

**MENTAL HEALTH OUTCOMES OF IMMIGRANT AND NON-IMMIGRANT  
YOUTH IN NEW ZEALAND:  
EXPLORING THE IMMIGRANT PARADOX**

By

Floor Elisabeth Spijkers

A thesis

Submitted to Victoria University of Wellington  
In fulfilment of the requirements for the degree of  
Masters of Science in Cross-Cultural Psychology

Victoria University of Wellington

2011

**ABSTRACT**

The Immigrant Paradox can be defined as the counterintuitive finding that immigrants show better adaptation outcomes than their non-immigrant peers despite their often poorer socio-economic conditions (Sam, Vedder, Ward, & Horenczyk, 2006). However, the advantage observed in first-generation immigrants is often diminished, if not lost, by the second generation.

The current study explored the Immigrant Paradox by looking at well-being and depressive symptoms in a total of 7053 European, Asian, Pacific, and 'Other' secondary school youth in New Zealand. The mental health outcomes of first-generation, second-generation and non-immigrant youth were compared with a set of one-way ANOVAs. In addition, hierarchical regressions were performed to identify the role of acculturation, perceived discrimination and ethnicity in the relation between immigrant generation and the mental health outcomes.

The findings indicated support for the Immigrant Paradox in only one instance, specifically in the well-being of first- and second-generation Pacific youth in comparison to their non-immigrant peers. Although results varied across ethnic groups, overall results indicated that non-immigrant youth had better mental health outcomes than immigrant youth and that second-generation adolescents had better outcomes than their first-generation peers. In addition, although acculturation and perceived discrimination were both significant predictors of mental health, these factors did not eliminate generational differences in either depressive symptoms or well-being.

In the end, the Immigrant Paradox seems to exist only in some countries, among some groups, and in terms of some outcome variables. Furthermore, ethnicity was shown to be a critical factor in understanding immigrants' mental health.

## ACKNOWLEDGEMENTS

First and foremost, I want to thank my parents, Hennie and Gaby. Without you I would never have been where I am now. Also, many thanks to my supervisors, Professor Colleen Ward and Dr. Taciano Milfont. Thank you for sharing your knowledge and guiding me throughout this process.

I wish to thank the Adolescent Health Research Group, who conducted the Youth'07 project. Thank you for letting me work with the data. The rich data enabled me to conduct the research that I wanted to do. Special thanks to Elizabeth Robinson who has been of great help with the data analysis. Thank you for your time and patience, for being a bridge in the communication, and for your easy to understand explanations of difficult statistics. I also wish to thank all the adolescents who participated in the Youth'07 project for sharing their experiences.

I would also like to thank the Centre for Applied Cross-Cultural Research (CACR). Being a part of the centre has been an enriching experience. I met great researchers in the field, heard about fascinating projects, was able to learn about the applied side of cross-cultural research and made friends for life.

Finally, a very special thanks to Harrison Esam Awuh. Thank you for always being there for me.

## TABLE OF CONTENTS

<b>Introduction</b> .....	1
The Immigrant Paradox.....	2
Research on the Immigrant Paradox.....	3
<i>Immigrants compared to non-immigrant peers</i> .....	4
<i>First-generation compared to second-generation and non-immigrants</i> .....	6
<i>Second-generation immigrants compared to their non-immigrant peers</i> .....	8
<i>Summary</i> .....	10
Explaining the Immigrant Paradox.....	10
<i>Acculturation and mental health</i> .....	11
<i>Measuring acculturation</i> .....	12
<i>Perceived discrimination and mental health</i> .....	15
<i>Ethnic group differences</i> .....	17
The New Zealand Context.....	20
The Immigrant Paradox in New Zealand.....	21
Hypotheses and Research Questions.....	22
<b>Method</b> .....	25
Procedure.....	25
Participants.....	26
Measures.....	28
<i>Demographic variables</i> .....	28
<i>Ethnicity</i> .....	28
<i>Mental health variables</i> .....	29
<i>Well-Being</i> .....	29
<i>Depressive symptoms</i> .....	29
<i>Acculturation</i> .....	30
<i>Cultural contact and participation</i> .....	30
<i>Cultural maintenance</i> .....	31
Perceived ethnic discrimination.....	31
Preliminary Analyses.....	32

Analytical Strategies.....	33
<i>ANOVAs</i> .....	34
<i>Hierarchical regressions</i> .....	35
<b>Results</b> .....	37
ANOVAs.....	37
<i>Well-being</i> .....	37
<i>Summary</i> .....	39
<i>Depressive symptoms</i> .....	40
<i>Summary</i> .....	43
Hierarchical Regressions.....	44
<i>Well-being</i> .....	44
<i>Depressive symptoms</i> .....	48
<i>Summary</i> .....	51
<b>Discussion</b> .....	52
Disadvantages Faced by Immigrants.....	53
Generational Differences in Mental Health and Ethnicity.....	55
<i>Mental health of Asians</i> .....	56
<i>Mental health of Pacific People</i> .....	57
<i>Importance of ethnicity</i> .....	59
Predictors of Mental Health.....	60
<i>Acculturation</i> .....	60
<i>Perceived ethnic discrimination</i> .....	63
Understanding Mixed Findings on the Immigrant Paradox.....	64
Limitations and Recommendations for Future Research.....	65
<i>Ethnicity as a broad category</i> .....	65
<i>Generational status versus ethnic group</i> .....	66
Conclusion.....	68
<b>References</b> .....	70

**LIST OF TABLES**

Table 1. Number of participants per generation per ethnic group.....27

Table 2. Correlations between the ethnic orientation variables..... 33

Table 3. Ethnic groups included in each of the ANOVAs..... 34

Table 4. Well-being means of each ethnic group and generation in relation to..... 38  
 non-immigrants

Table 5. RADS-SF mean scores of each ethnic group and generation in relation to..... 41  
 non-immigrants

Table 6. Regression coefficients for well-being.....45

Table 7. Regression coefficients for depressive symptoms.....49

**LIST OF FIGURES**

Figure 1. Mean scores on the WHO-5 per generation, per ethnic group.....37

Figure 2. Mean scores on the RADS-SF, per generation, per ethnic group..... 40

## **Introduction**

The number of international migrants worldwide was 214 million in 2010, which is 19 million more than in 2005 and represents 3.1 percent of the world population (United Nations Population Division, 2009, 2010). About 1 out of 10 people in developed regions can be labelled an immigrant although the proportion of overseas-born residents in New Zealand is considerably higher. Census data of 2006 showed that 22.9 percent of the people living in New Zealand were born overseas compared to 19.5 percent in 2001 and 17.5 percent in 1996 (Statistics New Zealand, 2006). Thus in 2006, more than 1 out of 5 people living in New Zealand were immigrants. Considering these global numbers it is not surprising that international migrants have received considerable attention in the social science and health literatures and that their social and psychological adaptation has been a topic of particular concern.

Adaptation can be defined as changes that occur in individuals or groups as a result of environmental demands (Berry, 1997). Two distinct but interrelated types of adaptation have been identified: psychological adaptation and sociocultural adaptation (Searle & Ward, 1990). Psychological adaptation refers to psychological or emotional well-being, and studies on psychological adaptation often look at mental health outcomes such as anxiety and depression. Sociocultural adaptation refers to the individual's acquisition of skills to live successfully in a new sociocultural environment and has been operationalised, among other ways, as social competence and the absence of behavioural problems (Sam & Berry, 2010). The increasing number of studies on the adaptation of immigrants has led to the identification of a phenomenon called the Immigrant Paradox.

### **The Immigrant Paradox**

The Immigrant Paradox can be defined as the counterintuitive finding that immigrants show better adaptation outcomes than their non-immigrant peers despite their often poorer socio-economic conditions (Sam, Vedder, Ward, & Horenczyk, 2006). Three main approaches to defining the Immigrant Paradox can be identified in the literature (Di Cosmo et al., 2011). The first and broadest is supported if immigrants show better outcomes than their non-immigrant peers. The second definition also includes a comparison between first and second-generation immigrants. The Immigrant Paradox is here demonstrated when first-generation immigrants show better outcomes than both second-generation immigrants and national peers. The third definition is more stringent and has been less frequently applied in research on immigrant adaptation. When holding this definition it is not only expected that first-generation immigrants have better outcomes than both non-immigrants and second-generation immigrants, but also that second-generation immigrants do not differ from non-immigrant peers. This means that the possible advantage first-generation immigrants have over non-immigrants is not present in the second-generation. To date the Immigrant Paradox has received attention in the United States (Berry, Phinney, Sam & Vedder, 2006), as well as in Western and Northern European countries (Hjern & Allebeck, 2002; Marsiglia, Kulis, Luengo, Nieri & Villar, 2008; Sam, Vedder, Liebkind, Neto, & Virta 2008). Di Cosmo and colleagues (2011) were the first to explicitly explore the Immigrant Paradox in New Zealand using a nationally representative sample of youth.

It is hard to say when the term Immigrant Paradox was first used. It is probably related to studies conducted in the 1950's and 1960's on health outcomes of Hispanics in the United States. Outcomes from these studies suggested an Epidemiological Paradox, which has also been called Hispanic Health Paradox or Latino Mortality Paradox (Markides & Coreil, 1986; Waldstein, 2010). These terms are used for findings similar to the Immigrant Paradox:

Hispanic immigrants in the United States have better health outcomes than either the general population, or than Americans of European or African descent (non-immigrants).

Since these early studies, a number of terms have been used to refer to findings similar to those of the Immigrant Paradox. Sometimes the phenomenon is referred to as Immigrant Advantage while other times the effect of immigrant generation or outcome differences between immigrants and non-immigrants are examined and presented without referring to any terminology. Moreover, in some literature the Immigrant Paradox has been described as the Healthy Migrant or Healthy Immigrant Effect. This term has been used in two different ways. In some of the literature the Healthy Migrant Effect is used in the same way as the Immigrant Paradox, where it refers to the finding that immigrants are in better health than non-immigrant peers in the host country (e.g. Kwan & Ip, 2007), while in other studies this term is used for the hypothesis that people who migrate are in better health than people from their country of origin who do not migrate (e.g. Chou, Johnson & Blewett, 2010).

Research on the Immigrant Paradox, in relation to mental health outcomes in particular, will be discussed next. In this literature overview the term Immigrant Paradox will be used to refer to the phenomenon regardless of the terms used by the authors.

### **Research on the Immigrant Paradox**

One of the major outcomes that has been studied in relation to the Immigrant Paradox is substance abuse. Immigrants are less likely to drink alcohol, smoke cigarettes or use marijuana on a weekly basis than their non-immigrant peers (Blake, Ledsky, Goodenow & O'Donnel, 2001; Di Cosmo et al, 2011; Marsiglia et al., 2008). Furthermore, first-generation immigrants are less likely to drink alcohol or smoke cigarettes than second-generation immigrants (Vega, Gil, & Zimmerman, 1993). Overall, results of the studies about substance abuse support the Immigrant Paradox. Apart from substance abuse other outcome areas in

which the Immigrant Paradox has been supported include academic achievement, health, risk behaviour and engagement in violent acts (Fuligni, 1998).

Besides these areas, the Immigrant Paradox has been studied extensively in terms of mental health outcomes. A great number of studies, although not all, have found that immigrants have better mental health outcomes than non-immigrants (e.g. Alegría et al., 2008), first-generation immigrants have better mental health than second-generation immigrants (e.g. Mossakowski, 2007), and second-generation immigrants do not differ from non-immigrants in terms of mental health (e.g. Harker, 2001). Mental health has been conceptualised in different ways including psychiatric disorders according to the DSM-IV, depression, anxiety and psychological well-being. Since mental health is the outcome that will be examined in the current study, the literature on the Immigrant Paradox and mental health will now be discussed in further detail. These studies have mainly been conducted in Western countries and include a variety of ethnic immigrant groups.

### **Immigrants compared to non-immigrant peers.**

Consistent with the first and broadest definition of the Immigrant Paradox (Di Cosmo et al., 2011), a substantial body of research has reported better mental health for immigrants compared to non-immigrants. Alegría and colleagues (2008) compared life-time prevalence rates of DSM-IV psychiatric disorders of first- and second-generation Latino immigrants and non-Latino white Americans (non-immigrants) of 18 years and older in the United States. They combined data from two national surveys: the National Comorbidity Survey Replication, and the National Latino and Asian American Study. Their results showed that Latino immigrants have lower life-time prevalence rates of psychiatric disorders than their non-Latino white peers. Similarly, in a comparison between a specific Latino immigrant group in the United States and non-immigrants it has been shown that Mexican immigrants

are less likely to have life-time psychiatric disorders than their non-Latino white American peers (Burnam, Hough, Karno, Escobar & Telles, 1987). A further study on the Immigrant Paradox was undertaken in Canada based on a national representative sample of 36,984 participants (Schaffer, Cairney, Cheung, Veldhuizen, Kurdyak, & Levitt, 2009). The results of this study showed that immigrants have lower life-time prevalence rates of bipolar disorder than non-immigrants (1.50 percent compared to 2.27 percent, respectively). Thus, in both the United States and Canada, and among Latino and other immigrant populations, support has been found for the broadest definition of the Immigrant Paradox regarding mental health outcomes.

Further support for the Immigrant Paradox comes from studies among adolescents. Sam and colleagues (2006) compared immigrant and non-immigrant adolescents in 13 countries throughout North America, Western Europe, Israel, and Australasia. Their results showed a systematic pattern with immigrant youth reporting less psychological problems than their non-immigrant peers. They assessed psychological problems with a 15-item scale that measured depression, anxiety, and psychosomatic symptoms. Country-specific findings from the same international project were reported for Portugal (Neto, 2009). Immigrant youth in Portugal had less psychological problems than their non-immigrant peers and perceived discrimination was a significant predictor of poor mental health outcomes. Furthermore, Turkish immigrant youth in Sweden also experienced higher life satisfaction and less psychological problems than their non-immigrant peers (Sam & Virta, 2003). However, the levels of life satisfaction and psychological problems of the other immigrant groups that were included in this study did not differ from those of the non-immigrant peers.

Considering the results of the described studies, it is hypothesised that immigrant youth in New Zealand will have better mental health outcomes than their non-immigrant peers. Moving to the second definition that can be used in Immigrant Paradox studies,

research that has included a comparison between first and second-generation immigrants will be summarised next.

### **First-generation compared to second-generation and non-immigrants.**

Studies of mental health differences between first- and second-generation immigrants have mainly focused on Latino immigrants in the United States. Some studies have included a comparison between immigrants and non-immigrants as well as a comparison between first-generation and second-generation immigrants. In addition to showing better outcomes for immigrants in relation to non-immigrants, they showed that first-generation Latino immigrants have significantly lower rates of life-time psychiatric disorders than second-generation Latino immigrants (Alegría et al., 2008; Burnam et al., 1987; Vega, Kolodi, Aguilar-Gaxiola, Alderete, Catalano & Caraveo-Anduaga, 1998). Alegría, Sribney, Woo, Torres and Guarnaccia (2007) compared prevalence rates of life-time psychiatric disorders of 2,554 Latinos in the United States using data from the National Latino and Asian American Study. They found that first-generation Latino immigrants had lower prevalence rates of life-time psychiatric disorders than Latinos who were born in the United States.

Furthermore, it had been shown that first-generation Latino immigrants who have been in the United States for ten years or less have lower rates of any psychiatric disorder than Latinos who were born in the United States (Cook, Alegría, Lin & Guo, 2009). Beyond research on Latino immigrants, Mossakowski (2007) examined depression rates of 2,129 Filipino immigrants in the United States, using data from the Filipino American Community Epidemiological Study. Based on a regression analysis, her findings showed that first-generation Filipino immigrants had lower levels of depression than their second-generation counterparts. This difference remained significant when a number of other factors were considered. These factors included age, gender, socio-economic status, cultural values, ethnic

identity, and perceived ethnic discrimination. These factors are also included in the current study to examine the relation between immigrant status and mental health outcomes.

Outside the United States, Hjern and Allebeck (2002) analysed cases of deaths by suicide in Sweden among immigrants and non-immigrants based on the National Cause of Death Register. They found that first-generation immigrants were less likely to die of suicide than second-generation immigrants. A similar finding came from Kwan and Ip (2007) who examined suicide death rates and suicidal behaviours of adolescent immigrants in Hong Kong. The study was based on death registration data, census data and a survey. They found that first-generation immigrants who had lived in Hong Kong for less than ten years were less likely than second-generation immigrants to die of suicide, to have made a suicide attempt, to have suicide ideation, and to have self-injurious behaviour.

Although a number of studies has found support for the Immigrant Paradox, or showed that first-generation immigrants have better mental health outcomes than their second-generation immigrant peers who were born in the host country, this is not uniformly the case. Sam and colleagues (2006), who compared first-generation, second-generation, and non-immigrant adolescents in 13 countries in North America, Western Europe, Israel, and Australasia, found only partial support for the Immigrant Paradox. They found that immigrant youth reported less psychological problems than non-immigrant youth. However, they did not find that first-generation immigrants have better outcomes than the other two groups. Instead, some of the findings indicated that both second-generation immigrants and non-immigrants had less psychological problems than first-generation immigrants. There are some more studies that have reported more favourable outcomes for second-generation immigrants. For example, Hamilton, Noh, and Adlaf (2009) looked at psychological distress (measured with the General Health Questionnaire) among 4,078 adolescents in the Canadian province Ontario. They found that symptoms of psychological distress were greatest among first-

generation immigrant youth compared to second-generation immigrant and non-immigrant peers.

Overall, comparisons of first- and second-generation immigrant youth have produced mixed results with many studies showing that later generations of immigrants have better mental health outcomes. In spite of some mixed results, it is hypothesised that first-generation immigrant youth in New Zealand have better mental health outcomes than both second-generation immigrant youth and non-immigrant youth.

The third definition will be discussed next, covering whether second-generation immigrants have significantly different mental health outcomes than their non-immigrant peers.

### **Second-generation immigrants compared to their non-immigrant peers.**

The third definition of the Immigrant Paradox is the most stringent and requires all comparisons across first and second-generation immigrants and national cohorts (Di Cosmo et al., 2011). That may be the reason why fewer studies have investigated the Immigrant Paradox from this perspective. Harker (2001) was one of the few researchers to undertake these comparisons using data from the National Longitudinal Study of Adolescent Health in the United States. She looked at well-being and depression among a national representative sample of 13,350 secondary school youth. Her results showed that first-generation immigrant youth had lower levels of depression and higher levels of well-being than non-immigrant youth when adjusting for age, gender, ethnicity, and family and demographic background factors. Controlling for the same factors, she did not find a difference on the outcomes between second-generation immigrants and non-immigrants.

Furthermore, van Geel and Vedder (2010) compared psychological problems of adolescent immigrant and non-immigrant youth in the Netherlands. They included 152 first-

generation immigrants, 285 second-generation immigrants, and 406 non-immigrants in the study. All immigrants had a non-Western background and mainly came from Turkey, Morocco, Surinam, and the Netherlands Antilles. They found a difference between first-generation immigrants and non-immigrants in which non-Western first-generation immigrants had fewer psychological problems than non-immigrants despite lower socio-economic status. Furthermore, they compared second-generation immigrant youth to non-immigrant youth and did not find any differences between the groups in terms of psychological problems. These findings meet the criteria for the most stringent definition of the Immigrant Paradox and suggest that the immigrant advantage that first-generation immigrants would have is lost in the second-generation.

Sam and colleagues (2006) also undertook comparisons between first-generation, second-generation and non-immigrants in their comprehensive study among adolescents in 13 countries. In only four countries (Canada, Finland, Norway, and Sweden), they found significant differences between the three groups in terms of psychological adaptation. In Canada, Finland and Norway, non-immigrants and second-generation immigrants had better psychological adaptation than first-generation immigrants, while there was no difference between non-immigrants and second generation immigrants. However, in Sweden, second-generation immigrants had better psychological adaptation than both first-generation immigrants and non-immigrants.

There are not enough studies looking at a potential similarity between second-generation immigrants and non-immigrants to draw firm conclusions. Therefore, the current study will address this with a research question.

**Summary.**

It can be concluded from this overview of literature that the Immigrant Paradox in relation to mental health has received support mainly from studies conducted in the United States among adult populations (e.g. Alegría et al., 2008). Some studies on this phenomenon outside the United States and among immigrant youth have shown support for the Immigrant Paradox (e.g. Hjern & Allebeck, 2002; Neto, 2009), but other studies show mixed results (e.g. Hamilton et al., 2009; Sam & Virta, 2003).

Furthermore, in terms of the three definitions of the Paradox as identified by Di Cosmo and colleagues (2011), the first definition of the Immigrant Paradox is most strongly supported, while the second definition showed mixed results and the third definition has not been studied extensively enough in relation to mental health to draw strong conclusions. In cases in which the Immigrant Paradox has been supported, what could be reasons for these findings? Possible explanations will be considered in the next section.

**Explaining the Immigrant Paradox**

Immigrant Paradox is still an enigma in terms of an explanation for the findings (Alegría et al., 2008). Researchers have attempted to identify underlying factors that could explain why immigrants have better outcomes than non-immigrants, and why first-generation immigrants have better outcomes than both second-generation immigrants and non-immigrants. The findings of early studies that suggested an Immigrant Paradox were dismissed because they were argued to be due to incomplete data or migration selectivity, while later research has shown that an explanation of the findings is much more complex than that (Rumbaut, 1997).

The current study will include three factors that have been studied extensively in relation to the mental health of immigrants and are important to consider when looking at the Immigrant Paradox and mental health. These three factors are acculturation (e.g. Koneru,

Weisman de Mamani, Flynn & Betancourt, 2007), perceived discrimination (e.g. Cook et al., 2009) and ethnicity (e.g. Harker, 2001). Each of these factors might contribute to an explanation of generational differences in mental health outcomes of immigrants. The three factors will now separately be discussed in further detail.

### **Acculturation and mental health.**

Acculturation has been defined as a dual process of cultural and psychological change, which derives from contact between at least two different cultural groups and their individual members (Berry, 2005). It consists of two independent dimensions: cultural maintenance and intercultural contact (Berry, 1997, 2005). Not every individual approaches, deals with, and responds to the acculturation process in the same way so the acculturation experience can vary among individuals (Williams & Berry, 1991). Sometimes people are unable to manage acculturative challenges, and negative outcomes including personal crises, anxiety and depression result (Berry, 1997). The level of acculturative stress linked to these outcomes varies across individuals and are affected by the acculturation experience, stressors, mode of acculturation, phase of acculturation, nature of the larger society, characteristics of the acculturation group and characteristics of the acculturation individual (Williams & Berry, 1991).

There have been a few overviews of literature provided on the proposed relation between mental health and acculturation and there appear to be mixed results in terms of this relationship. Rogler, Cortes and Malgady (1991) made an overview of 30 studies which focused on the relation between acculturation and mental health among Hispanics in the United States. All included articles were published between 1967 and 1988. Their overview revealed positive, negative and curvilinear relationships between acculturation and mental health. Similar results were found in another overview based on 86 articles, which included a

more diverse immigrant population consisting of Latino, Asian, and other ethnic immigrant groups in the United States (Koneru et al., 2007). The studies in this overview suggested positive, negative or non-significant relationships between acculturation and mental health, which basically leaves all questions open. No conclusions could be made about whether or not there is a relation between acculturation and mental health, and if so what this relation would be. A more global analysis of literature on the relation between mental health and acculturation came from Salant and Lauderdale (2003) who focused on Asian immigrant groups in five English speaking countries (The United States, Canada, Australia, New Zealand, and the United Kingdom). They included 67 studies in their overview, published between 1996 and 2001. Their conclusions were again that there have been studies that identified a positive, a negative, or a non-significant relation between mental health and acculturation. An explanation to these mixed findings can be found in the variety of ways in which acculturation has been measured and conceptualised.

### ***Measuring acculturation.***

According to the acculturation model by Berry (1997, 2005) acculturation consists of two independent dimensions: cultural maintenance and intercultural contact. However, many studies on mental health of immigrants rely on a unidimensional scale for measuring acculturation (Schwartz, Unger, Zamboanga & Szapocznik, 2010). Even more problematic is that length of residence in the host country is often used as the sole variable to measure acculturation (e.g. Vega & Amaro, 1994). It is then concluded that greater degrees of acculturation are related to poorer mental health outcomes for immigrants. However, in the case of using length of residence as a measure of acculturation these 'greater degrees of acculturation' actually mean longer residence in the host society, and this does not give any idea of degrees of cultural maintenance nor of degrees of intercultural contact. Therefore,

length of residence seems an inappropriate proxy for acculturation when used as only variable. So in terms of the relation between acculturation and mental health outcomes of immigrants the question remains whether the Immigrant Paradox could be explained by the acquisition of the host culture, the maintenance of the heritage culture, or both (Schwartz et al., 2010).

There have been some studies on mental health outcomes and acculturation that did include both dimensions of acculturation. For example, Berry, Phinney, Sam and Vedder (2006) looked at the relation between acculturation attitudes and psychological adaptation (life satisfaction, self esteem, lack of psychological problems) among immigrant youth in 13 different countries. They found that youth who preferred to maintain their ethnic culture as well as engage in the host culture (integration) had the best psychological adaptation. Youth who preferred little engagement in the host culture and high maintenance in their ethnic culture also had a good psychological adaptation, while those who had little preference for maintaining their ethnic culture had a poor psychological adaptation. Sam (2000) also looked at acculturation preferences and found an opposite result that an integration strategy (maintaining ethnic culture and interacting with members of host culture) is related to poor mental health (depression, anxiety and psychosomatic symptoms). He does note as a limitation that the measure of integration had poor internal reliability.

Ghaffarian (1998) assessed acculturation not in terms of preferences but in terms of norms and customs measured with the Cultural Life Style's Inventory (Mendoza, 1989). This scale consists of 29 items regarding language use, social affiliations and activities, cultural familiarity and activities, and cultural identification and pride. Mental health was indicated by depression, anxiety and psychosocial dysfunction scores. Ghaffarian (1998) found that cultural resistance (resisting the acquisition of host culture norms and maintaining native customs) was related to poor mental health while cultural shift (substituting native customs

for host cultural norms) and cultural incorporation (adaptation of customs from both native and host culture) were related to better mental health.

There have been a few studies that have looked at involvement in the host culture and ethnic culture as a measure of acculturation as indicated by the Bicultural Involvement Questionnaire (BIQ, Szapocznik, Kurtines & Fernandez, 1980). For example, Smokowski and Bacallao (2006) looked at the relation between bicultural involvement and internalizing mental health symptoms (anxiety, depression, withdrawal, somatic complaints) among adolescent Latino immigrants in the United States. Their findings showed that involvement with the host culture was negatively related to internalizing problems and involvement with the native culture was unrelated to internalizing problems. The same measures for acculturation and internalizing problems were used by Smokowski, Chapman and Bacallao (2007). They found that involvement in the ethnic culture without involving in the host culture was related to higher internalizing problems. Rivera-Sinclair (1997) also used the BIQ to measure acculturation. She found that involvement in both cultures was related to lower anxiety scores while involvement only in the ethnic culture was related to high anxiety scores.

Nguyen and Benet-Martínez (2011) conducted a meta-analysis on the relation between biculturalism and adjustment (psychological as well as sociocultural). They concluded that there is a strong and positive link between being orientated towards both the host and heritage culture and adjustment. This link was stronger than the link between each of these cultural orientations and adjustment. Furthermore, they looked at the way acculturation was measured and found that bilinear measurement of acculturation reveals a stronger link between biculturalism and adjustment than unilinear measurement or typological measurement. This illustrates the potential difference in findings when having various ways of measuring acculturation.

Studies that include both dimensions of acculturation do not all have the same conclusions, but note once again that acculturation is used in different ways including acculturation preferences, acquisition of norms or customs, and cultural involvement. The studies in which acculturation has been measured in terms of involvement or adoption of norms and customs seem quite consistent in their findings. Involvement solely with the ethnic culture is related to more mental health problems than involvement with both cultures. That acculturation has been defined in many different ways in immigrant mental health studies is definitely a limitation in previous research. In the current study acculturation will be examined by looking at both dimensions and including multiple variables as indicators of these dimensions. Due to inconsistency in the literature there is no hypothesis regarding the relation between acculturation and mental health. Instead it will be explored if acculturation variables predict mental health outcomes and if potential generational differences in mental health outcomes hold when controlling for acculturation.

### **Perceived discrimination and mental health.**

Another factor that has been studied in relation to mental health is that of perceived discrimination. Ethnic and racial discrimination are often aspects of the immigrants' acculturation experience. Higher levels of racial or ethnic discrimination can lead to higher acculturative stress and can thus be seen as an important factor in understanding the mental health of immigrants (Williams & Berry, 1991). However, this is not only true for immigrants, discrimination is negative for anyone who experiences it. Results of several studies among Latino immigrants in the United States have shown that perceived ethnic discrimination is either directly or indirectly related to depression, psychological distress and psychological well-being (Flores, Tschann, Dimas, Bachen, Pasch & de Groat, 2008).

Liebkind and Jasinskaja-Lahti (2000) conducted a study in Finland in which they looked at the relationship between experienced discrimination of immigrants and their psychological well-being (depression and anxiety). They included the seven largest immigrant groups in the Helsinki greater area who differed in terms of recency of immigration, visibility, and cultural similarity to Finnish culture. They found that although the various ethnic immigrant groups experienced different levels and different kinds of discrimination, for all immigrant groups discrimination experiences were predictive of decrements in psychological well-being. More experiences of discrimination were related to more depression and anxiety. Similar results were reported in a later Finnish study by Jasinskaja-Lahti, Liebkind, Jaakkola and Reuter (2006). They found that perceived discrimination predicted lower psychological well-being among immigrants.

Furthermore, perceived discrimination has been shown to be a significant predictor of depression, anxiety and psychosomatic complaints in studies among immigrant youth in Portugal (Neto, 2009), Turkish youth in Norway and Sweden (Virta, Sam & Westin, 2004), and among Turkish immigrant youth in Northern and Western Europe (Vedder, Sam & Liebkind, 2007). These studies were all part of the International Comparative Study of Ethnocultural Youth (ICSEY). Similar findings came from a study on former Soviet Union immigrants in Israel (Mesch, Turjeman & Fishman, 2008).

Cook and colleagues (2009) found that Latinos who were born in the United States reported higher levels of perceived discrimination than Latino immigrants. Thus, first-generation Latinos reported less experiences of discrimination than second-generation immigrants. This could contribute to an explanation of the finding that first-generation immigrants have better mental health than second-generation immigrants although it has to be noted that the supportive findings of the Immigrant Paradox can not solely be explained by

perceived ethnic discrimination. Nevertheless, it should be regarded as an important aspect that contributes to the understanding of the mental health of immigrants.

The literature shows a strong relation between perceived discrimination and mental health. Therefore, it is hypothesised that perceived ethnic discrimination predicts poorer mental health outcomes in immigrant youth in New Zealand. In addition, it will be explored if potential generational differences in mental health outcomes hold when controlling for perceived ethnic discrimination.

### **Ethnic group differences.**

It is important to consider the ethnicity of the immigrant group when drawing conclusions on the Immigrant Paradox. Even when different ethnic immigrant groups migrate at the same age and in the same historical period, there will be differences between them because each group has its own social, cultural, and historical processes that influence both the immigrants themselves and the following generations (García Coll, Szalacha & Palacios, 2005). The importance of ethnicity has been pointed out in several studies, and results of these studies have shown that the supportive findings of the Immigrant Paradox could indeed vary across different ethnic groups.

Although the Latino immigrant groups in the United States together are at lower risk for life-time psychiatric disorders than their non-Latino white American peers, the results are not that straightforward when analysis is done by ethnic subgroup. A significant difference was found between the ethnic subgroups for any life-time disorder by Alegría and colleagues (2008). They showed that findings supporting the Immigrant Paradox in ethnically mixed groups of immigrants held for the Mexican subgroup but not for the Puerto Rican group. The Mexican immigrant subgroup had lower life-time prevalence rates of psychiatric disorders than their non-immigrant peers (non-Latino white Americans) while the Puerto Rican

immigrant subgroup had equal prevalence rates as the non-Latino white Americans. This is in line with previous studies in which it was found that Puerto Rican Americans have the highest depression rates compared to other Latino groups in the United States (Vega & Amaro, 1994) and that Mexican immigrants have lower depression rates than immigrants from Central America (Rogler et al., 1991). It seems that among Latino immigrant subgroups, Mexicans do well in terms of mental health compared to other Latino immigrants and compared to non-Latino white Americans, while Puerto Rican immigrants do not seem to have any mental health advantage over non-immigrants. These ethnic group differences are important to consider when drawing conclusions about the Immigrant Paradox.

Additional evidence that outcomes for the Immigrant Paradox vary according to ethnic group has come from Harker (2001). She examined well-being and depression among different immigrant groups in the United States and found that immigrants in the Mexican, Central/South American, African/Afro-Caribbean, and European/Canadian ethnic groups had an increase in depression across generations. However, Harker did not find this pattern for immigrants in the Cuban, Puerto Rican, Chinese, Filipino, and other Asian/Pacific Islander group. In addition, she found that the positive well-being of Cuban and European/Canadian immigrants decreased over generations. As such, support for the Immigrant Paradox was only found for these two ethnic groups and not for the seven other ethnic groups included in the analysis.

Differences according to ethnic group have not only been found in studies conducted in the United States, but also in a study on immigrants' mental health in Norway and Sweden. Sam and Virta (2003) examined the mental health of immigrants by looking at Pakistani and Vietnamese immigrants in Norway, and Turkish and Vietnamese immigrants in Sweden. They found that the Turkish in Sweden had higher life satisfaction and better mental health

than their non-immigrant peers while the other three immigrant groups did not differ from the nationals.

Mental health outcomes of different ethnic groups in New Zealand have been examined by the Ministry of Health. Mental health was indicated by psychological distress (measured with the Short Form-36 Health Scale) and positive mental health (measured with the Short Form-36 Vitality scale). For immigrant groups it was found that Asian immigrants in New Zealand have higher levels of positive mental health than the New Zealand average but levels of psychological distress did not differ from the New Zealand average (Ministry of Health, 2006). Immigrants from the Pacific Islands were shown to have mental health similar to the New Zealand average (Ministry of Health & Ministry of Pacific Island Affairs, 2004). However, Foliaki, Kokaua, Schaaf and Kukuitonga (2006) found that 46 percent of the immigrants from the Pacific Islands experienced a mental health disorder at some stage during their life compared to 39.5 percent of the general New Zealand population. Furthermore they estimated that Pacific people had a life-time prevalence of suicide ideation of 16.9 percent compared to 15.7 percent in the general population, and the estimated 12-month prevalence of suicide attempts was 1.2 percent which is three times higher than the rate of the general population.

These findings point to the importance of considering the immigrant's ethnic group when studying the Immigrant Paradox. Furthermore, generational differences in mental health outcomes found across ethnically mixed samples of immigrants and non-immigrants may be due to factors related to the ethnicity and background of the respective groups rather than the immigration status per se. Therefore, it will be examined if possible generational differences in mental health outcomes of New Zealand youth remain with the addition of ethnicity to the predictive model. Furthermore, the question is asked if differences in mental health outcomes

between first-generation, second-generation, and non-immigrant youth are the same across different ethnic groups.

In the current study the Immigrant Paradox will be explored in New Zealand. More specifically it was examined if first-generation, second-generation and non-immigrant youth have different mental health outcomes and how these outcomes are related to acculturation, perceived discrimination, and ethnicity. To better understand this study it is important to know a bit more about the New Zealand context, which will briefly be discussed next.

### **The New Zealand Context**

New Zealand has a long history of immigration. The Treaty of Waitangi, signed in 1840 between Māori chieftains and the British Crown, permitted early British settlement and can be seen as New Zealand's first immigration document (Berry, Westin, Virta, Vedder, Rooney & Sang, 2006; Ward & Masgoret, 2008). Although a 'white New Zealand' policy was never explicitly adopted, from 1899 until years after the Second World War strong preference was given to British immigrants, exclusion policies existed for Asians, and Western and Northern Europeans were preferred over Southern Europeans. Consequently, New Zealand was a considerably more homogeneous society than Canada and Australia at that time (Ongley & Pearson, 1995). In the post-war period the only significant group of non-European immigrants were from the Pacific Islands. New Zealand's immigration policies changed radically in the 1980's and were developed to attract skilled individuals who would benefit the New Zealand economy (Ongley & Pearson, 1995; Ward & Masgoret, 2008). These new policies resulted in a rapid increase of Asian migrants.

Nowadays, New Zealand is turning into a much more heterogeneous society. Census data show that in 2006 Europeans made up the largest ethnic group in New Zealand (67.6 percent), followed by Māori (14.6 percent, Statistics New Zealand, 2006). Of the major

immigrant groups, Asians grew fastest in number between 2001 and 2006 (from 6.6 to 9.2 percent), and the second largest growing population during this period was Pacific peoples (from 6.5 to 6.9 percent). In 2006, 22.9 percent of people living in New Zealand were born overseas.

Overall New Zealanders have positive attitudes towards immigrants (Ward & Masgoret, 2008). Compared to Australians and European Union citizens, New Zealanders are more likely to agree that it is good for a society to be made up of different races, religions, and cultures, and they have a stronger endorsement of multiculturalism.

### **The Immigrant Paradox in New Zealand**

The Immigrant Paradox in New Zealand was supported in a study by Di Cosmo and colleagues (2011) who looked at substance use among adolescents. Their study was based on the Youth'07 project, which is the second national survey of the health and well-being of secondary school students in New Zealand. They found that both first- and second-generation immigrants had lower risks of smoking cigarettes on a weekly basis than non-immigrants. In addition, they found that first-generation immigrants had lower risks of drinking alcohol on a weekly basis than non-immigrants but not when variables of engagement/participation in New Zealand society were considered. No differences were found between second-generation immigrants and non-immigrants. In these analyses, age, gender, socio-economic status, ethnicity and perceived ethnic discrimination were controlled.

There is little research available on the mental health of immigrant youth in New Zealand. Ward and Viliamu (2009) found that first-generation Samoan youth in New Zealand have higher life satisfaction than both second-generation Samoan immigrant and non-immigrant youth. However, no difference was found between the groups in terms of psychological problems. In another study on the Immigrant Paradox in New Zealand there

were seven immigrant groups included (Chinese, Korean, Samoan, Indian, British, South African, and Other) and their life satisfaction and psychological symptoms (depression, anxiety and psychosomatic complaints) were compared with both Māori and New Zealand Europeans (Ward, unpublished). Results of this study showed that Indian and British immigrants have higher life satisfaction than both Māori and New Zealand Europeans and that Indian, British and Chinese immigrants have significant lower levels of psychological symptoms than New Zealand Europeans. Finally, Foliaki and colleagues (2006) found that the 12-month prevalence rate of any mental disorder was 31.4 percent for New Zealand born Pacific people (second-generation) compared to 15 percent for Pacific people who migrated to New Zealand after the age of 18 (first-generation).

Now that the Immigrant Paradox as well as the New Zealand context have been discussed, the current study will be reported, starting with the hypotheses and research questions.

### **Hypotheses and Research Questions**

The first aim of this study was to investigate the Immigrant Paradox in New Zealand by looking at depressive symptoms and well-being of first and second-generation immigrant youth with different ethnic backgrounds in comparison to non-immigrant youth. To examine the Immigrant Paradox across those groups, two hypotheses were tested.

- H1) Overall, immigrant youth in New Zealand will have better mental health outcomes (less depressive symptoms and higher well-being) than their non-immigrant peers.
- H2) First-generation immigrant youth will have better mental health outcomes than non-immigrant youth.

There was no hypothesis concerning a difference between second-generation immigrants and non-immigrants due to the small number of studies that have focused on this comparison. Therefore, this issue was addressed with a research question (see RQ1 below). There was also no specific hypothesis concerning ethnicity. Although previous research has shown that there are potential ethnic differences in the findings on the Immigrant Paradox, no study on the Immigrant Paradox in relation to mental health in New Zealand with the same ethnic groups as in this study has been done before. It therefore remains unclear whether there would be ethnic group differences or not and if so, where these differences would lie. Therefore, possible ethnic group differences were explored with a research question (RQ2).

RQ1) Are there significant differences in mental health outcomes between second-generation immigrants and their non-immigrant peers?

RQ2) Are the differences in mental health outcomes between first-generation immigrant youth, second-generation immigrant youth and non-immigrant youth the same across different ethnic groups?

The second aim of this study was to examine if generational differences (between first and second-generation immigrant youth) predict mental health outcomes and if this relation holds when acculturation, perceived ethnic discrimination and ethnicity are added to the predictive model. Two hypotheses were tested.

H3) First-generation immigrant youth have better mental health outcomes than second-generation immigrant youth.

H4) Greater perceived ethnic discrimination predicts poorer mental health outcomes in immigrant youth.

Since previous findings on the role of acculturation in relation to mental health are mixed and do not indicate any certain direction, acculturation has been included as a research question (see RQ3 below). Acculturation, perceived discrimination and ethnicity can be seen as underlying factors that could contribute to an explanation of the Immigrant Paradox. This will be examined with a research question (RQ4).

RQ3) Do acculturation variables predict mental health outcomes in immigrant youth?

RQ4) Do possible generational differences in mental health outcomes remain with the addition of acculturation, perceived ethnic discrimination and ethnicity to predictive models?

## Method

### Procedure

To test these hypotheses and answer these research questions data from the Youth'07 project were used. The Youth'07 project was the second national survey of the health and well-being of secondary school students in New Zealand conducted by the Adolescent Health Research Group. The data were collected between March and October 2007 in 96 randomly selected secondary schools throughout New Zealand. The students who participated in this project were randomly selected within these schools and their participation was voluntary.

The participating students completed a web-based survey on a hand-held internet tablet. A pilot study was conducted among 177 secondary school students to examine their feelings about the hand-held internet tablet in comparison to using a laptop (Denny et al., 2008). In this pilot study, students completed half of the health and well-being questionnaire on the hand-held tablet and half on a laptop. They were asked which of the two they preferred, which one was easier to use, which one they perceived as more private and confidential, and with which method they found it easier to answer truthfully. Results showed that students did not prefer one method over the other and that they found them equally easy to use. However, significantly more students preferred the hand-held tablet over the laptop when asked about the privacy and confidentiality of both methods. The same was found when students were asked with which one it was easier to answer truthfully. Therefore, the hand-held tablets were a feasible method for this survey.

In the Youth'07 project, students could read the questions as well as listen to them through a headphone. The survey took on average 75 minutes to complete, and all students completed the survey in groups at their school. More information about the data collection can be found in the technical report of the Youth'07 project (Adolescent Health Research Group, 2008).

**Participants**

A total of 7053 participants were included in the current study of which 3853 students were male (54.6%) and 3200 were female (45.4%). The age ranged from 13 and younger to 17 and older (mean about 14.93 years). Participants were classified as first-generation immigrant, second-generation immigrant or non-immigrant based on previous literature (Di Cosmo et al., 2010; Hamilton et al., 2009). Students' and their parents' countries of birth have been used to create these categories. If the student was not born in New Zealand, he or she was classified as a first-generation immigrant. If the student was born in New Zealand and at least one of the parents was born outside New Zealand the student has been classified as a second-generation immigrant. Finally, if the student and both of the parents were born in New Zealand, the student was classified as a non-immigrant.

Participants belonged to one of four broad ethnic groups: European, Pacific, Asian and 'Other' (e.g. African, Latin American, Middle Eastern). The numbers of Pacific, Asian and 'Other' non-immigrants were either very small or non-existent and therefore these participants were not included in the analyses. The number of participants per generation and per ethnic group that were included in the current study are listed in Table 1.

Table 1

*Number of Participants per Generation per Ethnic Group*

<b>Immigrant generation</b>				
<b>Ethnicity</b>	First-generation	Second-generation	Non-immigrant	Total
European	630	824	3309	4763
Pacific	248	554		802
Asian	833	256		1089
Other	320	79		399
Total	2031	1713	3309	7053

According to the definitions used for immigrant generation and the method used to define ethnicity, there were a number of Māori students who would be labelled as “immigrants”. Māori are the indigenous people of New Zealand and their country of birth does not remove their status and rights as indigenous people of New Zealand. Labelling Māori as immigrants would be inappropriate and a breach of their rights as indigenous people. In consultation with the Māori investigators of the Adolescent Health Research Group it was decided that these students would not be included in the analyses. The other Māori students who participated in the Youth’07 project, those born in New Zealand with both parents born in New Zealand, were also not included in the analyses due to an unresolved disagreement about the way in which these data would be analysed. As a consequence of these issues, the Māori data were not made available for analysis.

## Measures

### **Demographic variables.**

Three control variables were used: age of the student, gender of the student, and socio-economic status. For socio-economic status one geographical indicator was used as well as two individual measures. The geographical indicator was the New Zealand socio-economic deprivation index. This is an area-based index created from nine variables of the 2006 New Zealand census data and the student's address. The variables that were used to create this indicator were: receiving means-tested benefit, household income, home ownership, single parent families, employment, educational qualifications, overcrowding, access to telephone, and access to car. The score on the New Zealand Deprivation index ranged from 1 (low deprivation area) to 10 (high deprivation area).

The two individual-level socio-economic status variables were number of times the student had moved homes and the student's perception of their parents/caregivers worrying about having enough money to buy food. Number of times the student had moved homes was measured on a four point scale ranging from 'zero' to 'three or more times'. Parents or caregivers worrying about having enough money to buy food, as indicated by the student, was measured on a four point scale ranging from 'never' to 'all the time'.

### **Ethnicity.**

Four broad ethnic groups were included in this study: European, Pacific, Asian and 'Other'. Students were asked what their ethnicity was. They could give as many answers as they liked. For those who indicated belonging to more than one ethnic group, ethnicity was based on the prioritization system developed by Statistics New Zealand (Statistics New Zealand, 2005). This system uses the following hierarchy: Pacific → Asian → Other → European. For example, if a student selected Chinese and English, the student was categorised as Asian.

**Mental health variables.**

Mental health consists of two indicators: levels of well-being and amount of depressive symptoms.

***Well-Being.***

Well-being was measured with the Well-being index developed by the World Health Organisation (WHO-5) which measures three underlying constructs: positive mood, vitality, and general interests (Bech, Olsen, Kjoller, & Rasmussen, 2003). The WHO-5 consists of five items about how the student has felt in the last two weeks. The five items are: *'I have felt cheerful and in good spirits'*, *'I have felt calm and relaxed'*, *'I have felt active and vigorous'*, *'I woke up feeling fresh and rested'* and *'My daily life has been filled with things that interest me'*. Participants answered these items on a six point scale ranging from 'all the time' (1) to 'at no time' (6). The WHO-5 is shown to be a reliable measure with a Cronbach's Alpha of .88 (Zierau, Bille, Rutz, & Bech, 2002).

***Depressive symptoms.***

Depressive symptoms were measured with a short version of the Reynolds Adolescent Depression Scale (RADS), the RADS-SF, which is a 10 item scale that measures depressive feelings among adolescents. It includes items 1, 3, 6, 7, 14, 19, 20, 22, 28 and 30 of the RADS. Participants responded to the items on a four point scale ranging from 'almost never' (1) to 'most of the time' (4). A higher score indicates that the student has more depressive feelings. The RADS-SF has been shown to be a valid and reliable scale for school based samples of adolescents with a Cronbach's Alpha of .86 (Reynolds, 2009) and for the participants of the Youth2000 project with a Cronbach's Alpha of .88 (Milfont, Merry, Robinson, Denny, Crengle, & Ameratunga, 2008).

**Acculturation.**

To indicate acculturation both the cultural contact and participation dimension and the cultural maintenance dimension were included.

***Cultural contact and participation.***

For the cultural contact dimension three items were used: 1) comfort level of the student in New Zealand European social surroundings, 2) amount of the family traditions or activities/celebrations that are based on New Zealand European culture, and 3) English among the main languages spoken at home by the parents or caregivers. These items have been used in previous research as indicators of acculturation (Di Cosmo et al., 2011; Wong, Amerutunga, Garrett, Robinson, & Watson, 2008).

Comfort level in New Zealand European social settings was measured with one item: *'how comfortable do you feel in Pakeha or NZ European social surroundings?'* Participants answered this question using a five point scale ranging from 'very uncomfortable' (1) to 'very comfortable' (5).

Family traditions and activities based on New Zealand European culture was measured with one item: *'How many of your family's special activities or traditions are based on NZ European or Pakeha culture (e.g Christmas, Easter, Guy Fawkes)?'* Participants answered this question on a four point scale ranging from 'a lot' (1) to 'none' (4).

English as a main language at home was measured with one item asking the students to indicate what language their parents or caregivers usually speak at home. Students could select more than one language. For those who selected English (regardless of any other languages selected), English among main languages at home was given the value 1. The value 0 represents students whose answer did not include English.

***Cultural maintenance.***

Cultural maintenance existed of two indicators. One was using a language other than English at home and the second indicator was a created composite measure (ethnic orientation) of four items.

Other language than English used at home was based on the same question as “English among main language at home”. Students who indicated that their parents or caregivers spoke a language at home other than English (regardless of having selected English and regardless of the number of other languages) were given the value 1 on this item. Students who did not select a language other than English were given the value 0.

Ethnic orientation was based on four items: 1) understanding of ethnic group’s language, 2) ability to speak the language of ethnic group, 3) importance of ethnic group’s values, and 4) ethnic group pride. Ethnic group’s language abilities, including understanding of the language (*‘how well can you understand spoken [specified] language?’*) and ability to speak the language (*‘how well can you speak [specified] language?’*), was measured on a five point scale ranging from ‘very well’ (1) to ‘no more than a few words and phrases’ (5). The importance of ethnic group’s values was measured with one question: *‘are [specified ethnicity] values important to you?’* Participants answered this question on a five- point scale ranging from ‘very important’ (1) to ‘not at all important’ (5). Ethnic group pride was measured with one question: *‘Are you proud of being [specified ethnicity]’* which was answered on a three point scale including ‘very’, ‘somewhat’, and ‘not’.

***Perceived ethnic discrimination.***

Experienced discrimination on the basis of the student’s ethnicity was measured with three items: *‘I was bullied because of my ethnic group or culture’* (at school), *‘Have you ever been treated unfairly (e.g. treated differently, kept waiting) by a health professional (e.g. doctor,*

*nurse, dentist etc.) because of your ethnicity or ethnic group?'*, and *'Have you been treated unfairly (picked on, hassled, etc) by the police because of your ethnic group?'*. If a student answered 'yes' to at least one of these questions, they were classified as having reported ethnic discrimination (1). Those who answered all three questions with 'no' were classified as not having reported ethnic discrimination (0).

### **Preliminary Analyses**

Students' ability to speak their ethnic language, understanding of their ethnic language, importance of their ethnic group's values and ethnic group pride were reversed so that a higher score indicated stronger ethnic orientation. Correlations between the variables were examined to justify the creation of a composite measure. The correlations are shown in Table 2. All correlations were positive and significant, and the four items had a Cronbach's alpha of .64<sup>1</sup>. Therefore the four variables were combined into ethnic orientation. In order to do so, ethnic group pride was rescaled from a 3-point scale to a 5-point scale using the formula from Aiken (1987). A higher score means the student is stronger orientated towards the specified ethnicity, or has stronger maintenance of the ethnic culture.

---

<sup>1</sup> Initially, "comfort level in ethnic group's social settings" was included as an ethnic orientation variable. However, this item showed to have either weak or no correlations with the other four variables and the five items gave a Cronbach's alpha of .53. The results with and without inclusion of this fifth variable in the ethnic orientation indicator were virtually identical. Nevertheless, due to the low Cronbach's alpha, this item was excluded from reported analyses.

Table 2

*Correlations Between the Ethnic Orientation Variables*

	1	2	3	4
1. Understanding of ethnic language	-	.84**	.12**	.12**
2. Ability to speak ethnic language	.84**	-	.10**	.12**
3. Importance of ethnic values	.12**	.10**	-	.47**
4. Proud of ethnicity	.12**	.12**	.47**	-

*Note.* \*\*  $p < .001$

Ethnicity was dummy coded with European as a reference and an interaction between ethnicity and generation was created, again with European as a baseline.

The RADS-SF was transformed using logarithm. This was done to better satisfy the assumptions of normality. The WHO-5 items were reversed so that a higher score indicates higher well-being, and a sum score was created.

### **Analytical Strategies**

The analyses were divided into two parts, a set of ANOVAs and two hierarchical regressions. Only New Zealand European non-immigrants were included in this study, while the immigrants were European, Pacific, Asian and 'Other'. Including all participants in the regression analyses would thus confound generational status and ethnicity. Therefore, mental health outcomes of immigrants compared to non-immigrants were analysed with a set of ANOVAs and the mental health outcomes of the two immigrant generations were analysed using hierarchical regressions.

**ANOVAs.**

A total of 10 One-Way ANOVAs were conducted in this study. An overview of the ethnic groups included in each of the ANOVAs is given in Table 3.

Table 3

*Ethnic Groups Included in Each of the ANOVAs*

	ANOVA				
	1 & 2	3 & 4	5 & 6	7 & 8	9 & 10
Immigrants	All	European	Pacific	Asian	Other
Non-Immigrants	NZE	NZE	NZE	NZE	NZE

*Note.* NZE refers to New Zealand European

The first two ANOVAs were conducted to test two of the hypotheses and to answer one of the research questions.

- H1) Overall, immigrant youth in New Zealand have better mental health outcomes (less depressive symptoms and higher well-being) than their non-immigrant peers.
- H2) First-generation immigrant youth have better mental health outcomes than non-immigrant youth.
- RQ1) Are there significant differences in mental health outcomes between second-generation immigrants and their non-immigrant peers?

ANOVA one had well-being as an outcome variable while ANOVA two had depressive symptoms as an outcome. Three contrasts were run to compare all immigrants (1) to New Zealand European non-immigrants (-2), first-generation immigrants (-1) to New Zealand

European non-immigrants (1), and second-generation immigrants (-1) to New Zealand European non-immigrants (1).

In addition, eight ANOVAs (four with well-being and four with depressive symptoms as dependent variable) were conducted with the same contrasts to answer an additional research question pertaining to differences among Asian, Pacific, European and 'Other' ethnic groups.

RQ2) Are the differences in mental health outcomes between first-generation immigrant youth, second-generation immigrant youth and non-immigrant youth the same across the different ethnic groups?

#### **Hierarchical regressions.**

A hierarchical regression was performed for each of the outcome variables, including only first- and second-generation immigrants. The regressions were conducted to specifically test hypotheses three and four as well as answer research question three and four.

H3) First-generation immigrant youth have better mental health outcomes than second-generation immigrant youth.

H4) Greater perceived ethnic discrimination predicts poorer mental health outcomes in immigrant youth.

RQ3) Do acculturation variables predict mental health outcomes in immigrant youth?

RQ4) Do possible generational differences in mental health outcomes remain with the addition of acculturation, perceived ethnic discrimination and ethnicity to predictive models?

The regressions for both outcome variables followed the steps as shown below.

*Step 1:* Generation, Age, Gender, Socio-economic status

*Step 2:* Acculturation: Family traditions based on New Zealand European culture, Comfort level in New Zealand European social settings, English among main language at home, Other language spoken at home, Ethnic orientation

*Step 3:* Perceived ethnic discrimination

*Step 4:* Ethnicity, Generation\*ethnicity

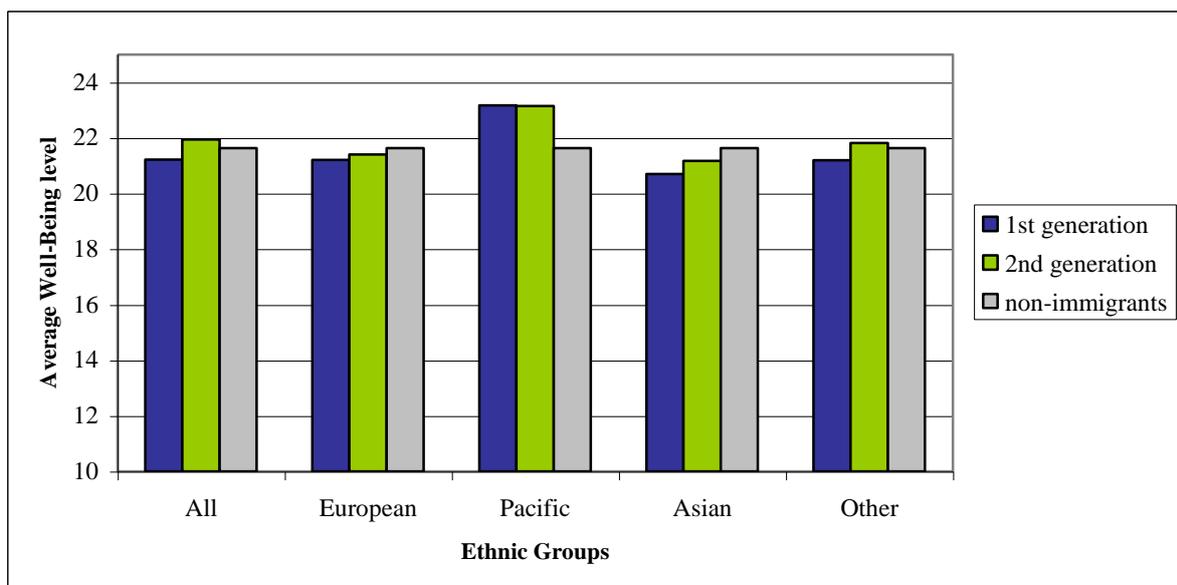
## Results

The results consist of two parts as discussed in the analytical strategies. First the results of the ANOVAs will be discussed, and second the results of the hierarchical regressions will be discussed.

### ANOVAs

#### Well-being.

The mean scores on the well-being measure for the four ethnic groups and the non-immigrants are shown in Figure 1. Note that the scores on the WHO-5 could range from 5 to 30.



*Figure 1.* Mean scores on the WHO-5 per generation, per ethnic group

*Note.* All non-immigrants are New Zealand European

The means on the well-being measure for both generations of each ethnic group in comparison to the well-being mean of non-immigrants are summarised in Table 4.

Table 4

*Well-Being Means of Each Ethnic Group and Generation in Relation to Non-Immigrants*

Ethnicity	Immigrant generation							
	Immigrant		First-generation		Second-generation		Non-immigrant	
	<i>M</i>	95%CI	<i>M</i>	95%CI	<i>M</i>	95%CI	<i>M</i>	95%CI
All	21.55	(21.37-21.74)	21.22*	(20.96-21.49)	21.94	(21.68-22.21)	21.64	(21.45-21.82)
European	21.33	(21.05-21.60)	21.21	(20.79-21.63)	21.41	(21.05-21.78)		
Pacific	23.16**	(22.73-23.58)	23.17**	(22.37-23.97)	23.15**	(22.64-23.65)		
Asian	20.81**	(20.46-21.16)	20.70**	(20.28-21.12)	21.18	(20.56-21.80)		
Other	21.32	(20.72-21.93)	21.20	(20.52-21.89)	21.82	(20.50-23.13)		

Note. \* $p < .05$ , \*\* $p < .01$

There was a significant effect of immigrant generation on well-being, Welch  $F(2,3744) = 7.25$ ,  $p = .001$ ,  $\eta^2 = .002$ . Contrasts revealed that immigrants did not significantly differ from non-immigrants,  $t(6700) = -0.39$ ,  $p = .70$ ,  $r = .005$ , and that second-generation immigrants did not significantly differ from non-immigrants,  $t(3235) = -1.86$ ,  $p = .06$ ,  $r = .033$ . Contrary to the principles of the Immigrant Paradox, first-generation immigrants had significantly lower levels of well-being than non-immigrants,  $t(3818) = 2.52$ ,  $p = .01$ ,  $r = .041$ .

The ANOVA comparing European immigrants and New Zealand European non-immigrants showed no significant effect of immigrant generation on well-being,  $F(2,4580) = 1.90$ ,  $p = .15$ ,  $\eta^2 = .001$ . Similarly, the ANOVA comparing 'Other' immigrants and New Zealand European non-immigrants showed no significant effect of immigrant generation on well-being, Welch  $F(2,170) = 0.77$ ,  $p = .46$ ,  $\eta^2 = .001$ .

The ANOVA comparing Pacific immigrants and New Zealand European non-immigrants showed a significant effect of immigrant generation on well-being, Welch  $F(2,477) = 20.58$ ,  $p < .001$ ,  $\eta^2 = .012$ . Contrasts revealed that Pacific immigrants had

significantly higher levels of well-being than New Zealand European non-immigrants,  $t(546) = 5.90$ ,  $p < .001$ ,  $r = .245$ . More specifically, both first- and second-generation Pacific immigrants had significantly higher levels of well-being than non-immigrants,  $t(249) = -3.69$ ,  $p < .001$ ,  $r = .227$ , and  $t(666) = -5.53$ ,  $p < .001$ ,  $r = .210$ , respectively. These findings confirm the hypotheses and are consistent with the first two definitions of the Immigrant Paradox. However, contrary to the third and most stringent definition, second-generation Pacific immigrants had higher well-being than non-immigrants.

The ANOVA comparing Asian immigrants and New Zealand European non-immigrants showed a significant effect of immigrant generation on well-being, Welch  $F(2,597) = 8.48$ ,  $p < .001$ ,  $\eta^2 = .005$ . Contrasts revealed that Asian immigrants had significantly lower levels of well-being than non-immigrants,  $t(745) = -3.25$ ,  $p = .001$ ,  $r = .119$ . First-generation Asian immigrants specifically had significantly lower levels of well-being than non-immigrants,  $t(1145) = 4.02$ ,  $p < .001$ ,  $r = .118$ , but there was no difference in levels of well-being between second-generation Asian immigrants and New Zealand European non-immigrants,  $t(289) = 1.38$ ,  $p = .17$ ,  $r = .081$ . These results show no support for the Immigrant Paradox but instead show that Asian first-generation immigrants have lower well-being than non-immigrants. Just like second-generation immigrants in general, Asian second-generation immigrants did not differ in well-being from non-immigrants.

### ***Summary.***

Analyses with only Pacific immigrants and New Zealand European non-immigrants support both the hypotheses and show that Pacific immigrants overall and Pacific first-generation immigrants have higher well-being than non-immigrants. However, results of the ANOVAs with all ethnic immigrant groups combined, European immigrants, Asian immigrants and 'Other' immigrants do not support the hypotheses. The results of the analyses with Asian

immigrants even show that they have lower well-being than New Zealand European non-immigrants.

Analyses with immigrants in general, with European immigrants, with Asian immigrants and with ‘Other’ immigrants showed that second-generation immigrants have similar well-being as non-immigrants. The only group that showed different results were Pacific second-generation immigrants whose well-being was higher than the well-being of non-immigrants.

Altogether, the results of well-being among immigrants and non-immigrants provide very little support for the Immigrants Paradox. Considering the differences between the ethnic groups, ethnicity seems to be an important factor in studying the Immigrant Paradox.

### Depressive symptoms.

The levels of depressive symptoms for each group of participants are summarised in Figure 2.

Note that the scores on the RADS-SF could range from 10 to 40.

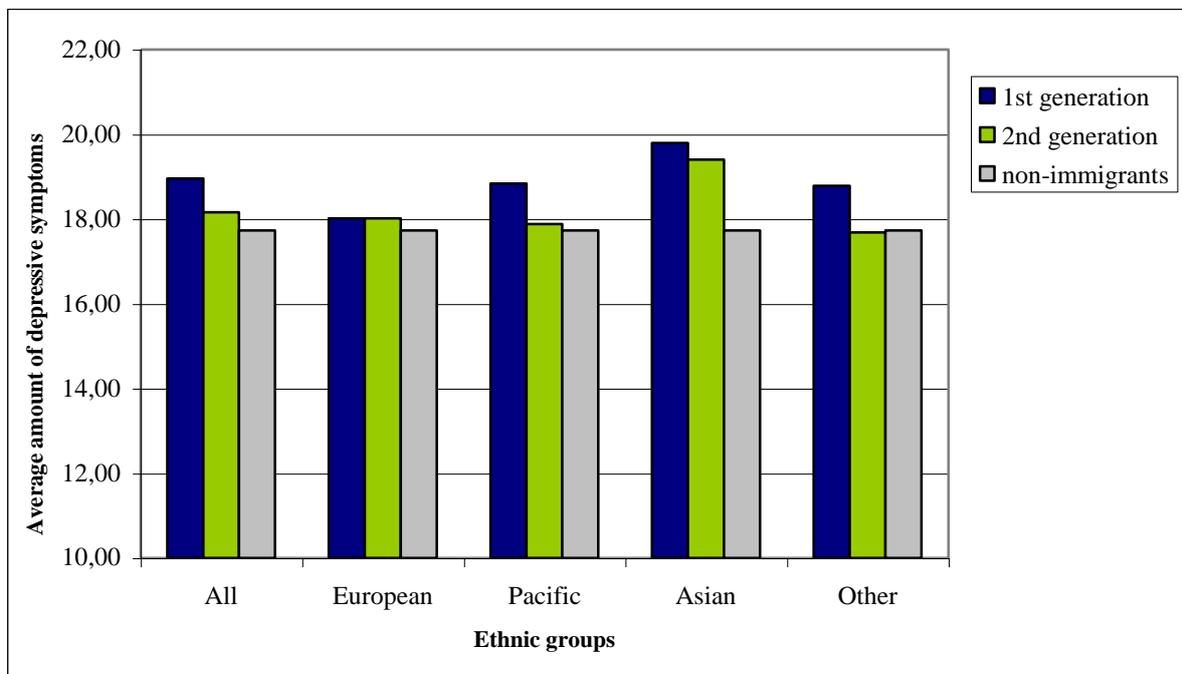


Figure 2. Mean scores on the RADS-SF, per generation, per ethnic group

Note. All non-immigrants are New Zealand European

The mean scores on the RADS-SF measure for depressive symptoms for both generations of each ethnic group in comparison to the RADS-SF mean of non-immigrants are summarised in Table 5.

Table 5

*RADS-SF mean scores of Each Ethnic Group and Generation in Relation to Non-Immigrants*

	<b>Immigrant generation</b>							
	Immigrant		First-generation		Second-generation		Non-immigrant	
<b>Ethnicity</b>	<i>M</i>	95%CI	<i>M</i>	95%CI	<i>M</i>	95%CI	<i>M</i>	95%CI
All	18.59**	(18.40-18.79)	18.96**	(18.69-19.23)	18.16*	(17.87-18.44)	17.73	(17.54-17.93)
European	18.01	(17.71-18.32)	18.01	(17.56-18.47)	18.01	(17.61-18.42)		
Pacific	18.17*	(17.74-18.60)	18.83**	(18.03-19.67)	17.88	(17.38-18.39)		
Asian	19.71**	(19.35-20.07)	19.80**	(19.38-20.22)	19.40**	(18.68-20.15)		
Other	18.56	(17.96-19.19)	18.78**	(18.10-19.49)	17.68	(16.38-19.10)		

*Note.* \* $p < .05$ , \*\* $p < .01$

There was a significant effect of immigrant generation on depressive symptoms,  $F(2,6766) = 26.84$ ,  $p < .001$ ,  $\eta^2 = .008$ . Contrasts revealed that immigrants had more depressive symptoms than non-immigrants,  $t(6766) = 5.84$ ,  $p < .001$ ,  $r = .071$ , that first-generation immigrants had more depressive symptoms than non-immigrants,  $t(6766) = -7.32$ ,  $p < .001$ ,  $r = .089$ , and that second-generation immigrants had more depressive symptoms than non-immigrants,  $t(6766) = -2.45$ ,  $p = .01$ ,  $r = .030$ . Contrary to the Immigrant Paradox, non-immigrants demonstrated less depressive symptoms than immigrants.

The ANOVA comparing European immigrants and New Zealand European non-immigrants showed no significant effect of immigrant generation on depressive symptoms,  $F(2, 4593) = 1.21, p = .30, \eta^2 = .001$ .

The ANOVA comparing Pacific immigrants and New Zealand European non-immigrants showed a significant effect of immigrant generation on depressive symptoms,  $F(2, 3906) = 3.80, p = .02, \eta^2 = .002$ ; however the trends were not in accordance with the criteria for establishing an Immigrant Paradox. Contrasts revealed that Pacific immigrants had more depressive symptoms than non-immigrants,  $t(3906) = 2.47, p = .01, r = .039$ , and that first-generation Pacific immigrants had more depressive symptoms than non-immigrants,  $t(3906) = -2.74, p = .006, r = .044$ . However, there was no difference in depressive symptoms between second-generation Pacific immigrants and non-immigrants,  $t(3906) = -0.56, p = .58, r = .009$ .

The ANOVA comparing Asian immigrants and New Zealand European non-immigrants showed a significant effect of immigrant generation on depressive symptoms,  $F(2, 4241) = 45.47, p < .001, \eta^2 = .021$ . Contrasts revealed that Asian immigrants had significantly more depressive symptoms than non-immigrants,  $t(4241) = 7.85, p < .001, r = .120$ , first-generation Asian immigrants had significantly more depressive symptoms than non-immigrants,  $t(4241) = -8.96, p < .001, r = .136$ , and second-generation Asian immigrants had significantly more depressive symptoms than non-immigrants,  $t(4241) = -4.31, p < .001, r = .066$ . Asian immigrants had more depressive symptoms than New Zealand European non-immigrants.

Finally, the ANOVA comparing 'Other' immigrants and New Zealand European non-immigrants showed a significant effect of immigrant generation on amount of depressive symptoms,  $F(2, 3569) = 4.68, p = .009, \eta^2 = .003$ . Contrasts revealed no significant difference in amount of depressive symptoms between 'Other' immigrants and non-immigrants,  $t(3569)$

= 1.30,  $p = .19$ ,  $r = .022$ , nor between second-generation 'Other' immigrants and non-immigrants,  $t(3569) = 0.07$ ,  $p = .95$ ,  $r = .001$ . However, first-generation 'Other' immigrants had more depressive symptoms than non-immigrants,  $t(3569) = -3.05$ ,  $p = .002$ ,  $r = .051$ .

### *Summary.*

None of the ANOVAs showed support for the hypotheses. Analyses even showed that for immigrants in general, Asian, and Pacific immigrants, the amount of depressive symptoms was higher than for New Zealand European non-immigrants. In addition, first-generation immigrants in general, Asian, Pacific and 'Other' first-generation immigrants had more depressive symptoms than New Zealand European non-immigrants.

Analyses with European second-generation immigrants, Pacific second-generation immigrants and 'Other' second-generation immigrants showed that there is no difference between second-generation immigrants and non-immigrants in terms of depressive symptoms. However, second-generation immigrants in general and Asian second-generation immigrants had more depressive symptoms than non-immigrants. The results per ethnic group are not always the same as the results for the ethnic groups combined. This indicates that the findings related to the Immigrant Paradox are different when looking at ethnic groups separately.

The analyses with depressive symptoms do not support the Immigrant Paradox. If differences between the immigrants and non-immigrants were found, they were in opposite direction of an Immigrant Paradox. This is different from the results for well-being, in which some support was found among Pacific immigrant youth and only the patterns of Asian immigrant youth were opposite of the Immigrant Paradox. Therefore, the findings do not only differ between ethnic groups, but also between the outcome variables. The results of the hierarchical regressions will be discussed next.

## **Hierarchical Regressions**

### **Well-being.**

The results of the hierarchical regression with well-being as outcome are reported in Table 6. The first step included immigrant generation as well as the control variables (age, gender and socio-economic status). In the second step acculturation variables were added to the model, and in the third step perceived discrimination was added. In the fourth and final step, ethnicity and an interaction between ethnicity and immigrant generation were added to the model. All four steps in the regression predicted a significant amount of variance in well-being and each step predicted more variance than the previous one, as illustrated by the  $R^2$  change. Therefore, the fourth step is accepted as the most comprehensive model.

Table 6  
Regression Coefficients for Well-Being

	Step1			Step2			Step3			Step4		
	B	SE	β									
<b>Age</b>	-0.49	0.08	-.12**	-0.48	0.08	-.12**	-0.50	0.08	-.12**	-0.48	0.08	-.12**
<b>Gender</b>	-1.60	0.21	-.14**	-1.63	0.21	-.14**	-1.82	0.21	-.16**	-1.82	0.21	-.16**
<b>SES</b>												
NZDep	0.22	0.04	.11**	0.19	0.04	.10**	0.20	0.04	.11**	0.09	0.04	.05*
Movedhome	-0.16	0.12	-.03	-0.14	0.12	.02	-0.10	0.12	-.02	-0.15	0.12	-.02
WorryFood	-0.73	0.10	-.14**	-0.72	0.10	-.14**	-0.70	0.10	-.13**	-0.78	0.10	-.15**
<b>Generation</b>	0.54	0.22	.05*	0.54	0.23	.05*	0.52	0.23	.05*	0.06	0.34	.01
<b>Acculturation</b>												
Cult.Maintenance				0.23	0.04	.12**	0.23	0.04	.12**	0.25	0.04	.13**
English at home				0.92	0.31	.06**	0.92	0.31	.06**	0.76	0.31	.05*
Other lang. at home				0.95	0.25	.08**	1.15	0.25	.10**	0.28	0.32	.02
NZ celebrations				0.36	0.13	.06**	0.33	0.13	.05**	0.26	0.13	.04*
Comfort NZE				0.13	0.08	.03	0.10	0.08	.02	0.11	0.08	.03
<b>Discrimination</b>							-1.98	0.30	-.12**	-2.06	0.30	-.13**
<b>Ethnicity</b>												
<b>(ref. European)</b>												
Pacific										2.73	1.04	.20**
Asian										-0.37	0.84	-.03
Other										0.65	1.16	.04
<b>Ethn*Generation</b>												
<b>(ref. European)</b>												
Pacific*Gen										-0.10	0.59	-.01
Asian*Gen										0.73	0.57	.08
Other*Gen										-0.11	0.86	-.01
R <sup>2</sup>		.06			.09			.10			.12	
R <sup>2</sup> change		.06**			.02**			.01**			.02**	

Note Gender was coded 1 for males and 2 for females, generation was coded 1 for first-generation immigrants and 2 for second-generation immigrants, \* $p < .05$ , \*\* $p < .01$

With the exception of number of times a student has moved home, all the control variables were significant predictors of well-being. Age was negatively associated with well-being (Beta =  $-.12$ ,  $t = -6.32$ ,  $p < .001$ ). The older participants were, the lower their well-being. Gender was also a significant predictor (Beta =  $-.16$ ,  $t = -8.74$ ,  $p < .001$ ), with female students having lower well-being than their male counterparts. Two of the three socio-economic status indicators were significant predictors of well-being. Students whose parents worried about having enough money to buy food (Beta =  $-.15$ ,  $t = -7.90$ ,  $p < .001$ ) and students who lived in a low socio-economically deprived area (Beta =  $.05$ ,  $t = 2.18$ ,  $p = .03$ ) had lower levels of well-being.

Generation was initially a significant predictor of well-being (Beta =  $.05$ ,  $t = 2.47$ ,  $p = .01$ ) but the association was in opposite direction of what was hypothesised: first-generation immigrants had lower well-being than second-generation immigrants. The addition of acculturation variables and perceived discrimination did not change this association. However, when ethnicity and the interaction between ethnicity and immigrant generation were added to the model, immigrant generation did not predict well-being anymore (Beta =  $.01$ ,  $t = .16$ ,  $p = .87$ ). This seems to suggest that generational differences in well-being are dependent on ethnicity.

In terms of acculturation, both cultural maintenance and cultural contact and participation were positively linked to well-being. Maintenance of the ethnic culture significantly predicted higher well-being (Beta =  $.13$ ,  $t = 6.90$ ,  $p < .001$ ). Two of the three cultural contact and participation indicators were also significant predictors of well-being. Having English among the main languages spoken at home (Beta =  $.05$ ,  $t = 2.44$ ,  $p = .02$ ) and having family traditions and celebrations based on New Zealand European culture (Beta =  $.04$ ,  $t = 2.03$ ,  $p = .04$ ) both predicted higher well-being.

Supportive of the fourth hypothesis perceived ethnic discrimination was a significant predictor of well-being. More perceived ethnic discrimination predicted lower well-being (Beta =  $-.13$ ,  $t = -6.90$ ,  $p < .001$ ).

Being a Pacific immigrant was predictive of higher well-being than being a European immigrant (Beta =  $.20$ ,  $t = 2.63$ ,  $p = .01$ ) so there were some ethnic group differences. However, there was no difference between Asian and European immigrants, nor between 'Other' and European immigrants. The values for the interactions reported in Table 3 are hard to interpret. Ethnicity is a categorical variable and therefore the interaction could only be included in the model when dummy coded. As a result, the interaction terms were created by using European as a reference group. The non-significance of the interaction Pacific\*generation therefore means that the interaction between Pacific and generation is not a significantly different predictor of well-being than the interaction between European and generation. In order to get an overall effect of the interaction, and to be able to say whether or not there is a significant interaction between ethnicity and generation, a Univariate Analysis of Variance was conducted with the same variables as those included in step four of the regression. This analysis revealed that there was no significant relation between ethnicity\*generation and well-being,  $F(3,2582) = .33$ ,  $p = .80$ . This indicated that the changes in well-being over generations do not differ across the four ethnic groups. The results for depressive symptoms will be discussed next.

**Depressive symptoms.**

The results of the hierarchical regression with depressive symptoms as outcome are summarised in Table 7. The regression included the same four steps as the regression with well-being as an outcome. All four steps predicted a significant amount of variance and the R<sup>2</sup> change shows that there was an increase in the amount explained for every step in relation to the previous step. Therefore, step four was accepted as the best model in predicting depressive symptoms.

Table 7  
Regression Coefficients for Depressive Symptoms

	Step1			Step2			Step3			Step4		
	B	SE	β									
<b>Age</b>	0.02	0.00	.07**	0.02	0.00	.07**	0.02	0.00	.07**	0.02	0.00	.07**
<b>Gender</b>	0.10	0.01	.16**	0.10	0.01	.16**	0.12	0.01	.18**	0.12	0.01	.18**
<b>SES</b>												
NZDep	-0.01	0.00	-.05**	-0.01	0.00	-.06**	-0.01	0.00	-.07**	-0.00	0.00	-.03
Movedhome	0.03	0.01	.07**	0.02	0.01	.07**	0.02	0.01	.06**	0.02	0.01	.06**
WorryFood	0.06	0.01	.20**	0.06	0.01	.19**	0.05	0.01	.19**	0.06	0.01	.20**
<b>Generation</b>	-0.04	0.01	-.06**	-0.03	0.01	-.05*	-0.03	0.01	-.05*	0.01	0.02	.02
<b>Acculturation</b>												
Cult.Maintenance				-0.01	0.00	-.11**	-0.01	0.00	-.10**	-0.01	0.00	-.10**
English at home				-0.03	0.02	-.04	-0.03	0.02	-.04	-0.02	0.02	-.03
Other lang. At home				0.02	0.01	.03	0.00	0.01	.00	0.02	0.02	.03
NZ celebrations				-0.01	0.01	-.02	-0.01	0.01	-.01	0.00	0.01	.00
Comfort NZE				-0.01	0.00	-.04*	-0.01	0.00	-.03	-0.01	0.00	-.03
<b>Discrimination</b>							0.16	0.02	.18**	0.16	0.02	.18**
<b>Ethnicity</b>												
<b>(ref. European)</b>												
Pacific										0.01	0.06	.02
Asian										0.10	0.05	.13*
Other										0.02	0.06	.02
<b>Ethn*Generation</b>												
<b>(ref. European)</b>												
Pacific*Gen										-0.05	0.03	-.12
Asian*Gen										-0.06	0.03	-.11
Other*Gen										-0.02	0.05	-.03
R <sup>2</sup>		.08			.10			.13			.14	
R <sup>2</sup> change		.08**			.02**			.03**			.01**	

Note Gender was coded 1 for males and 2 for females, generation was coded 1 for first-generation immigrants and 2 for second-generation immigrants, \* $p < .05$ , \*\* $p < .01$

Age was a significant predictor of depressive symptoms, with older participants having more depressive symptoms than young participants (Beta = .07,  $t = 3.80$ ,  $p < .001$ ). Gender was also a significant predictor (Beta = .18,  $t = 10.18$ ,  $p < .001$ ). Females had more depressive symptoms than males. Two of the three socio-economic status indicators predicted depressive symptoms significantly. The more parents worried about having enough money to buy food and the more often a student had moved home, the more depressive symptoms the student had (Beta = .20,  $t = 10.52$ ,  $p < .001$ , and Beta = .06,  $t = 3.16$ ,  $p = .002$  respectively).

Generation was a significant predictor in step 1 (Beta = -.06,  $t = -3.13$ ,  $p = .002$ ), 2 (Beta = -.05,  $t = -2.49$ ,  $p = .01$ ) and 3 (Beta = -.05,  $t = -2.44$ ,  $p = .02$ ). This means that there were generational differences when age, gender, socio-economic status, acculturation and perceived discrimination were accounted for. However, similar to the well-being findings, the generational differences were opposite of what was hypothesised. Second-generation immigrants had less depressive symptoms than first-generation immigrants. Furthermore, the beta of immigrant generation decreased when the acculturation variables were added to the model. This suggests that acculturation partially mediates the relation between immigrant generation and depressive symptoms. The relation between generation and depressive symptoms became non-significant in the final step where ethnicity and the interaction between ethnicity and generation were added to the predictive model (Beta = .02,  $t = 0.57$ ,  $p = .57$ ).

Cultural maintenance was a significant predictor of depressive symptoms with stronger maintenance of the ethnic culture being related to less depressive symptoms (Beta = -.10,  $t = -5.51$ ,  $p < .001$ ). Feeling comfortable in New Zealand European social settings initially predicted less depressive symptoms (Beta = -.04,  $t = -2.34$ ,  $p = .02$ ). However, once perceived ethnic discrimination was added this relation became non-significant. In the final

model, none of the cultural contact and participation indicators significantly predicted depressive symptoms.

Perceived discrimination was a significant predictor of depressive feelings. As hypothesised, more perceived ethnic discrimination predicted more depressive feelings (Beta = .18,  $t = 9.86$ ,  $p < .001$ ).

In terms of ethnicity, being Asian was significantly predictive of more depressive symptoms than being European (Beta = .13,  $t = 2.04$ ,  $p = .04$ ). There were no significant differences between the other ethnic groups and European immigrants. A Univariate Analysis of Variance with the same variables as included in the final step of the regression was done in order to get an overall effect of the interaction ethnicity\*generation. The Univariate Analysis of Variance showed that the main effect of the interaction between ethnicity and generation on depressive symptoms was non-significant,  $F(3,2589) = 1.36$ ,  $p = .25$ .

## Summary

The generational differences that were found for both mental health outcomes (second-generation immigrants had better outcomes than first-generation immigrants) are opposite of what was hypothesised. The differences hold when acculturation and perceived ethnic discrimination are controlled for, but disappear once ethnicity and ethnicity\*generation are considered. Consistent with what was hypothesised, perceived ethnic discrimination was negatively related to well-being and positively to depressive symptoms. In terms of acculturation, cultural maintenance predicts higher well-being and less depressive symptoms. Some of the cultural contact and participation indicators predict higher well-being but none of them was a significant predictor for depressive symptoms.

## Discussion

The aim of the current study was to explore the Immigrant Paradox by looking at mental health outcomes of immigrant and non-immigrant youth in New Zealand. Furthermore, how ethnicity, acculturation and perceived ethnic discrimination are related to the mental health of immigrants and to potential generational differences in mental health outcomes was investigated.

Results show hardly any support for the Immigrant Paradox. Overall, immigrant youth have similar levels of well-being as non-immigrant youth. However when looking at first-generation and second-generation immigrants separately, first-generation immigrants appeared to have poorer well-being than non-immigrants while second-generation immigrants do not differ from non-immigrants. This difference in well-being between first-generation immigrants and non-immigrants is in line with some existing literature. For example, a national study among young immigrant and non-immigrant adolescents in Italy showed that non-immigrant youth have higher life satisfaction and are happier than their immigrant peers (Vieno, Santinello, Lenzi, Baldassari, & Mirandola, 2009). This was found even after controlling for socio-economic status, social integration, and discrimination.

In terms of depressive symptoms, the current study shows that overall immigrant youth have more depressive symptoms than their non-immigrant peers. More specifically, both first- and second-generation immigrant youth had more depressive symptoms than their non-immigrant peers. The findings that immigrant youth have more depressive symptoms than non-immigrant youth are also not new. In a Norwegian study it was found that immigrants reported more depressive and anxiety symptoms than non-immigrants (Oppedal & Røysamb, 2004). Other research has shown that first-generation immigrant youth have lower psychological adaptation (life satisfaction, self-esteem, and psychological problems including

depressive symptoms) than non-immigrant youth in Norway, Sweden, Finland, the Netherlands, and Portugal (Sam et al., 2008).

The finding that non-immigrant youth have better mental health outcomes than immigrant youth is not surprising. In fact, this is what would be expected and is the reason why the Immigrant Paradox is called a paradox. The difference in mental health outcomes can be understood when looking at the disadvantages that immigrants face in the host country. Some of these disadvantages related to the migration process and to restrictive processes in the host country will be discussed next.

### **Disadvantages Faced by Immigrants**

A substantial amount of research has shown that immigrants are at particular risk of poor mental health (Stevens & Vollebergh, 2008; Tinghög, Al-Saffar, Carstensen, & Nordenfelt, 2010). There are two main explanations for this risk that have been described in the literature (Stevens & Vollebergh, 2008; Vieno et al., 2009). The first possible explanation is that risk of poor mental health derives from the stress that is caused by the *migration process*. It includes difficulties in adapting to the new cultural environment as well as the loss of familiar surroundings, customs, and family and friends. In addition, differences between the ethnic culture and the host culture could cause family tensions and societal difficulties, which in turn increases the risk of mental health problems for immigrant youth. This stress shares some similarities with the concept of acculturative stress, which was discussed earlier (Berry, 1997; Williams & Berry, 1991).

The second possible explanation that has been discussed in the literature is that increased risk of poor mental health of immigrants is caused by *restrictive processes* in the host country. Immigrants often occupy a minority position in the host country, and discrimination and restrictive policies regarding migrants often increase the difficulty for

them to integrate into the host society. The effects of this disadvantaged position can have a negative influence on the mental health of immigrant youth. There is a substantial amount of literature that describes the negative effect of discrimination on psychological adaptation (e.g. Vedder, van de Vijver, & Liebkind, 2006). This has also been shown in the current study, in which perceived ethnic discrimination predicts both lower well-being and more depressive symptoms. In addition, a report written for the Human Rights Commission in New Zealand shows that 63 percent of surveyed participants thought that recent immigrants experienced some or a great deal of discrimination (UMR Research Limited, 2009). In terms of restrictive policies, one policy that can have negative consequences for immigrants youth is one regarding family reunion. Until the mid-1990s it was fairly easy to bring family members when migrating to New Zealand. However, due to policy changes, there are now long waiting lists for entry of family members of those who already migrated. For youth this often means that one or both parents are persistently absent overseas. This is an additional stress factor in their lives, besides adaptation difficulties and facing discrimination (Ho & Bedford, 2008).

Furthermore, immigrants often face employment difficulties. Unemployment rates in New Zealand are lowest among people of European descent (the majority group) and the highest for Pacific people (one of the main immigrant groups). The European unemployment rate was 3.3 percent in March 2009, compared to 28.8 percent of Pacific People and 5.9 percent of other (mainly Asian) ethnic groups (Ministry of Social Development, 2009). Unequal employment opportunities were investigated by Ward and Masgoret (2007). They examined the responses of recruitment agencies to resumes from native-born New Zealand and Chinese-born immigrant candidates. They sent out 85 resumes to technology-sector recruitment agencies in New Zealand. The candidate names (Brian Miller and Hau-Jie Li) were fictitious while the educational institutions and companies listed on the resumes were real. The resumes were equivalent in terms of experience and training. Significant differences

were found in the responses from the recruitment sector agencies. The New Zealand candidate was actively recruited more frequently than the Chinese candidate, while the Chinese candidate was more often told that there were no current opportunities.

In sum, immigrants are likely to face a variety of disadvantages which can negatively affect their mental health. Apart from a comparison between immigrants and non-immigrants, the current study included a comparison between first and second-generation immigrants to identify if mental health changes over generations. Generational changes in mental health and how ethnicity relates to this will be discussed next.

### **Generational Differences in Mental Health and Ethnicity**

The difference between first and second-generation immigrants was examined through a predictive model of mental health outcomes. When controlling for age, gender, socio-economic status, acculturation and perceived ethnic discrimination, second-generation immigrants appear to have higher well-being and less depressive symptoms than first-generation immigrants. As discussed before, the migration process can negatively affect immigrants' mental health and can contribute to understanding why there are generational differences in mental health. First-generation immigrant youth could have had stressful experiences during the migration process. They may have had friends in their country of birth who they had to leave behind, and they have to learn a set of new customs and behaviours after migration. In addition, English may not be their native language, which could cause negative experiences in the host country due to language difficulties or a strong accent. In the current study, acculturation and perceived discrimination did not explain generational differences in mental health. However, ethnicity did and throughout this study, ethnicity has been shown to be an important factor.

The initial generational differences in mental health outcomes that were found became non-significant once ethnicity was considered. Furthermore, comparisons of mental health outcomes between first-generation immigrants, second-generation immigrants and non-immigrants per ethnic group showed that the findings across the ethnic groups were highly diverse. European immigrants of both generations have similar mental health outcomes as New Zealand European non-immigrants. 'Other' immigrants of both generations and Asian second-generation immigrants have similar levels of well-being as New Zealand European non-immigrants. However, Asian first-generation immigrants do not do as well as non-immigrants. Results show that they have lower well-being than New Zealand European non-immigrants. In addition, Asian immigrants of both generations have more depressive symptoms than New Zealand European non-immigrants. The mental health of Asians will be discussed next.

### **Mental health of Asians.**

The finding that Asian youth have more depressive symptoms than New Zealand European youth is supported by results from the Youth2000 project, which is the first national survey of health and well-being of secondary school students in New Zealand (Rasanathan et al., 2006). Results of this project showed that both Chinese and Indian adolescents reported more depressive symptoms than New Zealand European adolescents. However, in a literature review of the mental health of Asians in New Zealand, mixed results were found in terms of the prevalence rate of mental disorders among Asians in relation to those of the general population (Ho, Au, Bedford, & Cooper, 2003). The authors of this review argue that this could be due to sampling, as groups differed in age and ethnicity. The finding that mental health outcomes vary across different ethnic Asian groups will be discussed later in further detail.

Another explanation of lower well-being among Asians could lie in cultural norms regarding emotions. Diener, Suh, Smith and Shao (1995) found that people in Japan, China and South Korea had lower subjective well-being than people in the United States. They concluded that neither response style nor income provided an explanation for the difference. In a second study they looked at subjective well-being in China and South Korea in relation to the United States and found that well-being was lower in these two Asian countries. In an attempt to identify underlying factors that could explain this difference in well-being, they looked at norms related to emotions. Chinese rated subjective well-being as less important and thought less about happiness and life satisfaction less often than the Koreans and Americans. In addition, in China and South Korea feeling and expressing positive affect was seen as less desirable than in the United States. This research provides a possible explanation as to why well-being seems to be lower in some Asian countries. The results suggest it is related to norms of feeling and expressing emotions.

Asians were not the only group who had different mental health outcomes than New Zealand Europeans. Pacific immigrants also showed to have significant different levels of well-being and depressive symptoms.

### **Mental health of Pacific People.**

The results of the current study for Pacific immigrants are mixed and seem somewhat contradictory. Both immigrant generations have better well-being than European immigrants and New Zealand European non-immigrants, but first-generation Pacific immigrants have also more depressive symptoms than New Zealand European non-immigrants. There is some support in the literature for more positive well-being among Pacific immigrants compared to non-immigrants (e.g. Ministry of Health & the Ministry of Pacific Island Affairs, 2004). However, there is little research available on the well-being of Pacific People in New

Zealand, let alone on why their well-being would be higher than either New Zealand Europeans or the general population. One possible explanation could lie in cultural norms regarding emotions. Diener and colleagues (1995) discuss several norm-related factors that could explain cultural difference in subjective well-being. An example of that are cultural norms regarding the regulation of the experience of emotion. Cultural norms for the regulation of positive and negative affect can influence the actual experience of emotions and in turn alter the subjective well-being of the population. Norms can also influence the frequency of thoughts about subjective well-being. If happiness and satisfaction are considered a central value of the culture, people will think more frequently about their well-being. Eid and Diener (2001) found that particularly for positive emotions, norms are indeed related to the frequency and intensity of positive affect. High desirability is related to more experience of the emotion. However, it is unknown if these norm related factors could explain the greater well-being of Pacific people and further research is needed to examine this.

In contrast to the findings on well-being, first-generation Pacific youth had more depressive symptoms than their non-immigrant peers. It has been found previously that the prevalence rate of mental health disorders is higher for Pacific people than for the general New Zealand population (Foliaki et al., 2006). In addition, results from the Youth2000 project showed that Pacific youth were more likely to have clinical depressive symptoms than New Zealand European youth (Mila-Schaaf, Robinson, Schaaf, Denny, & Watson, 2008). There is a growing amount of research available on prevalence rates of psychiatric disorders among Pacific People in New Zealand and on their utilisation of mental health services; however, there is little research on what influences their mental health. Social, cultural and economic factors are determinants of health in general and can also relate to mental health (Ministry of Health, 2008). For example, in terms of social factors, family plays a significant role in Pacific cultures. Part, if not most, of the extended family of Pacific youth in New Zealand will

live in their country of origin. The strong family system may be weakened due to the geographical distance between the family members and the reduced access to family support may have negative effects for Pacific youth's well-being. Culturally, living in two cultures, the Pacific ethnic culture and the New Zealand culture could cause stress as discussed earlier. Economically, Pacific People often live under low economic circumstances in New Zealand. For example, almost half of Pacific secondary school youth attend a school that is classified as decile 1, 2 or 3 (Ministry of Health, 2008). These are schools that are mainly attended by students from low socio-economic communities. In comparison, only 8.5 percent of European students attend these low decile schools.

Clearly, more research is needed to understand determinants of mental health of Pacific youth in New Zealand. It should also be examined why they seem to have higher well-being as well as more depressive symptoms than non-immigrant youth. Possibly there are some differences across ethnic sub-groups within the Pacific group. The role of cultural distance in ethnic group differences in mental health will be discussed next. In addition, some conclusions will be drawn on the role of ethnicity in immigrant research.

### **Importance of ethnicity.**

Apart from norms regarding emotions, one concept that could contribute to an explanation of the ethnic group differences in general is that of cultural distance. Cultural distance, referring to the extent to which two cultures differ from one another, has consistently shown to be related to adaptation. Greater cultural distance could include greater culture conflict and is related to less positive adaptation outcomes (Berry, 1997). This has also been shown in a study among students in New Zealand, in which it was found that greater cultural distance predicted lower psychological adjustment (Ward & Searle, 1991). In the current study, European immigrants do not differ in either of the mental health outcomes from New Zealand

European non-immigrants. Since both groups are of European descent, there is presumably very little cultural distance. However, Asian, Pacific, and 'Other' immigrants do differ from New Zealand European non-immigrants, particularly in terms of depressive symptoms. Their ethnic culture is more dissimilar from New Zealand European culture and this greater cultural distance could possibly contribute to an explanation of their poorer mental health outcomes.

Two main conclusions can be made from the findings regarding ethnicity. First of all, it is crucial to consider ethnicity when studying the Immigrant Paradox. Findings on mental health outcomes of immigrants with an ethnically mixed sample may not reflect the mental health of each ethnic group individually, and generational differences may depend on ethnicity. Secondly, some ethnic immigrant groups in New Zealand seem to have more mental health problems than others. It is important to know which groups are at higher risk of poor mental health in order to improve the mental health of immigrant youth.

Although acculturation and perceived discrimination did not account for the generational differences in mental health, both factors were significant predictors of mental health outcomes.

## **Predictors of Mental Health**

### **Acculturation.**

Some of the acculturation variables included in this study predicted mental health outcomes. Orientation towards their ethnic culture is related to higher well-being and less depressive symptoms among immigrant youth. The positive relation between ethnic orientation and psychological adaptation has been found previously in the ICSEY project, in which immigrant youth in 13 different countries were studied (Vedder et al., 2006). An explanation for this positive relation could be found in the concept of ethnic identity. Ethnic identity can be defined as a part of a person's self concept that derives from the knowledge of membership

of a social group (or groups) and the value and emotional significance that the person attaches to this membership (Tajfel, 1981 in Phinney, 1992). Ethnic identity generally includes self-identification, feelings of belongingness to a group, a sense of shared values, and attitudes towards one's ethnic group (Liebkind, 2006). Some of the variables used in the current study to indicate ethnic orientation (importance of ethnic group's values, and being proud of one's ethnicity) fit very well in this description of ethnic identity. Although ethnic orientation and ethnic identity are not identical, they are similar and have often been used interchangeably in the literature (Tsai, Chentsova-Dutton, & Wong, 2002). Furthermore, it has been found that these constructs are positively related (Cuéllar, Nyberg, Maldonado, & Roberts, 1997), and there are consistent findings that ethnic identity is positively related to psychological well-being (Phinney, Berry, Vedder, & Liebkind, 2006). For example, in a study among young adolescents in the United States, it was found that ethnic identity was positively related to psychological well-being and negatively related to depression (Roberts, Phinney, Mase, Chen, Roberts, & Romero, 1999). Furthermore, Mossakowski (2007) found that ethnic identity is a negative predictor of depression among Filipino Americans, but it did not explain the effect of immigrant generation on depression. These results are very similar to the results in the current study. Ethnic identity, or in this case ethnic orientation, can provide a sense of belonging, and positive attitudes towards one's ethnic group as well as ethnic pride positively contribute to one's well-being.

Furthermore, some of the cultural contact and participation indicators in the current study, having English among the main languages spoken at home and having family traditions or celebrations that are based on New Zealand European culture, are related to higher well-being of immigrant youth. Beirens and Fontaine (2011) also found a positive relationship between this dimension of acculturation and positive emotions among Turkish immigrants in Belgium. Among other themes, their measure of acculturation included language skills and

cultural activities. It is no surprise that participation in the host culture is related to well-being. Using the host language at home, and celebrating holidays that are traditional in the host country will make it easier for immigrant youth to engage with peers. Furthermore, they may feel like they fit in with the majority group which will contribute positively to their psychological well-being.

Previous research on acculturation and mental health has shown some mixed results, which was mainly argued to be due to the differences in measurement (e.g. Koneru et al., 2007). Researchers often rely on one dimension of acculturation and use one variable to assess acculturation. The current study included both dimensions of acculturation and assessed each dimension with a number of variables. Acculturation is therefore measured in a more sufficient manner, and the results of this study are an important contribution to the understanding of the relation between acculturation and mental health.

The results also show that it is important to be specific about what is meant with acculturation. If having English among the main languages spoken at home would have been used as the only indicator of acculturation, the conclusion would have been that acculturation is positively related to well-being but unrelated to depressive symptoms. That would have been a completely different conclusion.

In summary, acculturation is an important factor in understanding mental health. Maintaining the ethnic culture as well as engaging in the host culture can positively contribute to the mental health of immigrant youth. Acculturation was not the only predictor of mental health. The current study also shows that perceived ethnic discrimination predicts poor mental health outcomes.

**Perceived ethnic discrimination.**

Experiences of discrimination can be seen as a major stressor in life and are therefore linked to mental health problems. This finding is strongly supported in the literature (e.g. Flores et al., 2008). Knowing that perceived discrimination predicts poorer mental health outcomes is a start, but now it is important to understand what can protect people against the negative effects of discrimination. In an ideal situation, discrimination would be reduced on societal level. However, even though people can be made more aware and perhaps more accepting of ethnic diversity through education, ethnic discrimination will remain an issue. Therefore, it is important to understand how people who experience discrimination can deal with this so that negative consequences are minimised.

The transactional model of stress and coping (Lazarus & Folkman, 1984) can be used to identify how people can protect themselves from the negative effects of perceived discrimination. This model emphasises the importance of first identifying how discrimination is cognitively evaluated by the person who experiences it, and then examine the coping strategies this person uses to deal with the discrimination. This model could be used to improve the mental health of immigrant youth by identifying effective coping strategies and teaching them how to protect themselves against the negative effects of ethnic discrimination.

The current study did not find much support for the Immigrant Paradox. Although there is a substantial amount of research that suggests the existence of the Immigrant Paradox, there is also a significant body of research that shows that non-immigrants have better adaptation outcomes than immigrants. Some reasons as to why these results are mixed will be discussed next.

### **Understanding Mixed Findings on the Immigrant Paradox**

There are several aspects that are important to consider when trying to understand why the Immigrant Paradox has been found in some studies but not in others. One of these aspects is the host country that was studied. Each country is different (e.g. culturally, economically, historically) and a number of country specific factors could contribute to the adaptation of immigrants. One example is a country's immigration history. A distinction could be made between settler societies, former colonial societies, and recent receiving societies (Berry et al., 2006). Settler societies, for example the United States and New Zealand, have actively sought immigrants and have usually the largest numbers of immigrants. Former colonial societies, for example the United Kingdom, have received many immigrants from former colonized countries but do not have policies to actively seek immigrants. Finally, recent receiving societies, including Norway and Sweden, have relatively smaller numbers of immigrants. Immigrants are not actively sought in these countries, and there is a short history of immigration. Differences in history and immigration policies influence the position immigrants have in the society and are therefore likely to contribute to their adaptation outcomes. Some countries, such as New Zealand, support cultural pluralism and are multicultural in public policy. In other countries, such as Finland, a culturally homogeneous society is preferred (Berry et al., 2006). When multiculturalism is supported, immigrants will probably be received more positively and better accepted than when cultural homogeneity is supported. This will have positive implications for their mental health.

Another factor that could contribute to an explanation of the mixed findings is the ethnic groups studied. Different studies included different ethnic groups and as Harker (2001) showed, the Immigrant Paradox may be found for one ethnic group but not for another. As pointed out before, the results of the current study are also different across the ethnic groups. Furthermore, generational differences for both the outcome variables disappeared once

ethnicity was considered. The lack of focus on ethnicity when looking at adaptation of immigrants in relation to non-immigrants will be discussed later in more detail.

Di Cosmo and colleagues (2011) found support for the Immigrant Paradox in New Zealand with the same ethnic groups as included in the current study. Yet, there was almost no support for the Immigrant Paradox in the current study. This shows that the outcome variable also plays a part. In this case, there was hardly an Immigrant Paradox in terms of mental health outcomes, but it was found in terms of substance use with a similar sample in the same country. Even more specific, the current study found support for the Immigrant Paradox to some extent for Pacific immigrants in terms of well-being. However, there was no indication of an Immigrant Paradox when looking at depressive symptoms.

Considering the mixed findings on the Immigrant Paradox and the lack of a systematic pattern, the Immigrant Paradox may be over-generalised. So far, there does not seem to be a Paradox in that ‘immigrants’ do better than ‘non-immigrants’. Rather than saying that there is an “Immigrant Paradox” findings need to be specific about the host country that is studied, the ethnic groups included and the adaptation outcome on which the groups are compared.

## **Limitations and Recommendations for Future Research**

### **Ethnicity as a broad category.**

One major limitation of the current study is the use of broad ethnic groups. Ethnicity was addressed by breaking up the analyses for four ethnic groups, but unfortunately these four groups were still highly heterogeneous. The outcomes with all ethnic groups combined did not equal the outcomes that were found when, for example, only Asian immigrants were included in the analysis. Similarly, it is unlikely that the outcomes for Asian immigrants there were found in this study are reflective of all individual Asian ethnic groups.

The broader literature indicates that there are mental health differences between different Asian groups. For example, it has been found that East Asians (e.g. Chinese, Korean) report lower levels of life satisfaction than other cultural groups (Spencer-Rodgers, Peng, Wang & Hou, 2004). Also, previous research suggests that there could be differences in mental health outcomes for East Asians and South Asians (e.g. Indians). For example in a study by Ward (unpublished) Indians were found to have significantly higher life satisfaction than Chinese. Furthermore, a study by Diener and Diener (1995) showed that 49 percent of Korean males and 44 percent of Korean females had a life satisfaction score that was above neutral compared to 62 percent of Indian males and 67 percent of Indian females.

The results of the current study in relation to the four ethnic groups should be interpreted with care. Asian immigrant youth may have more depressive symptoms than New Zealand European non-immigrant youth, but this does not necessarily apply to all Asian groups. The same can be said for European, Pacific and 'Other' immigrants. Further research is needed to examine generational differences in mental health outcomes for specific ethnic groups.

#### **Generational status versus ethnic group.**

Another major limitation is the inclusion of only New Zealand European non-immigrants. When differences between immigrant groups and non-immigrants were found, the question remains whether this is due to immigrant status (immigrant versus non-immigrant) or to belonging to a particular ethnic group (e.g. Pacific versus New Zealand European). Based on the results in the current study, it could be possible that factors related to ethnicity accounted for some of the differences rather than immigrant status. The European immigrants in this sample are ethnically similar to New Zealand European non-immigrants. The difference between the groups is immigrant status. If both parents of a second-generation European

immigrant were born in New Zealand, that student would have been a New Zealand European non-immigrant. As the results of the current study show, there were no differences between European immigrants and New Zealand European non-immigrants in terms of mental health outcomes. For all other ethnic groups, there were at least some differences between immigrants and New Zealand European non-immigrants. This suggests that the differences found could be due to ethnicity related differences rather than generational differences. However, it is unlikely that the findings are only based on ethnicity. As this study has shown, there are differences between first and second-generation immigrants as well. This suggests that there should be some effect of immigrant status. However, due to a lack of non-New Zealand European non-immigrants, no actual conclusion can be made about whether it is immigrant status, ethnic difference or a combination of both that accounts for the differences between immigrants and non-immigrants.

This is not just a limitation of the current study but also a major limitation of the previous research on the Immigrant Paradox. In most studies, immigrants from non-Western countries have been compared to white majority non-immigrants. In a great number of studies from the United States, the non-immigrants were very seldom African-American, native American, or any other non-immigrant group that is not the white majority. When the researchers find that Latino immigrants have better mental health outcomes than non-Latino white Americans (non-immigrants), it remains unclear what this actually means in terms of immigrant status and ethnicity. Does it mean that immigrants have better mental health outcomes than non-immigrants? In that case, support for the Immigrant Paradox should also be found when comparing Latino immigrants with African-Americans and native Americans. Or even better, comparing Latino immigrants with Latino non-immigrants. Ideally when studying the Immigrant Paradox, the ethnic composition of the immigrants is the same as the ethnic composition of the non-immigrants. Only then it can be said that the Immigrant

Paradox is based solely on immigrant status. To date, this has not been the case and due to the sample in the current study, this limitation could not be overcome.

Whether explicitly mentioned or not, ethnicity always plays an important part in the Immigrant Paradox literature. Strong attributions of mental health differences to immigrant status should be avoided when there are major ethnic differences between the immigrants and non-immigrants who are studied. Future research should include an ethnically similar sample of non-immigrants and immigrants to gain a better understanding of the actual role of immigrant status and to identify if the possible Immigrant Paradox is related to generational status or to ethnic group differences. Having said that, the attribution of mental health outcomes to ethnicity per se should also be avoided. When differences between ethnic groups are found, it is more likely that this is related to the social, cultural and historical background or context of the particular ethnic group rather than the ethnicity itself.

## **Conclusion**

Two main conclusions can be drawn from the current study. Firstly, results show that immigrant youth in New Zealand, in particular non-European youth, are at higher risk of poor mental health. Understanding ethnic group differences in mental health, enabling youth to maintain their ethnic culture as well as encouraging them to participate in New Zealand European culture, and helping them to cope with ethnic discrimination are ways of improving mental health of immigrant youth.

Secondly, the Immigrant Paradox appears to be over-generalised, and supportive findings need to be interpreted with care. It only seems to exist in some countries, with some ethnic groups, in relation to some outcome variables. When the Immigrant Paradox was found in previous studies, conclusions were drawn that differences in adaptation are due to generational status, while in most studies, if not all, generational status and ethnicity are

confounded. To date, no systematic patterns have been identified and considering the lack of ethnically equal samples of first-generation, second-generation, and non-immigrants there is not much evidence for the existence of an Immigrant Paradox.

### References

- Adolescent Health Research Group (2008). *Youth '07: The Health and Wellbeing of Secondary School Students in New Zealand. Technical Report*. Auckland: The University of Auckland.
- Aiken, L. R. (1987). Formulas for equating ratings on different scales. *Educational and Psychological Measurement*, 47, 51-54.
- Alegría, M., Canino, G., Shrout, P. E., Woo, M., Duan, N., Vila, D., Torres, M., Chen, C., & Meng, X-L. (2008). Prevalence of mental illness in immigrant and non-immigrant U.S. Latino groups. *American Journal of Psychiatry*, 165, 3, 359-369.
- Alegría, M., Sribney, W., Woo, M., Torres, M., & Guarnaccia, P. (2007). Looking beyond nativity: The relation of age of immigration, length of residence, and birth cohorts to the risk of onset of psychiatric disorders for Latinos. *Research in Human Development*, 4, 1, 19-47.
- Bech, P., Olsen, L. R., Kjoller, M., & Rasmussen, N. K. (2003) Measuring well-being rather than the absence of distress symptoms: A comparison of the SF-36 mental health subscale and the WHO-Five well-being scale. *International Journal of Methods in Psychiatric Research*, 12, 2, 85-91.
- Beirens, K., & Fontaine, J. R. J. (2011). Somatic and emotional well-being among Turkish immigrants in Belgium: Acculturation or culture? *Journal of Cross-Cultural Psychology*, 42, 1, 56-74.
- Berry, J. W. (1997). Immigration, acculturation, and adaptation. *Applied Psychology : An International Review*, 46, 1, 5 – 68.
- Berry, J. W. (2005). Acculturation: living successfully in two cultures. *International Journal of Intercultural Relations*, 29, 697 – 712.

- Berry, J. W., Phinney, J. S., Sam, D. L., & Vedder, P. (2006). Immigrant youth: Acculturation, identity, and adaptation. *Applied Psychology: An International Review*, 55, 3, 303-332.
- Berry, J. W., Westin, C., Virta, E., Vedder, P., Rooney, R., & Sang, D. (2006). Design of the study: Selecting societies of settlement and immigrant groups. In Berry, J. W., Phinney, J. S., Sam, D. L., & Vedder, P. (2006). *Immigrant youth in cultural transition: Acculturation identity and adaptation across national contexts* (pp. 15 - 45). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- Blake, S. M., Ledsky, R., Goodenow, C., & O'Donnell, L. (2001). Recency of immigration, substance use, and sexual behaviour among Massachusetts adolescents. *American Journal of Public Health*, 91, 5, 794-798.
- Burnam, M. A., Hough, R. L., Karno, M., Escobar, J. I., & Telles, C. A. (1987). Acculturation and life-time prevalence of psychiatric disorders among Mexican Americans in Los Angeles. *Journal of Health and Social Behavior*, 28, 1, 89-102.
- Chou, C-F., Johnson, P. J., & Blewett, L. A. (2010). Immigration and selected indicators of health status and healthcare utilization among the Chinese. *Journal of Immigrant and Minority Health*, 12, 470-479.
- Cook, B., Alegría, M., Lin, J. Y., & Guo, J. (2009). Pathways and correlates connecting Latinos' mental health with exposure to the United States. *American Journal of Public Health*, 99, 12, 2247-2254.
- Cuéllar, I., Nyberg, B., Maldonado, R. E., & Roberts, R. E. (1997). Ethnic identity and acculturation in a young adult Mexican-origin population. *Journal of Community Psychology*, 25, 6, 535-549.
- Denny, S. J., Milfont, T. L., Utter, J., Robinson, E. M., Ameratunga, S. N., Merry, S. N., Fleming, T. M., & Watson, P. D. (2008). Hand-held internet tablets for school-based

data collection. *Biomedical Centre Research Notes*, doi:10.1186/1756-0500-1-52

Di Cosmo, C., Milfont, T. L., Robinson, E., Denny, S., Ward, C., Crengle, S., & Ameratunga, S. (2011). Immigrant paradox, acculturation and substance use among New Zealand youth: results from a nationally representative survey. *Australian and New Zealand Journal of Public Health*, in press.

Diener, E., & Diener, M. (1995). Cross-cultural correlates of life satisfaction and self-esteem. *Journal of Personality and Social Psychology*, 68, 4, 653-663.

Diener, E., Suh, E. M., Smith, H., & Shao, L. (1995). National differences in reported subjective well-being: Why do they occur? *Social Indicators Research*, 34, 7-32.

Eid, M., & Diener, E. (2001). Norms for experiencing emotions in different cultures: Inter- and intranational differences. *Journal of Personality and Social Psychology*, 81, 5, 869-885.

Flores, E., Tschann, J. M., Dimas, J. M., Bachen, E. A., Pasch, L. A., & de Groat, C. L. (2008). Perceived discrimination, perceived stress, and mental and physical health among Mexican-origin adults. *Hispanic Journal of Behavioral Sciences*, 30, 4, 401-424.

Foliaki, S., Kokaua, J., Schaaf, D., & Tukuitonga, C. (2006). Pacific People. In: Oakley Browne, M. A., Wells, J. E., & Scott, K. M. (eds). *Te Rau Hinengaro: The New Zealand Mental Health Survey*. Wellington: Ministry of Health.

Fuligni, A. J. (1998). The adjustment of children from immigrant families. *Current Directions in Psychological Science*, 7, 4, 99-103.

García Coll, C. T., Szalacha, L. A., & Palacios, N. (2005). Children of Dominican, Portuguese, and Cambodian immigrant families: Academic attitudes and pathways during middle childhood. In C. R. Cooper, C. T. García Coll, W. T. Bartko, H. M. Davis, & C. Chatman (Eds.), *Developmental pathways through middle childhood:*

*Rethinking contexts and diversity as resources* (pp 207- 234). Mahwah, NJ: Lawrence Erlbaum Associates.

Ghaffarian, S. (1998). The acculturation of Iranian immigrants in the United States and the implications for mental health. *The Journal of Social Psychology, 138*, 5, 645-654.

Hamilton, H. A., Noh, S., & Adlaf, E. M. (2009). Adolescent risk behaviours and psychological distress across immigrant generations. *Canadian Journal of Public Health, 100*, 3, 221-5.

Harker, K. (2001). Immigrant generation, assimilation, and adolescent psychological well-being. *Social Forces, 79*, 3, 969-1004.

Hjern, A., & Allebeck, P. (2002). Suicide in first- and second-generation immigrants in Sweden. A comparative study. *Social Psychiatry and Psychiatric Epidemiology, 37*, 423 – 429.

Ho, E., & Bedford, R. (2008). Asian transnational families in New Zealand: Dynamics and challenges. *International Migration, 46*, 4, 42-62.

Ho, E., Au, S., Bedford, C., & Cooper, J. (2003). *Mental health issues for Asians in New Zealand: A literature review*. Wellington: Mental Health Commission. Retrieved September 28, 2011 from <http://www.mhc.govt.nz>

Jasinskaja-Lahti, I., Liebkind, K., Jaakkola, M., & Reuter, A. (2006). Perceived discrimination, social support networks, and psychological well-being among three immigrants groups. *Journal of Cross-Cultural Psychology, 37*, 3, 293-311.

Koneru, V. K., Weisman de Mamani, A. G., Flynn, P. M., & Betancourt, H. (2007). Acculturation and mental health: current findings and recommendations for future research. *Applied and Preventive Psychology, 12*, 76 – 96.

Kwan, Y. K., & Ip, W. C. (2007). Suicidality and migration among adolescents in Hong Kong. *Death Studies, 31*, 45-66.

- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer.
- Liebkind, K. (2006). Ethnic identity and acculturation. In D. L. Sam, & J. W. Berry (Eds.), *The Cambridge handbook of acculturation psychology* (pp. 78 - 96). Cambridge: Cambridge University Press.
- Liebkind, K., & Jasinskaja-Lahti, I. (2000). The influences of experience of discrimination on psychological stress: A comparison of seven immigrant groups. *Journal of Community & Applied Social Psychology, 10*, 1-16.
- Markides, K. S., & Coreil, J. (1986). The health of Southwestern Hispanics: An epidemiological paradox. *Public Health Reports, 101*, 253-265.
- Marsiglia, F. F., Kulis, S., Luengo, M. A., Nieri, T., & Villar, P. (2008). Immigrant advantage? Substance use among Latin American immigrant and native-born youth in Spain. *Ethnicity & Health, 13*, 2, 149 – 170.
- Mendoza, R. H. (1989). An empirical scale to measure type and degree of acculturation in Mexican American adolescents and adults. *Journal of Cross-Cultural Psychology, 20*, 4, 372-385.
- Mesch, G. S., Turjeman, H., & Fishman, G. (2008). Perceived discrimination and the well-being of immigrant adolescents. *Journal of Youth and Adolescence, 37*, 592-604.
- Mila-Schaaf, K., Robinson, E., Schaaf, D., Denny, S., & Watson, P. D. (2008). *A health profile of Pacific youth: Findings of Youth2000. A National Secondary School Youth Health Survey*. Auckland: The University of Auckland.
- Milfont, T. L., Merry, S., Robinson, E., Denny, S., Crengle, S., & Ameratunga, S. (2008). Evaluating the short form of the Reynolds Adolescent Depression Scale in New Zealand adolescents. *Australian and New Zealand Journal of Psychiatry, 42*, 950-954.
- Ministry of Health (2006). *Asian health chart book 2006*. Wellington: Ministry of Health.
- Ministry of Health (2008). *Pacific Youth Health: A paper for the Pacific Health and*

- Disability Action Plan Review*. Wellington: Ministry of Health.
- Ministry of Health and Ministry of Pacific Island Affairs (2004). *Tupu ola moui: Pacific health chart book 2004*. Wellington: Ministry of Health.
- Ministry of Social Development (2009). *The Social Report 2009*. Wellington: Ministry of Social Development.
- Mossakowski, K. N. (2007). Are immigrants healthier? The case of depression among Filipino Americans. *Social Psychology Quarterly*, 70, 3, 290-304.
- Neto, F. (2009). Predictors of mental health among adolescents from immigrant families in Portugal. *Journal of Family Psychology*, 23, 3, 375-85.
- Nguyen, A-M, D., & Benet-Martínez, V. (2011). Biculturalism and adjustment: A meta-analysis. *Journal of Cross-Cultural Psychology*, in press.
- Ongley, P. & Pearson, D. (1995). Post-1945 International Migration: New Zealand, Australia, and Canada compared. *International Migration Review*, 29, 3, 765-793.
- Oppedal, B., & Røysamb, E. (2004). Mental health, life stress and social support among young Norwegian adolescents with immigrant and host national background. *Scandinavian Journal of Psychology*, 45, 131-144.
- Phinney, J. S. (1992). The multigroup ethnic identity measure: A new scale for use with diverse groups. *Journal of Adolescent Research*, 7, 2, 156-176.
- Phinney, J. S., Berry, J. W., Vedder, P., & Liebkind, K. (2006). The acculturation experience: Attitudes, identities, and behaviors of immigrant youth. In J. W. Berry, J. S. Phinney, D. L. Sam, & P. Vedder (Eds.), *Immigrant youth in cultural transition: Acculturation identity and adaptation across national contexts* (pp. 71 - 116). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- Rasanathan, K., Ameratunga, S., Chen, J., Robinson, E., Young, W., Wong, G., Garrett, N., & Watson, P. D. (2006). A health profile of young Asian New Zealanders who attend

- secondary school: Findings from Youth2000. Auckland: The University of Auckland.
- Reynolds, W. M. (2009). Reynolds Adolescent Depression Scale. *Corsini Encyclopedia of Psychology*, retrieved from <http://onlinelibrary.wiley.com/doi:10.1002/9780470479216.corpsy0798/>
- Rivera-Sinclair, E. A. (1997). Acculturation/biculturalism and its relationship to adjustment in Cuban-Americans. *International Journal of Intercultural Relations*, 21, 3, 379-391.
- Roberts, R. E., Phinney, J. S., Masse, L. C., Chen, Y. R., Roberts, C. R., & Romero, A. (1999). The structure of ethnic identity of young adolescents from diverse ethnocultural groups. *Journal of Early Adolescence*, 19, 3, 301-322.
- Rogler, L. H., Cortes, D. E., & Malgady, R. G. (1991). Acculturation and mental health status among Hispanics. Convergence and new directions for research. *American Psychologist*, 46, 6, 585 – 597.
- Rumbaut, R. G. (1997). Paradoxes (and orthodoxies) of assimilation. *Sociological Perspectives*, 40, 3, 483-511.
- Salant, T., & Lauderdale, D. S. (2003). Measuring culture: A critical review of acculturation and health in Asian immigrant populations. *Social Science & Medicine*, 57, 71-90.
- Sam, D. L. (2000). Psychological adaptation of adolescents with immigrant backgrounds. *The Journal of Social Psychology*, 140, 1, 5-25.
- Sam, D. L., & Berry, J. W. (2010). Acculturation: When individuals and groups of different cultural backgrounds meet. *Perspectives on Psychological Science*, 5, 4, 472-481.
- Sam, D. L., Vedder, P., Liebkind, K., Neto, F., & Virta, E. (2008). Immigration, acculturation and the paradox of adaptation in Europe. *European Journal of Developmental Psychology*, 5, 2, 138-158.
- Sam, D. L., Vedder, P., Ward, C., & Horenczyk, G. (2006). Psychological and socio-cultural adaptation of immigrant youth. In J. W. Berry, J. S. Phinney, D. L. Sam, &

- P. Vedder (Eds.), *Immigrant youth in cultural transition: Acculturation identity and adaptation across national contexts* (pp. 117 – 141). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- Sam, D. L., & Virta, E. (2003). Intergenerational value discrepancies in immigrant and host-national families and their impact on psychological adaptation. *Journal of Adolescents*, 26, 213-231.
- Schaffer, A., Cairney, J., Cheung, A., Veldhuizen, S., Kurdyak, P., & Levitt, A. (2009). Differences in prevalence and treatment of bipolar disorder among immigrants: results from an epidemiologic survey. *Canadian Journal of Psychiatry*, 54, 11, 734-742.
- Schwartz, S. J., Unger, J. B., Zamboanga, B. L., & Szapocznik, J. (2010). Rethinking the concept of acculturation. *American Psychologist*, 65, 4, 237-251.
- Searle, W., & Ward. C. (1990). The prediction of psychological and sociocultural adjustment during cross-cultural transitions. *International Journal of Intercultural Relations*, 14, 449-464.
- Smokowski, P. R. & Bacallao, M. L. (2006). Acculturation, internalizing mental health symptoms, and self-esteem: Cultural experiences of Latino adolescents in North Carolina. *Child Psychiatry and Human Development*, 37, 3, 273-292.
- Smokowski, P. R., Chapman, M .V., & Bacallao, M. L. (2007). Acculturation risk and protective factors and mental health symptoms in immigrant Latino adolescents. *Journal of Human Behavior in the Social Environment*, 16, 3, 33-55.
- Spencer-Rodgers, J., Peng, K., Wang, L., & Hou, Y. (2004). Dialectical self-esteem and East-West differences in psychological well-being. *Personality and Social Psychology Bulletin*, 30, 11, 1416-1432.
- Statistics New Zealand (2005). *The Statistical Standard for Ethnicity 2005*, Statistics New Zealand, Wellington.

Statistics New Zealand (2006). 2006 Census Data: Quickstats about culture and identity.

Retrieved at September 22<sup>nd</sup>, 2010, from <http://www.stats.co.nz/Census/>

Stevens, G. W. J. M., & Vollebergh, W. A. M. (2008). Mental health in migrant children.

*Journal of Child Psychology and Psychiatry*, 49, 3, 276-294.

Szapocznik, J., Kurtines, W. M., & Fernandez, T. (1980). Bicultural involvement and

adjustment in Hispanic-American youths. *International Journal of Intercultural Relations*, 4, 353-365.

Tinghög, P., Al-Saffar, S., Carstensen, J., & Nordenfelt, L. (2010). The accociation of

immigrant- and non-immigrant-specific factors with mental ill health among immigrants in Sweden. *International Journal of Social Psychiatry*, 56, 1, 74-93.

Tsai, J. L., Chentsova-Dutton, Y., & Wong, Y. (2002). Why and how researchers should study ethnic identity, acculturation, and cultural orientation. In G. C. N. Hall & S.

Okazaki (Eds.), *Asian American psychology: The science of lives in context* (pp. 41–66). Washington, DC: American Psychological Association.

UMR Research Limited (2009). *Treaty of Waitangi and Perceived Discrimination*. UMR Omnibus Results. Human Rights Commission, New Zealand.

United Nations, Department of Economic and Social Affairs, Population Division (2009).

International migration 2009 (Wall Chart). Retrieved at September 22<sup>nd</sup>, 2010, from <http://www.un.org/esa/population/>

United Nations, Department of Economic and Social Affairs, Population Division (2010).

Population facts No. 2010/6, November 2010. Retrieved at October 19<sup>th</sup>, 2011, from <http://www.un.org/esa/population/>

Van Geel, M., & Vedder, P. (2010). The adaptation of non-Western and Muslim immigrant adolescents in the Netherlands: and immigrant paradox? *Scandinavian Journal of*

*Psychology*, 51, 398-402.

- Vedder, P., Sam, D. L., & Liebkind, K. (2007). The acculturation and adaptation of Turkish adolescents in North-Western Europe. *Applied Development Science, 11, 3*, 126-136.
- Vedder, P., van de Vijver, F. J. R., & Liebkind, K. (2006). Predicting immigrant youths' adaptation across countries and ethnocultural groups. In J. W. Berry, J. S. Phinney, D. L. Sam, & P. Vedder (Eds.), *Immigrant youth in cultural transition: Acculturation identity and adaptation across national contexts* (pp. 47 - 70). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- Vega, W. A., & Amaro, H. (1994). Latino outlook: Good health, uncertain prognosis. *Annual Review of Public Health, 15*, 39-67.
- Vega, W. A., Gil, A. G., & Zimmerman, R. S. (1993). Patterns of drug use among Cuban-American, African-American, and White non-Hispanic boys. *American Journal of Public Health, 83, 2*, 757-759.
- Vega, W. A., Kolody, B., Aguilar-Gaxiola, S., Alderete, E., Catalano, R., & Caraveo-Anduaga, J. (1998). Lifetime prevalence of DSM-III-R psychiatric disorders among urban and rural Mexican Americans in California. *Archives of General Psychiatry, 55*, 771-778.
- Vieno, A., Santinello, M., Lenzi, M., Baldassari, D., & Mirandola, M. (2009). Health status in immigrants and native early adolescents in Italy. *Journal of Community Health, 34*, 181-187.
- Virta, E., Sam, D. L., & Westin, C. (2004). Adolescents with Turkish background in Norway and Sweden: A comparative study of their psychological adaptation. *Scandinavian Journal of Psychology, 45*, 15-25.
- Waldstein, A. (2010). Popular medicine and self-care in a Mexican migrant community: Toward an explanation of the epidemiological paradox. *Medical Anthropology, 29, 1*, 71-107.

- Ward, C., & Masgoret., A-M. (2007). Immigrant entry into the workforce: A research note from New Zealand. *International Journal of Intercultural Relations*, 31, 525-530.
- Ward, C., & Masgoret., A-M. (2008). Attitudes towards immigrants, immigration, and multiculturalism in New Zealand. *International Migration Review*, 42, 1, 227-248.
- Ward, C., & Searle, W. (1991). The impact of value discrepancies and cultural identity on psychological and sociocultural adjustment of sojourners. *International Journal of Intercultural Relations*, 15, 209-225.
- Ward, C., & Viliamu, M. (2009). Identity, acculturation and adaptation in first and second generation Samoan youth. Conference presentation at: International Academy of Intercultural Research, Honolulu, Hawaii.
- Williams, C. L., & Berry, J. W. (1991). Primary prevention of acculturative stress among refugees: Application of psychological theory and practise. *American Psychologist*, 46, 6, 632-641.
- Wong, G., Amerutunga., S. N., Garrett, N. K. G., Robinson, E., & Watson, P. D. (2008). Family influences, acculturation, and the prevalence of tobacco smoking among Asian youth in New Zealand: Findings from a national survey. *Journal of Adolescent Health*, 43, 412-416.
- Zierau, F., Bille, A., Rutz, W., & Bech, P. (2002). The gotland male depression scale: a validity study in patients with alcohol abuse disorder. *Nordic Journal of Psychiatry*, 56, 265-71.