aboriginal health programs,^{47,48} including those focusing on social and emotional wellbeing.^{49,50} An appraisal of the evidence using adapted GRADE guidelines rated most studies as low quality, however, this is indicative of the nascent state of Aboriginal social and emotional wellbeing research, and of the research challenges inherent in this area.^{49,51,52} The results of this review highlight the potential of programs that are designed and implemented with Aboriginal communities, and the need to develop a more thorough evidence base to support social and emotional wellbeing in Aboriginal children.

7.3 Strengths and limitations

The strengths and limitations of this thesis are presented below. The strengths and limitations of each study are also discussed in detail in Chapters 2 to 6.

7.3.1 Strengths

This research has been undertaken as part of the SEARCH study, and therefore has involved Aboriginal people at every stage of the research process. Resilience was initially identified as a research priority through extensive consultation with the Aboriginal community. Consequently, the work presented here aligns with the research priorities of the Aboriginal communities that are SEARCH partners. Further, SEARCH is the largest cohort study of urban Aboriginal people in Australia and includes extensive data collected from Aboriginal children and their caregivers in four urban and regional centres in NSW.

This thesis contains two novel studies, a systematic review that assessed the association between psychosocial factors and mental health outcomes in Indigenous children living in high income countries (Chapter 2), and a cross-sectional assessment of resilience among caregivers of Aboriginal children (Chapter 5). Given the paucity of research investigating Aboriginal resilience, this thesis contributes knowledge to a small but growing area of research. Further, the mixed methods research adds depth to our understanding of factors that promote resilience. While mixed methods research has been used in Aboriginal adult⁵³ and adolescents³² resilience research, this the first study

to explicitly identify protective factors through qualitative research and then quantitatively test these relationships.

7.3.2 Limitations

With the exception of the evaluation data presented in Chapter 6, almost all of the data presented in this thesis is derived from cross-sectional, observational research, and no longitudinal data was used to measure resilience. This is a limitation as longitudinal studies can provide greater insights, including providing quantitative evidence for potential causal processes that drive resilience. Almost all of the data is based on self-report, which can be susceptible to bias, including socially desirable responding.^{54,55} While the amount of literature investigating resilience is steadily growing, literature searches undertaken before writing the reviews presented in Chapters 2 and 6 revealed a very small amount of published resilience research that would have been eligible for inclusion given the criteria employed in either chapter. A decision was taken that the small amount of resilience research identified which met study criteria did not constitute a sufficient amount from which to glean reliable learnings. Therefore, it was decided that the focus of the systematic reviews would not be resilience itself, but rather mental health outcomes and resilience (Chapter 2), and social and emotional wellbeing (Chapter 6), which is known to be closely related to resilience. While SEARCH provides comprehensive data from four ACCHSs in NSW, this data may not be representative of the broader urban Aboriginal population, and the results may not extrapolate to Aboriginal people from other areas.

It is also important to note that in this thesis positive adaptation is generally assessed through the broad domains of good mental health and behaviour. However, positive adaptation may be measured using outcomes from a number of alternative domains, such as education, employment, socioeconomic status and physical health. Thus, it is possible that the protective factors discussed in this thesis may not promote resilience in other domains. Similarly, Aboriginal people who did not display resilience in this study may also display resilience in other areas that are important to Aboriginal communities. For example, previous research has shown that, for caregivers of Aboriginal children, the strength of children's relationships within the immediate and wider family may be a

more valued indicator of wellbeing than the strength of their peer relationships.⁵⁶ For children, at least, the perspectives of Aboriginal community members regarding resilient outcomes appeared to closely match the domains that were measured in this thesis.

The methods used to measure resilience in Chapter 5 contain a number of limitations that warrant further discussion here. To begin, adversity was measured using a cumulative count of fourteen common stressors that caregivers may have been exposed to in the previous 12 months. Participants who had experienced three or more stressful events were considered to have faced significant adversity. This may introduce error as the impact of each of the stressors is equalised, and therefore an additive effect is assumed. This assumption ignores the timing of events, and the interactive nature of concomitant stressors. Further, given the limited nature of the stressful life events scale, other, potentially more stressful events, may not have been captured. These limitations increase the likelihood of classification errors. As previously noted, the measurement of individual levels of adversity is a challenge inherent in resilience research. The methods used in Chapter 5 were based on previous research that found three or more stressful life events within the past 12 months was related to a number of psychological and social problems.⁵⁷ While classification errors may have occurred, it is likely that participants who experience three or more stressful events were exposed to adversity that increased their risk of psychological distress, and thus the absence of distress in this context is indicative of resilience. This assumption is supported by the results of the interaction models which showed that the number of stressful events was associated with higher psychological distress irrespective of resilience status.

The measure of positive adaption used in this study involved the absence of psychological distress, as assessed by the Kessler Psychological Distress Scale (K10). This provides a limited measure of positive adaption that may exclude other domains of social and emotional wellbeing that are important to Aboriginal people. Thus, it is possible that the resilience status of some Aboriginal people may have been misclassified, according to the methods used in Chapter 5. While the risk of misclassification is undesirable, the misclassification error almost always results in bias results towards the null⁵⁸ and therefore the measures of association (odds ratios) are likely to underestimate the association between independent variables and resilience. For this

reason, it is unlikely that misclassification error within this study would have greatly altered the conclusions.

7.4 Implications for policy and practice

As has been discussed in this thesis and in the wider literature, Aboriginal people are known to face heightened levels of adversity.^{44,59} The findings suggest that in the presence of adversity, Aboriginal children, adolescents and their caregivers are remarkably resilient. However, longstanding disparities between Aboriginal and non-Aboriginal health outcomes indicate that, even with the resilience of Aboriginal people, a more concerted focus and commitment from the Australian Government is required to reduce the unequal risks Aboriginal people are exposed to. For Aboriginal children and their caregivers, the risks identified in this research are associated with historical and ongoing inequalities between Aboriginal and non-Aboriginal people, such as socio-economic disparities and the disempowerment of Aboriginal people through cultural marginalisation and discrimination.⁴⁴ For Aboriginal communities, the historical and contemporary effects of racism and discrimination are seen to impact mental health directly,⁶⁰ and also through socio-economic factors such as poor housing and unemployment,⁶¹⁻⁶³ and related social problems such as substance abuse and domestic violence.⁶⁴ While family programs developed for Aboriginal children and their caregivers may be able to mitigate some of these risks, without addressing the widespread inequalities Aboriginal people face, the benefits of such programs are likely to be limited. Enabling equal access to the social determinants of health is likely to have the largest impact on Aboriginal wellbeing and resilience, and is the principle recommendation that this thesis offers.

Policies that can enhance the resilience of Aboriginal families can also help safeguard Aboriginal families against unequal risk exposure. The results of this study offer three further suggestions for policy makers and health professionals in order to build resilience in Aboriginal families. These are:

- More culturally appropriate initiatives that can support strong, cohesive and stable Aboriginal families

- More youth activities aimed at building resilience
- More rigorous evaluations of the policies and programs implemented in order to build a strong evidence base to drive change

7.4.1 *More initiatives that can support Aboriginal families*

For both Aboriginal children and their caregivers, the central message from this thesis is that stable, cohesive families build resilience. As has been presented in the results, and in the extant literature, Aboriginal families face disproportionate amounts of stress.^{64,65} The historical removal of Aboriginal children from their families,^{53,66} current-day rates of child removal that are seven times higher for Aboriginal families,⁶⁷ discrimination,^{45,68} socio-economic pressures,^{69,70} and unacceptable gaps in health and life expectancy,⁷¹ amount to serious risks to family stability that can prevent nurturing environments from which children can develop resilience.

A number of programs have been implemented to support Aboriginal families living in urban areas, including the family wellbeing and parenting programs discussed in Chapter 6.^{72,73} In New South Wales, the Department of Family and Community Services (FACS) provides programs for Aboriginal families such as the Aboriginal Child, Youth and Family Strategy,⁷⁴ and other population-based programs such as the Brighter Futures program,⁷⁵ and the Child Youth and Family Support (CYFS) program.⁷⁶ These programs offer a combination of support strategies for caregivers, including family workers who can refer caregivers to additional health services, parenting programs and playgroups for young children. Additionally, a number of other smaller Aboriginal-specific programs have been developed.⁷⁷

While the presence of such programs is encouraging, the higher prevalence of problems that affect Aboriginal families, including mental health issues, substance abuse and children's disruptive behaviour suggests more needs to be done to support caregivers and their children.⁷⁸ Initiatives such as the Child Youth and Family Support and the Brighter Futures program provide some assistance, but are designed for children who "fall below the threshold for statutory child protection intervention"⁷⁶ or are at "high risk of entering or escalating within the statutory child protection system".⁷⁵ The availability of more services that can prevent families from reaching crisis points where

Aboriginal children are at risk of requiring child protective services is warranted. Further, Aboriginal families are known to face a number of barriers that can reduce health service use.^{79,80} These include the lack of culturally appropriate services, lack of transportation, communication difficulties and a sense of shame associated with seeking help for health problems.⁸¹⁻⁸³ While culturally appropriate programs such as those offered through local ACCHSs are available in some areas,⁸⁴ these programs face challenges, including the lack of adequate and long-term funding.⁸⁵ Providing sustainable, continuous, accessible and Aboriginal-led programs is likely to promote services with the power to reach Aboriginal families that most require them.

Given the link between the poor health of caregivers and their families and resilience, the availability of more initiatives that seek to improve health outcomes (such as programs that raise the awareness of chronic disease, improve health literacy and support healthy lifestyles)⁸⁶⁻⁸⁸ appears a prudent strategy to improve resilience, and both physical and mental health within Aboriginal communities over the long-term. Considering the younger age of Aboriginal parents, and the higher prevalence of sole parent households,⁸⁹ scaling up promising initiatives like the Triple P Parenting program,⁹⁰ that have been adapted for Aboriginal caregivers, appears a potential strategy to improve the social and emotional wellbeing of caregivers and their children. However, as previously mentioned, initiatives such as parenting and healthy living programs are likely to be ineffective if the fundamental needs of families are not being met (i.e. in the presence of food insecurity, sub-standard housing and unsafe domestic and community environments). Addressing these needs should be the first priority of programs aimed at supporting Aboriginal families.

7.4.2 More youth programs aimed at building resilience

Aboriginal health professionals and community members expressed a clear desire for more initiatives that aimed to foster resilience in Aboriginal children (Chapter 3). Currently, early intervention mental health programs such as Got It!⁹¹ and Kids Matter⁹² are available in some schools, with an adapted version of Got it! currently being implemented in some areas for Aboriginal children.⁹³ While promising, the efficacy of these program for Aboriginal children is yet to be established. Programs and models that

seek to build childhood resilience, such as The Resilience Project⁹⁴ and The Resilience Doughnut,⁹⁵ are aimed at the general population and their appropriateness and effectiveness for Aboriginal children is unknown. Given the cultural differences between Aboriginal and non-Aboriginal children, and the importance of cultural identity in developing resilience, programs that are designed specifically for Aboriginal children are more likely to be effective.

The results suggest that programs that can offer one to one support (e.g. from role-models and mentors), and group programs that can build self-esteem, enhance social relationships and improve the physical health of Aboriginal children may be useful. The results of this thesis further stress the importance of sustainable, culturally safe services that are Aboriginal-led and include activities that promote greater cultural awareness for children. An example of this type of initiative is 'Clean Slate Without Prejudice',⁹⁶ a community run exercise program that has demonstrated "enhanced resilience of communities and at-risk groups"⁹⁷ in Sydney's Redfern, which has a high percentage of Aboriginal families. The program offers early morning exercise classes, Aboriginal and non-Aboriginal role models (including police officers) and counselling for Aboriginal young people. While not formally evaluated, the large reduction in juvenile robberies seen in its first year of running has been attributed to the initiative.⁹⁸ This program offers one example of a promising initiative that, if scaled up, may have the capacity to build youth resilience in other Aboriginal communities.

7.4.3 More rigorous program evaluations

While programs that can support resilience in Aboriginal children and their caregivers are desired, funding such programs without evaluating their impact prevents a greater understanding of the efficacy of individual strategies. Further, the absence of formal evaluations limits the evidence base from which programs with a wider scope can be implemented and can lead to the needless waste of resources. A recent review of Aboriginal programs revealed that only 88 of 1082 (8%) had been evaluated.⁴⁸ Further, a 2017 Centre for Independent Studies report found that 3 out of 49 evaluated programs to improve outcomes for Aboriginal people (i.e. crime, health, housing, jobs and education) met criteria for strong methodology. The report made a number of

recommendations, including embedding evaluations into the program's design, ensuring Aboriginal people are involved in the design and implementation of evaluations, including clear and measurable objectives, and developing an accountability framework to ensure data is being used to build an evidence base and inform practice.⁹⁹

The small number of evaluations of Aboriginal health and wellbeing programs has also been noted in the wider Aboriginal health literature.¹⁰⁰⁻¹⁰² For example, a recent review of youth social and emotional programs found 15 of 41 had been formally evaluated.⁴⁹ A further review of Aboriginal social and emotional wellbeing programs found that the small number of program evaluations that met criteria for inclusion in a systematic review made it "impossible to articulate what might be considered evidence-based practice in this area".⁵⁰ Of the 16 programs that were assessed using the Maryland Scientific Methods Scale, only three indicated the use of quasi-experimental or experimental research designs.

The results presented in Chapter 6 also reflect the small number of social and emotional wellbeing programs which have had evaluations published in the peer reviewed literature, and the preliminary nature of most of these. While this is reflective of the nascent and growing area of social and emotional wellbeing research,⁴⁹ more commitment from policy makers to fund evaluations that include rigorous designs is clearly needed. Embedding evaluations into the program design and planning more rigorous evaluations, where possible, is suggested in order to create an informative evidence base. While it is not always feasible or ethical to randomise individual participants to treatment or control groups, other suitable methodologies may be available. The inclusion of stepped wedge or cluster RCTs has been suggested as potentially appropriate designs when treatment is allocated via large sites such as community health services.⁴⁷ For programs that are relatively new, and for which it may be inappropriate to fund resource-intensive experimental designs, considerations regarding sample size and power, the use of culturally validated assessment tools, systematic analysis of qualitative data, and clear reporting are likely to improve the quality of evidence. Evaluations that are pre-planned for peer reviewed publication may be more likely to adhere to stricter methodological and reporting standards, as well as increasing the visibility of the research for the wider research and health community.

7.5 Areas for further research

Resilience research has been described by Masten as consisting of four 'waves', each wave representing a historical advance in the study of resilience.³⁷ The first wave consists of descriptive research, subsequent waves relate to the identification of resilience processes, resilience interventions, and research that links epigenetic and neurobiological processes with behaviour. Currently, research involving the resilience of Australian Aboriginal people is scarce and falls largely into Masten's first wave of descriptive research. Studies that can identify the processes that build Aboriginal resilience appear to be the next promising area of Aboriginal resilience research. Qualitative research that can capture the perspectives of Aboriginal communities as well as quantitative measures of resilience are likely to be useful in future explorations of the processes that support Aboriginal resilience. While more difficult to implement, longitudinal designs offer significant advantages to resilience research, including identifying the trajectories of positive adaptation, and the influence of contexts and resources over time. Findings from these studies may be used by Aboriginal communities and researchers to inform strategies to enhance resilience.

As previously noted, this thesis largely focuses on a narrow range of outcomes (mental health and behaviour) measured at one time point. However, research has shown that resilience is likely to be a dynamic, multi-faceted construct that is associated with experiences that occur throughout the entire life course.¹⁰³ For example, early coping experiences that are indicative of resilient have been shown to increase physiological markers of chronic stress in later life.¹⁰⁴ Future research should take into account multiple domains in which resilience may occur, as well as investigating the biological cost of early resilience in Aboriginal children. Such research may be crucial in order to design early intervention programs that can promote healthy outcomes that continue into adolescence, early adulthood and beyond. As noted in Chapter 6, research that can evaluate social and emotional wellbeing programs is needed to establish an evidence base for effective health and wellbeing services for Aboriginal youths.

7.6 Conclusion

This thesis provides the first investigation into the resilience of both Aboriginal children and their caregivers living in urban NSW. Given the greater amount of adversity that Aboriginal people experience, the findings suggest that Aboriginal families are remarkably resilient. However, resilience is not commensurate with invulnerability. The increased burdens that Aboriginal families endure due to the historical and ongoing marginalisation of their culture can disrupt the stable, cohesive family environments that predict resilience in caregivers and their children. Addressing unequal living conditions, discrimination, and socio-economic and health disparities remains a priority if real progress is to be made in closing the gap. Programs that can support families and provide opportunities for children to develop resilience are also needed. Early intervention programs that can empower Aboriginal children to make healthy decisions through greater cultural identity and self-esteem, and easily accessible family-centred programs that can improve physical health and domestic stability, are likely to increase resilience amongst Aboriginal families. More commitment from funding bodies to rigorously evaluate the efficacy of programs that aim to enhance the strengths inherent in Aboriginal families are needed to achieve this goal. In doing so, Aboriginal people may come to view resilience more as a strength – and less as a necessity.

7.7 References

1. Trzesniewski KH, Donnellan MB, Moffitt TE, Robins RW, Poulton R, Caspi A. Low self-esteem during adolescence predicts poor health, criminal behavior, and limited economic prospects during adulthood. *Dev. Psychol.* 2006;42:381.
2. Rockville M. Basic behavioral science research for mental health. *Am. Psychol.* 1996;51:22-8.
3. Achat H, Kawachi I, Spiro A, DeMolles DA, Sparrow D. Optimism and depression as predictors of physical and mental health functioning: the Normative Aging Study. *Ann. Behav. Med.* 2000;22:127-30.
4. Bond L, Butler H, Thomas L, et al. Social and school connectedness in early secondary school as predictors of late teenage substance use, mental health, and academic outcomes. *J. Adolesc. Health.* 2007;40:357. e9-. e18.

5. Parker JG, Rubin KH, Erath SA, et al. *Peer relationships, child development, and adjustment: A developmental psychopathology perspective*. In D. Cicchetti & D. J. Cohen (Eds.), *Developmental psychopathology: Theory and method* (pp. 419-493). Hoboken, NJ, US: John Wiley & Sons Inc, 2006.
6. Kandel DB, Johnson JG, Bird HR, et al. Psychiatric disorders associated with substance use among children and adolescents: findings from the Methods for the Epidemiology of Child and Adolescent Mental Disorders (MECA) Study. *J. Abnorm. Child Psychol.* 1997;25:121-32.
7. Patel V, Flisher AJ, Hetrick S, McGorry P. Mental health of young people: a global public-health challenge. *The Lancet.* 2007;369:1302-13.
8. Schilling EA, Aseltine RH, Gore S. Adverse childhood experiences and mental health in young adults: a longitudinal survey. *BMC Public Health.* 2007;7:30.
9. Coker TR, Elliott MN, Kanouse DE, et al. Perceived racial/ethnic discrimination among fifth-grade students and its association with mental health. *Am. J. Public Health.* 2009;99:878-84.
10. Fazel M, Reed RV, Panter-Brick C, Stein A. Mental health of displaced and refugee children resettled in high-income countries: risk and protective factors. *The Lancet.* 2012;379:266-82.
11. McLoyd VC. Socioeconomic disadvantage and child development. *Am. Psychol.* 1998;53:185.
12. Reiss F. Socioeconomic inequalities and mental health problems in children and adolescents: a systematic review. *Soc. Sci. Med.* 2013;90:24-31.
13. Kirmayer L, Simpson C, Cargo M. Healing traditions: Culture, community and mental health promotion with Canadian Aboriginal peoples. *Australas. Psychiatry.* 2003;11:S15-S23.

14. Priest N, Mackean T, Davis E, Briggs L, Waters E. Aboriginal perspectives of child health and wellbeing in an urban setting: Developing a conceptual framework. *Health Sociol Rev.* 2012;21:180-95.
15. Williamson AB, Raphael B, Redman S, Daniels J, Eades SJ, Mayers N. Emerging themes in Aboriginal child and adolescent mental health: findings from a qualitative study in Sydney, New South Wales. *Med. J. Aust.* 2010;192:603.
16. Colquhoun S, Dockery AM. The link between Indigenous culture and wellbeing: Qualitative evidence for Australian Aboriginal peoples. CLMR Discussion Paper Series 2012/01. Perth: Labour Market Research, Curtin Business School, Curtin University. 2012
17. Booth AL, Carroll N. Economic status and the Indigenous/non-Indigenous health gap. *Econ. Lett.* 2008;99:604-6.
18. Shepherd CC, Li J, Zubrick SR. Social gradients in the health of Indigenous Australians. *Am. J. Public Health.* 2012;102:107-17.
19. Fergusson DM, Horwood JL. The Christchurch Health and Development Study: review of findings on child and adolescent mental health. *Aust. N. Z. J. Psychiatry.* 2001;35:287-96.
20. Fatori D, Bordin IA, Curto BM, De Paula CS. Influence of psychosocial risk factors on the trajectory of mental health problems from childhood to adolescence: a longitudinal study. *BMC Psychiatry.* 2013;13:1.
21. Wille D-PN, Bettge S, Ravens-Sieberer U, Group BS. Risk and protective factors for children's and adolescents' mental health: results of the BELLA study. *Eur. Child Adolesc. Psychi.* 2008;17:133-47.
22. Bowlby, J. *Attachment.* New York: Basic Books, 2008.
23. Priest N, Thompson L, Mackean T, Baker A, Waters E. 'Yarning up with Koori kids'—hearing the voices of Australian urban Indigenous children about their health and well-being. *Ethn. Health.* 2017;22:631-47.

24. Tsey K, Whiteside M, Haswell-Elkins M, Bainbridge R, Cadet-James Y, Wilson A. Empowerment and Indigenous Australian health: a synthesis of findings from Family Wellbeing formative research. *Health Soc. Care Community*. 2010;18:169-79.
25. McMahon TR, Kenyon DB, Carter JS. "My culture, my family, my school, me": Identifying strengths and challenges in the lives and communities of American Indian youth. *J. Child Fam. Stud*. 2013;22:694-706.
26. Penman RA. *Aboriginal and Torres Strait Islander views on research in their communities, Occasional Paper No. 16*. Canberra: Australian Government, Department of Families, Community Services and Indigenous Affairs, 2006.
27. Kana 'iaupuni SM. Ka 'akālai Kū Kanaka: A call for strengths-based approaches from a Native Hawaiian perspective. *Educ. Res*. 2005;34:32-8.
28. Tsey K, Wilson A, Haswell-Elkins M, et al. Empowerment-based research methods: a 10-year approach to enhancing Indigenous social and emotional wellbeing. *Australas. Psychiatry*. 2007;15:S34-S8.
29. Priest N, Mackean T, Waters E, Davis E, Riggs E. Indigenous child health research: A critical analysis of Australian studies. *Aust N Z J Public Health*. 2009;33:55-63.
30. Eades SJ, Taylor B, Bailey S, et al. The health of urban Aboriginal people: insufficient data to close the gap. *Med. J. Aust*. 2010;193:521.
31. Hopkins KD, Zubrick SR, Taylor CL. Resilience amongst Australian aboriginal youth: an ecological analysis of factors associated with psychosocial functioning in high and low family risk contexts. *PloS One* 2014;9:e102820.
32. Thomas, H. *Resilience in Australian Indigenous and Non-Indigenous Adolescents*. RMIT University, Melbourne, 2007. Retrieved from <http://researchbank.rmit.edu.au/view/rmit:6382> Wiley online database.

33. Lohoar S, Butera N, Kennedy E. Strengths of Australian Aboriginal cultural practices in family life and child rearing. CFCA Paper No. 25: Australian Institute of Family Studies; 2014.
34. O'Brien K. Social Cohesion and Resilience in First Australian Family and Kinship Networks. *J. Fam. Hist.* 2017;42:440-51.
35. Osborne E, Taylor DM. The role of cultural identity clarity for self-concept clarity, self-esteem, and subjective well-being. *Pers. Soc. Psychol. Bull.* 2010;36:883-97.
36. Masten AS. Ordinary magic: Resilience processes in development. *Am. Psychol.* 2001;56:227.
37. Wright MOD, Masten AS, Narayan AJ. Resilience processes in development: Four waves of research on positive adaptation in the context of adversity. *Handbook of resilience in children*: Springer; 2013:15-37.
38. Gale F, Bolzan N. Social resilience: Challenging neo-colonial thinking and practices around 'risk'. *Journal of Youth Studies.* 2013;16:257-71.
39. Tsey K, Every A. Evaluating Aboriginal empowerment programs: the case of Family WellBeing. *Aust N Z J Public Health.* 2000;24:509-14.
40. Wilson M, Stearne A, Gray D, Sherry S. *The harmful use of alcohol amongst Indigenous Australians.* Australian Indigenous HealthInfoNet, 2010.
41. Gubhaju L, Banks E, MacNiven R, et al. Physical functional limitations among Aboriginal and non-Aboriginal older adults: associations with socio-demographic factors and health. *PloS One.* 2015;10:e0139364.
42. Williamson A, D'Este C, Clapham K, et al. What are the factors associated with good mental health among Aboriginal children in urban New South Wales, Australia? Phase I findings from the Study of Environment on Aboriginal Resilience and Child Health (SEARCH). *BMJ Open* 2016;6:e011182.
43. Zubrick S, Silburn S, Lawrence D, Mitrou F, Dalby R, Blair E. The Western Australian Aboriginal Child Health Survey: the social and emotional wellbeing of

- Aboriginal children and young people. Perth: Curtin University of Technology and Telethon Institute for Child Health Research, 2005. *Int J Epidemiol* 2005;35:888-901.
44. Marmot M. Social determinants and the health of Indigenous Australians. *Med J Aust* 2011;194:512-3.
 45. Larson A, Gillies M, Howard PJ, Coffin J. It's enough to make you sick: the impact of racism on the health of Aboriginal Australians. *Aust N Z J Public Health*. 2007;31:322-9.
 46. Ziersch AM, Gallaher G, Baum F, Bentley M. Responding to racism: insights on how racism can damage health from an urban study of Australian Aboriginal people. *Soc. Sci. Med.* 2011;73:1045-53.
 47. Lokuge K, Thurber K, Calabria B, et al. Indigenous health program evaluation design and methods in Australia: a systematic review of the evidence. *Aust N Z J Public Health*. 2017.
 48. Hudson, S. Mapping the Indigenous program and funding maze – Research Report 18. Sydney: The Centre for Independent Studies. 2016.
 49. Haswell MR, Blignault I, Fitzpatrick S and Jackson Pulver, L. The Social and Emotional Wellbeing of Indigenous Youth: Reviewing and Extending the Evidence and Examining its Implications for Policy and Practice, Muru Marri, UNSW Sydney, 2013.
 50. Day A, Francisco A. Social and emotional wellbeing in Indigenous Australians: identifying promising interventions. *Aust N Z J Public Health*. 2013;37:350-5.
 51. Williams E, Guenther J, Arnott A. *Beyond informed consent: how is it possible to ethically evaluate Indigenous programs*. Paper to the NARU Public Seminar Series, Darwin; 2011.

52. Penman RA. *Aboriginal and Torres Strait Islander views on research in their communities, Occasional Paper No. 16*. Canberra: Australian Government, Department of Families, Community Services and Indigenous Affairs, 2006.
53. Gee, GJ. Resilience and recovery from trauma among Aboriginal help seeking clients in an urban Aboriginal community controlled organisation. Diss. 2016.
54. Van de Mortel TF. Faking it: social desirability response bias in self-report research. *Aust J Adv Nurs*. 2008;25:40.
55. Podsakoff PM, MacKenzie SB, Lee J-Y, Podsakoff NP. Common method biases in behavioral research: A critical review of the literature and recommended remedies. *J. Appl. Psychol*. 2003;88:879.
56. Williamson A, Redman S, Dadds MR, et al. The acceptability of an emotional and behavioural screening tool for children in Aboriginal Community Controlled Health Services in Urban NSW. *Aust N Z J Psychiatry*. 2010;44, 894–900.
57. Zubrick SR, Silburn SR, Garton AF, Burton P, Dalby R, Carlton J, Sheperd C, Lawrence D. *Western Australian Child Health Survey: family and community health*: Australian Bureau of Statistics; 1996.
58. Webb & Bain, *Essential Epidemiology, Second Edition*. Cambridge: Cambridge University press. 2011.
59. Priest N, Mackean T, Davis E, Waters E, Briggs L. Strengths and challenges for Koori kids: Harder for Koori kids, Koori kids doing well-Exploring Aboriginal perspectives on social determinants of Aboriginal child health and wellbeing. *Health Sociol Rev*. 2012;21:165-79.
60. Paradies Y, Harris R, Anderson I. The impact of racism on Indigenous health in Australia and Aotearoa: Towards a research agenda: Discussion Paper Series: No. 4. Darwin: Cooperative Research Centre for Aboriginal Health; 2008.

61. Andersen MJ, Williamson AB, Fernando P, Eades S, Redman S. 'They took the land, now we're fighting for a house': Aboriginal perspectives about urban housing disadvantage. *Housing Studies*. 2017:1-26.
62. Calma T, Dick D. *Social determinants and the health of Indigenous peoples in Australia—A human rights based approach*. Workshop paper presented by Mr Darren Dick on behalf of Mr Tom Calma, Aboriginal and Torres Strait Islander Social Justice Commissioner; 2007.
63. Australian Institute of Health and Welfare 2016. *Australia's health 2016*. Australia's health series no. 15. Cat. no. AUS 199. Canberra: AIHW.
64. Zubrick SR, Dudgeon P, Gee G, et al. Social determinants of Aboriginal and Torres Strait Islander social and emotional wellbeing. Working together: Aboriginal and Torres Strait Islander mental health and wellbeing principles and practice. 2010:75-90.
65. Askew DA, Schluter PJ, Spurling GK, et al. Urban Aboriginal and Torres Strait Islander children's exposure to stressful events: a cross-sectional study. *Med J Aust*. 2013;199:42-5.
66. Wilkie M. Bringing them home: Report of the national inquiry into the separation of Aboriginal and Torres Strait Islander children from their families: Human Rights and Equal Opportunity Commission; 1997.
67. Australian Institute of Health and Welfare 2018. Child protection Australia 2016–17. Child welfare series no. 68. Cat. no. CWS 63. Canberra: AIHW.
68. Priest N, Paradies Y, Stewart P, Luke J. Racism and health among urban Aboriginal young people. *BMC Public Health* 2011;11:568.
69. Shepherd CC, Li J, Mitrou F, Zubrick SR. Socioeconomic disparities in the mental health of Indigenous children in Western Australia. *BMC Public Health* 2012;12:756.

70. Bailie RS, Stevens M, McDonald EL. The impact of housing improvement and socio-environmental factors on common childhood illnesses: A cohort study in Indigenous Australian communities. *J Epidemiol Community Health*. 2012;66:821-31.
71. Phillips B, Morrell S, Taylor R, Daniels J. A review of life expectancy and infant mortality estimations for Australian Aboriginal people. *BMC Public Health* 2014;14:1.
72. Turner KM, Richards M, Sanders MR. Randomised clinical trial of a group parent education programme for Australian Indigenous families. *J. Paediatr. Child Health*. 2007;43:429-37.
73. Whiteside M, Klieve H, Millgate N, et al. Connecting and strengthening young aboriginal men: A Family Wellbeing pilot study. *Australian Social Work*. 2016;69:241-52.
74. NSW Government, Family & Community Services. *NSW Aboriginal Child, Youth & Family Strategy*. Retrieved from <http://www.community.nsw.gov.au/for-agencies-that-work-with-us/our-funding-programs/nsw-aboriginal-child,-youth-and-family-strategy>.
75. NSW Government, Family & Community Services. *Brighter Futures Program*. Retrieved from <http://www.community.nsw.gov.au/for-agencies-that-work-with-us/our-funding-programs/brighter-futures-program>.
76. NSW Government, Family & Community Services. *Child, youth and family support*. Retrieved from <http://www.community.nsw.gov.au/for-agencies-that-work-with-us/our-funding-programs/child,-youth-and-family-support>.
77. Australian Institute of Family Studies. *Knowledge Circle, Aboriginal and Torres Strait Islander Child and Family Resources Portal*. Retrieved from <https://www2.aifs.gov.au/cfca/knowledgecircle>.

78. Australian Indigenous HealthInfoNet (2017) *Summary of Aboriginal and Torres Strait Islander health, 2016*. Retrieved from <http://www.healthinfonet.ecu.edu.au/health-facts/summary>
79. Bywood P, Katterl R, Lunnay B. Disparities in primary health care utilisation: Who are the disadvantaged groups? How are they disadvantaged? What interventions work? PHC RIS Policy Issue Review. Adelaide: Primary Health Care Research & Information Service. 2011.
80. Marrone S. Understanding barriers to health care: a review of disparities in health care services among indigenous populations. *Int. J. Circumpolar Health*. 2007;66:188-98.
81. Scrimgeour, M. & Scrimgeour, D. Health Care Access for Aboriginal and Torres Strait Islander People Living in Urban Areas, and Related Research Issues: A Review of the Literature. Cooperative Research Centre for Aboriginal Health, Darwin. 2007.
82. McBain-Rigg KE, Veitch C. Cultural barriers to health care for Aboriginal and Torres Strait Islanders in Mount Isa. *Aust J Rural Health*. 2011;19:70-4.
83. Ou L, Chen J, Garrett P, Hillman K. Ethnic and Indigenous access to early childhood healthcare services in Australia: parents' perceived unmet needs and related barriers. *Aust N Z J Public Health*. 2011;35:30-7.
84. Hayman NE, White NE, Spurling GK. Improving Indigenous patients' access to mainstream health services: The Inala experience. *Med. J. Aust*. 2009;190:604-6.
85. Morley SR. What works in effective Indigenous community-managed programs and organisations. CFCA Paper No. 32: Australian Institute of Family Studies; 2015.
86. Australian Government, Department of Health. *Aboriginal Males Shedding the Smokes*. Retrieved from <http://www.health.gov.au/internet/main/publishing.nsf/Content/indigenous-tis-innovation-grants-sa>.

87. Tharawal Aboriginal Corporation. *Good Tucker All Year Round*. Retrieved from <http://tacams.com.au/goodtuckerprogram.html>.
88. Kelly CM, Jorm AF, Wright A. Improving mental health literacy as a strategy to facilitate early intervention for mental disorders. *Med J. Aust.* 2007;187:S26.
89. Qu L, Weston R. *Parental marital status and children's wellbeing. Occasional Paper No. 46. Canberra: Australian Government, Department of Families, Community Services and Indigenous Affairs, 2011.*
90. Sanders MR. Triple P-Positive Parenting Program: Towards an empirically validated multilevel parenting and family support strategy for the prevention of behavior and emotional problems in children. *Clin. Child Fam. Psychol. Rev.* 1999;2:71-90.
91. NSW Ministry of Health. *Getting On Track In Time - Got It!, Program Delivery Implementation Guidelines*. North Sydney, NSW, Australia, 2017.
92. Australian Government, Department of Health. *Kids Matter*. Retrieved from <https://www.kidsmatter.edu.au/>.
93. NSW Ministry of Health. *Aboriginal Mental Health Enhancement*. Retrieved from <http://www.health.nsw.gov.au/mentalhealth/reform/Factsheets/Aboriginal-mental-health.pdf>.
94. The Resilience Project. Retrieved from <https://theresilienceproject.com.au/>.
95. The Resilience Doughnut. Retrieved from <https://www.theresilencedoughnut.com.au/>.
96. Tribal Warrior. *Clean Slate without Prejudice*. Retrieved from <http://tribalwarrior.org/clean-slate-without-prejudice/>.
97. Australian Government, Australian Law Reform Commission. *Police Accountability, Improving Responses*. Retrieved from <https://www.alrc.gov.au/publications/improving-responses>.

98. Feneley R. Swing and a miss: funding gaps hit scheme slashing crime rates. The Sydney Morning Herald 14 March, 2013. Retrieved from <https://www.smh.com.au/national/nsw/swing-and-a-miss-funding-gaps-hit-scheme-slashing-crime-rates-20130313-2g0l8.html>.
99. Hudson S. Evaluating Indigenous programs: a toolkit for change. Centre for Independent Studies; 2017.
100. Snijder M, Shakeshaft A, Wagemakers A, Stephens A, Calabria B. A systematic review of studies evaluating Australian indigenous community development projects: the extent of community participation, their methodological quality and their outcomes. *BMC Public Health* 2015;15:1154.
101. Vujcich D, Rayner M, Allender S, Fitzpatrick R. When There is not enough evidence and When evidence is not enough: An Australian indigenous smoking Policy study. *Front. Public Health*. 2016;4:228.
102. Paul CL, Sanson-Fisher R, Stewart J, Anderson AE. Being sorry is not enough: the sorry state of the evidence base for improving the health of Indigenous populations. *Am J Prev Med*. 2010;38:566-8.
103. Masten, AS. *Ordinary magic: Resilience in development*. New York, NY: Guilford Press. 2014.
104. Brody GH, Yu T, Chen E, Miller GE, Kogan SM, Beach SR. Is resilience only skin deep? Rural African Americans' socioeconomic status–related risk and competence in preadolescence and psychological adjustment and allostatic load at age 19. *Psychol Sci*. 2013;24:1285-93.

Appendices

Intentionally left blank.

Appendix A – Supplementary Material for Chapter 2

A.1 Search strategy

1. indigenous populations
2. first nation.mp.
3. maori.mp.
4. american indian\$.mp.
5. native hawiiian.mp.
6. metis.mp.
7. native american.mp.
8. aborigin*.mp.
9. Torres Strait Islander?.mp.
10. indigenous.mp.
11. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10
12. child*.mp.
13. adolesc*.mp.
14. teen\$.mp.
15. student*.mp.
16. youth.mp.
17. 12 or 13 or 14 or 15 or 16
18. wellbeing/ or positive psychology/ or "quality of life"/

19. mental disorders/ or mental health/
20. mental health.mp.
21. exp Adolescent Psychiatry/
22. exp Child Psychopathology/ or exp Child Psychiatry/ or exp Child Psychology/
23. exp Anxiety Disorders/ or exp Separation Anxiety/ or exp Anxiety/ or exp Social Anxiety/
24. internali*ing.mp,hw.
25. externali*ing.mp,hw.
26. behavioural.mp,hw.
27. conduct disorder.mp. or exp conduct disorder/
28. oppositional defiant disorder.mp. or exp oppositional defiant disorder/
29. anxi*.mp.
30. depress*.mp.
31. 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 or 30
32. exp Psychological Endurance/ or exp Coping Behavior/
33. protective factors/ or *prevention/ or *"resilience (psychological)"/
34. risk factors/ or *causality/ or *psychosocial factors/ or *risk assessment/ or *sociocultural factors/
35. risk factor?.mp.
36. protective factor?.mp.
37. compensatory.tw.
38. determinant.tw.

39. 32 or 33 or 34 or 35 or 36 or 37 or 38

40. 11 and 17 and 31 and 39

41. limit 40 to (peer reviewed journal and human and english language and yr="1995 - 2016")

Appendix B – Supplementary Material for Chapter 3

B.1 Interview guide

Preamble

“Some children tend to do well despite problems they may face, that is, they appear to be ‘resilient’. We’re interested in any thoughts you may have about what helps these kids do well. We’d like you to think back on your experiences as a child, you may also like to think about your own children and/or children you know well.”

Positive adaption/adversity

1. What are some important signs that Aboriginal kids in your community are doing okay? What, specifically would you look for?

Prompt: what attitudes or behaviours might you see/not see?

2. a. What do you see as some of the challenges facing Aboriginal children or young people in your community?
b. Do you think these are different to the challenges facing non-Aboriginal children or young people? In what ways are they different?

Personal resilience

3. a. Thinking about your own childhood, what sorts of things helped you cope with challenges you may have experienced?
b. How did this help you? Have these experiences influenced you as an adult? How?
c. What things were most helpful when you were a younger? When you were a teenager?

Resilience in the community

4. a. What do you think helps Aboriginal kids in your community do okay despite the challenges they face?

Prompt: what aspects of a child's community/family/personality might help them do well?

- b. Which of these do you think is the most important?
- c. Are there differences in the things that may help younger children compared to older children? What about for boys and girls?

Potential programs/services

- 5. a. For Aboriginal children who are facing lots of challenges, what sort of programs or services do you think could be developed to help them to do well? What might these programs look like, what would be some important features?

Prompt: how might this program incorporate your previous thoughts about what makes Aboriginal kids do well?

- b. Who would you like to see involved in running these types of programs?
- c. Have you seen something similar that has worked? What were the best/worst parts of this program?

Thank You!

B.2 Illustrative quotes

Theme	Illustrative quotation
Withstanding risk	
Displaying normative development	<p>"I can see the change in these kids now because: one, they're stable; two, they've got attention. They are meeting their milestones, whereas before, they weren't." (Female, 50's)</p> <p>"Education is a huge thing for resilience. Are they going to school? Are they enjoying it? How are they interacting with other people, connecting to their family?" (Female, 18-29 years)</p>
Possessing inner fortitude	<p>"I drew on the strength that I didn't want my children to go through what I went through, so that was my drive." (Female, 40's)</p> <p>"For a lot of people, it does have to be learned [resilience]. But for myself; I know that I just have it." (Female, 20's)</p>
Adapting to adversity	
Necessary resilience	<p>"I think that sometimes Aboriginal children are probably resilient in all the wrong ways. They skip that part of being a kid and they go right from being a young person and having to deal with certain things." (Female, 20's)</p> <p>It made me think how much energy and brain power it takes to be resilient. How many more of our mob could of been superstars, instead we are becoming the experts in trauma. (Female, 40's)</p>
Masking inner vulnerabilities	<p>"When I look back on my life and what people said to me, they always saw me as strong or doing well, yet internally I didn't feel that way." (Female, 40's)</p>

"I think people don't realise how bad things can be for some people. That people can hide it. They can hide a lot. To think that someone their age has gone through school and everything has slipped; he can't read, he can't write." (Female, 40's)

Positive social influences

Secure family environments "I felt safe (at home), and I think that's why I probably didn't go out of line. If I didn't have a safe home and then there were issues – I'd easily go the other way." (Female 40's)

"If children have learned the structures that they can have in their lives, even though their family may be under great stress, they've got that support that builds resilience." (Female, 50's)

Role-modelling healthy behaviours and relationships

"The role models in my life, I think that's taught me to be resilient. I had faced racism when I was growing up but It didn't really worry me because I knew otherwise." (Female, 20's)

"I'm a good role model for my daughter. She sees me working. She's only four, but she always talks about work and, "When I get older, I want to work at your work, mum". So I think I'm setting a good example for her. I think I've stopped the cycle at me, hopefully." (Female 50's)

Instilling cultural identity

Investing in Aboriginal knowledge "I find that those kids that are very strongly connected and can identify strong in their Aboriginality and their heritage, they're the ones that are far more resilient." (Male, 30's)

"Those stories and that knowledge, passed down from generation to generation, highlight those strengths that children will grow up strong and connected." (Female, 40's)

Building a strong cultural self-concept "Kids that show resilience, you can feel that they're really connected to their identity. Some of the kids take strength in knowing that that's a practise we've had for many years, and that's the strength that we rely on as well." (Male, 30's)

"It's something that's most certainly helped me in terms of knowing strength from my identity, knowing who my family are, the extended family, and knowing the grassroots of my family, knowing my heritage and the link to country." (Male, 60's)

Community safeguards

Offering strategic, sustainable services "Having an Aboriginal case worker helped because he understood where I was coming from. He was supportive and was always pushing me to do the right thing in life. It's a pretty big help, if I didn't have them, I'll probably be in a lot more trouble than I was in." (Female, 20's)

"Look, when they start those programmes, they only go for so long and then they cut them off." (Male, 50's)

Holistic support "You can remove that young person but we're still putting him back into an unfixed home, a broken home. Our biggest struggle is looking at the holistic approach. You can fix one but we need to fix the whole unit." (Female, 40's)

"To work with that young child, to address whatever the issues are, we make sure that the parents are also supported, because if they're not supported, we're sort of just beating a dead horse, really." (Male, 40's)

Community
responsibility

"One thing I'd like to see is that re-engagement of not just youth, but our men in our community to know that they have a responsibility to contribute something back to young people, to make them strong young men." (Male, 30's)

I think it's a collective approach. It's a community approach, that's how we operated traditionally. Just because we're the AMS (Aboriginal Medical Service), we're not the ones that should be responsible for this (building resilience). It's got to be a whole of community approach." (Male, 40's)

Providing
enriching
opportunities

"So they put me in art class with this Scottish art teacher. He actually helped channel that anger into something. So I was able to express myself through art" (Female, 40's)

"Children should be given the opportunities to be leaders so that they can be resilient, and you'd be surprised that if quiet little Joe in the corner is given an opportunity to step up, all of a sudden, he's up and shining." (Female, 50's)

Personal empowerment

Awareness of
positive
pathways

"I think those people who get through or managed to do well, there's been some hope. Someone has shown them hope or a pathway." (Female, 40's)

"I remember hearing Uncle Chicka Dixon (well-known Aboriginal activist), he said, 'Education is the way out for our people.' It was a little light bulb moment; my life didn't have to always be this way." (Female, 40's)

Developing self-respect	“Ideally, those sorts of things are in place so the child will become very resilient, they have a sense of self, and self-worth: ‘I can do this!’” (Female, 50’s)
	"Self-reliance that’s makes a difference, it builds resilience and you learn to figure out what’s right and what’s wrong." (Male, 40's)
Fostering positive decision making	“I thought, “It stops here”. I’m going to break this cycle here, and that's a choice that each person has to make.” (Female, 50’s)
	"For me, I was able to determine whether or not that was the wrong group to be around, where my brother didn’t question that. He just he just went with the flow." (Male, 40's)

B.3 Participant information statement



School of Public Health
Faculty of Medicine

Dr Anna Williamson

Sax Institute

ACN 095 542886

Level 13, Building 10, 235 Jones St

Haymarket NSW 2000

PO Box K617 Haymarket NSW 1240

Aboriginal perspectives on childhood resilience: a qualitative study

PARTICIPANT INFORMATION STATEMENT

1) What is the study about?

This study is looking at factors that help Aboriginal children's 'resilience'. 'Resilience' refers to the ability to lead a healthy, positive life despite facing problems. Factors that promote childhood resilience are important to study as they have been shown to predict positive mental and physical health outcomes that continue into adulthood. At present there is little information about resilience in Aboriginal children.

The aim of this study is to gain perspectives from the Aboriginal community on 'resilience' and how it may be enhanced in Aboriginal children. Information collected from this study will be used in conjunction with information provided by the Study of Environment on Aboriginal Resilience and Child Health (SEARCH) in order to develop strategies that aim to build resilience in Aboriginal children.

2) Who is carrying out the study?

The study is being conducted by members of the SEARCH team, Dr Anna Williamson from the Sax Institute; Mr Christian Young and Prof. Jonathan Craig from The University of Sydney; Prof. Kathleen Clapham from The University of Wollongong; Mr Peter Fernando, Miss Simone Sherriff, and Mrs Deanna Kalucy from the Sax Institute.

3) What does the study involve?

This study involves participating in one face-to-face interview. Participants will be asked to give their views and opinions on what helps Aboriginal young people lead positive lives despite problems they may encounter. Participants will also be asked about factors in their own life that have helped them to do well. Interviews will be conducted at your Aboriginal Community Controlled Health Service (ACCHS) and will be audio-recorded.

4) How much time will the study take?

We expect that the interview will take approximately 30 minutes to complete. No interview is expected to last longer than an hour.

5) Can I withdraw from the study?

Being in this study is completely voluntary - you are not under any obligation to consent and - if you do consent - you can withdraw at any time without affecting your relationship with The University of Sydney, The Sax Institute or any other health care or educational facility. You may stop the interview at any time if you do not wish to continue, the audio recording will be erased and the information provided will not be included in the study.

6) Will anyone else know the results?

All aspects of the study, including results, will be strictly confidential and only the researchers will have access to information on participants. If you wish, we will send you a written copy of the interview and you can comment and send it back to us if you would like. A group summary of all participants' responses will also be sent to you; it will not be possible to identify individual responses from this summary. You are also

welcome to send any comments or suggestions back to us based on this summary. Once participants agree on the findings, a report of the study may be submitted for publication, individual participants will not be identifiable in such a report. Quotes will be labelled with the person's gender and age only.

7) Will the study benefit me?

It is unlikely that you will experience any personal benefit from participating in the interview for this study.

8) Can I tell other people about the study?

You can tell other people about this study, and we may ask you to nominate some additional people who we can approach who may be interested in taking part in the study.

9) What if I require further information?

When you have read this information, the study staff can discuss it with you further and answer any questions you may have. If you would like to know more at any stage, please feel free to contact Christian Young, on 98451483 or email christian.young@sydney.edu.au.

10) What if I have a complaint or concerns?

Any person with concerns or complaints about the conduct of a research study can contact the Chairperson or CEO of the local Aboriginal Community Controlled Health Service; or the Chairperson of the AH&MRC Ethics Committee as follows: The Chairperson, AH&MRC Ethics Committee, P.O. Box 1565, Strawberry Hills NSW 2012, Telephone: 9212 4777; or Sydney University as follows: The Manager, Ethics Administration, Margaret Telfer Building (K07) University of Sydney, NSW 2006, T: 8627 8176, email: ro.humanethics@sydney.edu.au

This information sheet is for you to keep.

Appendix C – Supplementary Material for Chapter 5

C.1 The Stressful Life Events Questionnaire (SLE)

“Have any of these issues affected you and your family in the past 12 months?”

1. A close family member had a serious medical problem (illness or accident) and was in hospital
2. A close family member was badly hurt, injured or sick
3. A close family member was arrested or in gaol/prison
4. Your child/children were involved in or upset by family arguments
5. A parent/caregiver lost his/her job or became unemployed
6. A close family member had an alcohol or drug problem
7. Your family didn't have enough money to buy food, for bus fares or to pay bills
8. A close family member has a physical handicap
9. An important family member passed away
10. Parents or carer left (because of family problems)
11. You have felt too crowded in where you lived
12. Your child/children had to take care of others in the family
13. Your child/children have been in a foster home
14. Your child/children were badly scared by other peoples' behaviour

Response options for all questions:

- Yes
- No
- Refused
- Don't know

C.2 Resilience in SEARCH caregivers (model one)

Variable: Community-level	AOR	CI Lower	CI Upper	<i>p</i> value
Do you think there is problem with assault in your neighbourhood?				
Yes	ref			
No	2.6	1.43	4.74	<0.01
Do you think there is problem with youths such as youth gangs or lack of youth activity in your neighbourhood?				
Yes	ref			
No	2.02	1.13	3.62	0.02
Do you think there is problem with theft in your neighbourhood?				
Yes	ref			
No	1.62	0.88	2.98	0.12
Do you think there is problem with illegal drugs in your neighbourhood?				
Yes	ref			
No	1.62	0.88	2.97	0.12
Do you think that you have ever been mistreated or harassed by police because you are Aboriginal?				
No	ref			
Yes	0.81	0.45	1.45	0.48
In the last year, how often have you participated in mother's groups/groups related to your children's schooling?				
Occasionally or never	ref			
Monthly or more	1.01	0.55	1.86	0.96
In the last year, how often have you participated in political/civic groups?				
Occasionally or never	ref			
Monthly or more	2.53	0.30	21.37	0.39

In the last year, how often have you participated in Indigenous groups/clubs?				
Occasionally or never	ref			
Monthly or more	1.48	0.78	2.84	0.23
In the last year, how often have you participated in sporting groups/clubs?				
Occasionally or never	ref			
Monthly or more	2.04	1.12	3.74	0.02
I trust most of the people who live in my neighbourhood				
Disagree	ref			
Neutral	2.07	1.03	4.17	0.04
Agree	1.93	1.05	3.53	0.03
People in this neighbourhood are very willing to help each other out				
Disagree	ref			
Neutral	1.54	0.78	3.04	0.21
Agree	2.08	1.12	3.85	0.02
This neighbourhood has a strong sense of community				
Disagree	ref			
Neutral	1.83	0.81	4.12	0.14
Agree	1.49	0.8	2.77	0.20
I feel I belong in this neighbourhood				
Disagree	ref			
Neutral	1.88	0.91	3.88	0.09
Agree	2.63	1.4	4.95	<0.01
I feel safe in this neighbourhood				
Disagree	ref			
Neutral	2.78	1.18	6.55	0.02
Agree	3.55	1.88	6.7	<.0001

Variable: Family-level	AOR	CI Lower	CI Upper	<i>p</i> value
Is your current home:				
Owned or being paid off by you or any usual member of your household?	ref			
Rented by you or any member of this household?	1.32	0.67	2.61	0.42
Owned by the Dept. of Housing, the Aboriginal Housing Office or by Community Housing?	1.01	0.46	2.18	0.99
How many problems do you have with your house? (List of 18 problems to choose from)				
None	ref			
1-3	0.47	0.14	1.59	0.23
4+	0.18	0.06	0.55	<.01
Which of these groupings would best describe your household's income for the past 2 weeks from all sources?				
\$1-\$799	ref			
\$800-\$1999	1.25	0.72	2.16	0.43
\$2000+	2.78	0.77	10.02	0.12
Does your child have difficulties in one of the following areas: emotions, concentration, behaviour or being able to get on with people?				
No; or yes, but this behaviour places no burden on the family	ref			
Yes, this behaviour places only a little burden on the family	0.6	0.30	1.23	0.16
Yes, this behaviour places quite a lot of burden on the family	0.4	0.18	0.87	0.02
Yes, this behaviour places a great deal of burden on the family	0.2	0.09	0.46	<0.001
Does overuse of gambling cause problems in your household?				
No	ref			
Yes	0.42	0.18	0.96	0.04
Does overuse of alcohol cause problems in your household?				
No	ref			
Yes	0.21	0.10	0.43	<.0001

Variable: Individual-level	AOR	CI Lower	CI Upper	<i>p</i> value
Have you ever served time in prison?				
No	ref			
Yes	0.61	0.25	1.44	0.26
Are you limited in any way in doing normal daily activities because of a medical or health problem?				
No	ref			
Yes	0.21	0.11	0.39	<.001
Do you have any medical conditions which have/or will last for 6 months or more?				
No	ref			
Yes	0.37	0.22	0.63	0.001
About how many days a week do you do at least 30 minutes of moderate physical activity?				
None	ref			
1-3 days	1.53	0.79	2.97	0.20
4 or more days	1.38	0.73	2.61	0.33
Were you, either of your parents or any other relatives forced to move from an area which was your traditional country or homeland?				
No	ref			
Yes, self	0.12	0.02	0.64	0.01
Yes, parents	0.47	0.15	1.42	0.18
Yes, other relatives	0.67	0.31	1.48	0.33
Were either of your parents or other relatives taken away from their natural family by a mission, the government or welfare?				
No	ref			
Yes, parents	0.34	0.17	0.69	<.01
Yes, other relatives	0.75	0.38	1.47	0.4
Were you taken away from your natural family by a mission, the government or welfare?				
No	ref			
Yes	0.48	0.13	1.7	0.25

What qualifications do you have?

None

ref

Certificate/diploma/trade/apprenticeship

0.63

0.37

1.08

0.09

Bachelor degree/post-graduate qualification

4.84

0.61

38.6

0.14

How would you describe your current employment status?

Employed/studying

ref

Unemployed/retired/unable to work

0.4

0.18

0.89

0.02

Home duties

0.61

0.33

1.11

0.10

C.3 STROBE Checklist for Observational Studies

	Item No	Recommendation	Included Y/N	Comments/relevant section
Title and abstract	1	(a) Indicate the study's design with a commonly used term in the title or the abstract	Y	Abstract 5.2
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found	Y	Abstract 5.2
Introduction				
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	Y	Background 5.3
Objectives	3	State specific objectives, including any prespecified hypotheses	Y	Abstract/Background 5.2 & 5.3
Methods				
Study design	4	Present key elements of study design early in the paper	Y	Abstract 5.2
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	Y	Methods 5.4
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of participants	Y	Methods 5.4.1
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	Y	Methods 5.4.2

Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	Y	Methods 5.4.2
Bias	9	Describe any efforts to address potential sources of bias	Y	Methods 5.4.4
Study size	10	Explain how the study size was arrived at	Y	All SEARCH caregivers who provided sufficient data were included. Methods 5.4.1. Results 5.5.1
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	Y	Methods 5.4.2 & 5.4.3
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding	Y	Methods 5.4.2 & 5.4.3
		(b) Describe any methods used to examine subgroups and interactions	Y	Methods 5.4.3
		(c) Explain how missing data were addressed	Y	Caregivers who did not provide sufficient data were excluded, given the high response rate (92%), no further action was taken in this regard. Results 5.5.1
		(d) If applicable, describe analytical methods taking account of sampling strategy	n/a	
		(e) Describe any sensitivity analyses	N	

Results				
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	Y	Data for the number of potentially eligible people was not available. Results 5.5.1
		(b) Give reasons for non-participation at each stage	N	
		(c) Consider use of a flow diagram	N	
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	Y	Results 5.1
		(b) Indicate number of participants with missing data for each variable of interest	N	
Outcome data	15*	Report numbers of outcome events or summary measures	Y	Results 5.1
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	Y	Unadjusted estimates are not given. Adjusted Odds ratios are given. Results Tables 5.3, 5.4 & 5.5
		(b) Report category boundaries when continuous variables were categorized	Y	Methods 5.4.2
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	n/a	

Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	Y	Methods 5.4.3
Discussion				
Key results	18	Summarise key results with reference to study objectives	Y	Discussion 5.6
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	Y	Discussion 5.6
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	Y	Discussion 5.6
Generalisability	21	Discuss the generalisability (external validity) of the study results	Y	Discussion 5.6
Other information				
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	Y	Methods 5.4.1

Appendix D – Supplementary Material for Chapter 6

D.1 PRISMA checklist for systematic reviews

Section/topic	#	Checklist item	Reported on page #
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	Title page
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	Abstract 6.2
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	6.3
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	6.3
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	None
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	6.4.1

Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	6.4.2
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	Appendix D.2
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	6.4.1
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	6.4.3
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	6.4.1
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	6.4.4
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	6.4.3
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I^2) for each meta-analysis.	N/A
Section/topic	#	Checklist item	Reported on page #
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	N/A
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	6.4.4

RESULTS			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	Figure 6.1
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	Table 6.1
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	Tables 6.2 & 6.3
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	Tables 6.2 & 6.3
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	N/A
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	N/A
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	Tables 6.2 & 6.3
DISCUSSION			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	6.6
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	6.6
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	6.6
FUNDING			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	N/A

D.2 Search strategy for Chapter 6

(aborigin* OR indigenous OR torres strait islander OR oceanic ancestry group) AND (Australia* OR northern territory OR tasmania OR new south wales OR victoria OR queensland) AND (impact OR eval* OR implement* OR intervention) AND (social and emotional wellbeing OR wellbeing OR mental health OR resilien* OR identity OR cultur* OR connect* OR behaviour OR anxiety OR depression OR externalising OR internalising OR child behaviour OR child psychology OR adolescent behaviour OR adolescent psychology OR adolescent psychiatry OR psychological resilience) AND (young OR youth OR child* OR adolesce* OR young adult).

D.3 Newcastle-Ottawa Scale adapted for non-randomised evaluation studies

Selection: (Maximum 3 stars)

1) Representativeness of the sample:

a) Truly representative of the average in the target population. *

or

b) Somewhat representative of the average in the target population. *

or

c) Selected group of users.

or

d) No description of the sampling strategy.

2) Sample size:

a) Justified and/or satisfactory (i.e. meets 'rules of thumb' for determining sample size).

*

or

b) Not justified or satisfactory.

3) Non-respondents:

a) Comparability between respondent's and non-respondent's characteristics is established or the response rate is satisfactory (>75%)*

or

b) The response rate is unsatisfactory, or the comparability between respondents and non-respondents is unsatisfactory.

or

c) No description of the response rate or the characteristics of the responders and the non-responders.

Comparability: (Maximum 2 stars)

a) A control group is used*

b) The control group is drawn from the same community as the intervention group*

Outcome: (Maximum 5 stars)

1) Assessment of the outcome:

a) Blind assessment**

or

b) Self report using a culturally-validated measurement tool *

or

c) No description or non-culturally validated assessment tool used.

2) Was follow-up long enough for outcomes to occur

a) Yes*

or

b) No

2) Statistical test:

a) The statistical test used to analyze the data is clearly described and appropriate, and the measurement of the association is presented, including confidence intervals or the probability level (p value). *

or

b) The statistical test is not appropriate, not described or incomplete.

3) Attrition

a) Complete follow up – all subjects accounted for *

or

b) Subjects lost to follow up unlikely to introduce bias, follow up proportion > 80%*

or

c) Follow up proportion < 20%

D.4 CASP checklist for included studies

First author, year	Criteria									
	Was there a clear statement of the aims of the research?	Is a qualitative methodology appropriate?	Was the research design appropriate to address the aims of the research?	Was the recruitment strategy appropriate to the aims of the research?	Was the data collected in a way that addressed the research issue?	Has the relationship between researcher and participants been adequately considered?	Have ethical issues been taken into consideration?	Was the data analysis sufficiently rigorous?	Is there a clear statement of findings?	How valuable is the research?
Chenhall, 2010	Yes	Yes	Yes	Yes	No	Can't tell	Yes	No	Yes	Valuable
Thorpe, 2013	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Valuable
Mathiasen, 2014	Yes	Yes	No	Can't tell	No	Can't tell	Can't tell	No	Yes	Some value
Bignault, 2016	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Valuable
Peralta, 2016	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Valuable
Whiteside, 2016	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	No	Yes	Valuable