

Investigating the associations of problem gambling with mental health risk factors among Pacific women living in New Zealand

by

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A DISSERTATION SUBMITTED IN PARTIAL
FULFILLMENT OF THE REQUIREMENT FOR THE
DEGREE OF MASTER'S IN PUBLIC HEALTH AT THE
AUCKLAND UNIVERSITY OF TECHNOLOGY

November 2018

Abstract

Problem gambling is a severe mental health issue. Both New Zealand and International evidence agree that some groups within populations are more vulnerable to developing problematic gambling behaviours than others. Within New Zealand, Pacific people have been identified as the most at-risk ethnic group of becoming problem gamblers. There currently exists a paucity of research relating to problem gambling among Pacific women. This is extremely worrying, as studies have noted that when compared to other ethnic groups, they have a significantly increased risk of problem gambling. These problem gambling behaviours are negatively associated and influenced by certain mental health risk factors such as poor education, low-income attainment, smoking, low acculturation, inadequate physical activity and unemployment. Unfortunately, the predictable outcome of these mental health risk factors is an increased likelihood of problem gambling for Pacific women.

Utilising a quantitative research methodology with data obtained from the Pacific Island Families Study (PIFS) - 2014 Phase, the purpose of this study was to investigate the relationship of problem gambling with mental health risk factors and how they impacted on the mental well-being of Pacific women. The findings from this study indicated that statistically significant associations were found with education, weekly income and employment. The three mental health risk factors observed; unemployment, poor education and low income were identified as increasing the likelihood of problem gambling among Pacific women.

The mental health risk factors found to have associations with problem gambling are all defined as modifiable risk factors. It was also noted that education had a substantial influencing impact on transitioning employment and income into protective factors of mental health. With this crucial concept in mind, the study developed recommended strategies aimed at improving education so that flow on effect may be observed with the other two risk factors, thus helping to reduce problem gambling and improving mental health among Pacific women.

Attestation of Authorship

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.

Signed _____ Date _____

Acknowledgements

First and foremost, I would like to thank our heavenly Father for bestowing upon me the ability, guidance, strength and courage to complete this dissertation.

I would also like to express my sincere gratitude to my supervisor Dr El-Shadan Tautolo for his patience, time, motivation and immense knowledge. His guidance has helped me massively in the writing of this dissertation and his feedback throughout the process has been invaluable.

A special thank you to Dr Nick Garrett, for always being willing to share his time and statistics knowledge with me. Your help throughout my dissertation journey has been immense and for that I am truly grateful.

Thank you to my immediate family; Krystle Pickering, Whitney Pickering, Giselle Ally and La-Chey Meredith. I am truly blessed to always have your unending support.

Finally, I would like to dedicate this dissertation to my loving parents, John and Lily Pickering. Thank you for your love, guidance, support and all the sacrifices that you both have made to ensure that my sisters and I can live a better life.

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Chapter 1: Introduction and Overview of the Dissertation

1.1 Background of Pacific people in New Zealand

In Aotearoa New Zealand, the Pacific community consists of over sixteen distinct ethnic groups from many different Pacific Islands, making it a very dynamic and diverse population (Pasifika Futures, 2017). Statistics gathered from the 2013 census reveal a total Pacific population of 295,941 people, resulting in it being the fourth largest ethnic group in New Zealand (Pasifika Futures, 2017). Among the Pacific people in New Zealand, the eight largest ethnic groups identified include Samoans (49 percent), Cook Islands Maori (21 percent), Tongan (20 percent), Niuean (8 percent), Fijian (5 percent), Tokelauan (2 percent), Tuvaluan (1 percent) and Kiribati (less than 1 percent) (Pasifika Proud, 2016).

Small-scale migration from the Pacific islands to New Zealand occurred in the early 1900s to around 1945, and then large movement happened during the 1950s to 1970s (Ministry of Health, 2008). This was due to the economic boom in New Zealand and Pacific people viewed this an opportunity to better their lives.

The Pacific population has a substantial presence in the overall landscape of the country. Their manifestation is usually witnessed and celebrated through their rich culture, success on the sporting stage, artistic flair and through their academic contributions (Mallon, Mahina-Tuai, & Salesa, 2012). However, these triumphs fail to extend to the more important social, cultural and economic determinants of health such as education, income, housing, and health status, where they often fare significantly poorly (National Health Committee, 1998). This is reflected in observing that Pacific people represent the smallest proportion of the New Zealand population with degrees and the most substantial portion with no qualification (Pasifika Futures, 2017). Life expectancy among Pacific individual is four years less than that of the total population, and there is an equitable distribution of chronic diseases among Pacific people than any other ethnic group (Pasifika Futures, 2017). The unemployment rate among Pacific people in New Zealand is consistently higher than the rate of the total population (Pasifika Futures, 2017). Pacific people are the largest group who don't own their own homes and are also the most significant proportion of the of people who live in over-crowded homes (Pasifika Proud, 2016). These

determinants of health impact on the overall health status of an individual and give rise to health inequalities.

This is an ongoing and alarming issue for health professionals as the Pasifika population in New Zealand is young, large and continually growing. This is highlighted in the 2013 Census Report which states that they compose of 7.4 percent of the total New Zealand population and that from 2006 to 2013 that has been a steady growth from 265,974 to 295,941 (11.3 percent) (Auckland Council, 2015).

Other critical aspects regarding Pacific people in New Zealand illustrate that there are more Pacific children than any other ethnic group and the majority of the population are now born in New Zealand (Pasifika Proud, 2016). Pasifika children make up 35.7 percent of the total population which is higher than 19.6 percent for Europeans, 33 percent for Maori and 20.6 percent for Asian (Pasifika Futures, 2017). In addition, of the total Pacific population, nearly two-thirds are now born in New Zealand. Statistics indicate that the proportion of Pacific people born in New Zealand has risen from 58.2 percent in 2001 to 62.3 percent in 2013 (Auckland Council, 2015). With a youthful and growing Pacific population, who tend to suffer inequalities across most spectrums of society, it is considered a priority that bridges be built to improve their quality of life in New Zealand.

1.1.1 Problem Gambling and Pathological Gambling explained

‘Pathological gambling’ and ‘problem gambling’ are terms widely used to describe a disorder that involves gambling (Delfabbro, 2013). Pathological gambling is a psychiatric or medical term which was initially included in the DSM-III in 1980 and is recognised as a mental disorder (Delfabbro, 2013). The DSM-IV also recognises pathological gambling as a mental disorder and goes on to describe its presence as “persistent and recurrent maladaptive gambling behaviour” that can “disrupt personal, family or vocational pursuits” (Delfabbro, 2013). Clinicians see pathological gambling in more of a ‘biomedical’ approach. This contrasts with ‘problem gambling,’ as researchers tend to define it with a more ‘public health’ approach. Researchers have often conceptualised the two as lying on a continuum, whereby problem gambling is viewed as being less severe than pathological gambling. This is highlighted in gambling screens such as the Southern Oaks Gambling Screen and Volberg’s (2010) Pathological Problem Gambling Measure

(PPGM) (Delfabbro, 2013). The two terms are often used interchangeably but ultimately describe the various forms of harm that are attributed to gambling.

For the purpose of this dissertation, ‘problem gambling’ was the preferred term chosen as it encompasses a multidisciplinary and public health approach, which is suitable when observing its impacts among the Pacific population. This is because it acknowledges that problems associated with gambling are not only caused and felt by the individual but also caused and felt by the many social and cultural aspects within that individual’s community.

1.1.2 Problem gambling among Pacific people in New Zealand

With regards to Pacific people, studies have highlighted a lower participation rate of gambling among the population. This was highlighted in the 2006/07 New Zealand Health Survey (NZHS) which noted that only 55 percent of Pacific participants gambled in the past year, as opposed to 65 percent of the general population (Bellringer et al., 2013). This is extremely alarming because, despite lower levels of gambling participation, findings from the 1991 and 1999 national prevalence studies conducted in New Zealand emphasized that fact that Pacific people were the most at-risk population for developing problem gambling or pathological gambling behaviour (Bellringer, Perese, Abbott, & Williams, 2006). The findings indicated that the prevalence estimate among Pacific people was approximately six times more than New Zealand Europeans (Bellringer, Perese, Abbott, & Williams, 2006).

When observing gambling distribution among the Pacific population in New Zealand, it is also very likely to witness a bimodal distribution. This distribution describes a lower level of gambling participation, coupled with disproportionately higher average gambling expenditure than any other ethnic group (Bellringer et al., 2013). Simply put, Pacific people are less likely to gamble, however, when they do gamble, they are more likely to spend more. This distribution might be a reason to explain why Pacific people are more at risk of becoming problem gamblers. This was suggested by Abbott & Volberg (2000), whereby they demonstrate that among those Pacific people who gamble, they have a lower history with the different forms of gambling available, they participate more frequently, and experience stress associated with unemployment, under-employment, and

acculturation. This ultimately becomes a driving force which leads them to become problem gamblers.

Furthermore, it has been noted that Pacific people are more reluctant to seek help regarding treatment for their gambling problems. This can result in an under-representation of Pacific problem gamblers within New Zealand.

1.1.3 Mental Health among Pacific people in New Zealand

Mental health is an important facet of human life. It encompasses an individual or community's capacity of well-being that allows for the achievement of true potential, productivity and the ability to adjust and adapt to everyday life stresses (World Health Organisation, 2013). Mental health is fundamental to the development of fruitful participation of people within their own communities and the wider global environment.

To date, there exists a paucity of research focussed on understanding the overall mental health status and contributing risk factors that impact on Pacific people in New Zealand. This was in part due to the underrepresentation of Pacific people in national mental health surveys (Ministry of Health, 2008). Even with this significant limitation as a barrier to understanding the bigger mental health picture, there remains strong evidence depicting higher prevalence rates of mental health problems among Pacific people. For example, 46.5 percent of Pacific people reported to experiencing some form of mental disorder in their life, as compared to 39.5 percent of the overall population (Browne, Wells, & Scott, 2006). The full depth of this health problem will be discussed further in chapter 2 of this dissertation.

Importantly though, a key notion when investigating mental health is to understand that it is an umbrella term that not only encompasses the absence of mental disorders such as schizophrenia and depression but also alcohol, drugs, gambling and other addiction problems that are immensely detrimental (World Health Organisation, 2013). Furthermore, when investigating problem gambling as a mental health issue, it is important to understand that there are certain mental health risk factors such as poor education, unemployment, poor physical activity, reduced income attainment, smoking and alcohol abuse, that increase the likelihood of developing poorer

outcomes (World Health Organisation, 2012). These risk factors and more will also be investigated further in the literature review, as well as in the following study.

1.2 Statement of the problem

Poor mental health is an ongoing health concern that has inequitable distribution among Pacific people in New Zealand. Similarly, an unfair distribution of problem gambling, as a mental health problem, is witnessed among Pacific people when compared with other ethnic groups. The social, economic and cultural determinants of health need to be addressed in order to gain a better understanding of the issue, as they play a substantial role as contributing mental health risk factors. These mental health risk factors may include; low income, reduced education attainment, certain cultural practises, unemployment, low socioeconomic status, poor physical activity and low levels of acculturation (National Health Committee, 1998). As indicated earlier, there is a paucity of research that highlights the extent of problem gambling among Pacific people, particularly among Pacific women in New Zealand. Furthermore, a lack of research exists that is aimed at understanding how the social, cultural and economic factors have the potential to increase the likelihood of problem gambling among Pacific women.

Therefore, this study aims to understand how the issue of ‘problem gambling’ as a mental health concern is associated to these mental health risk factors, and in addition, suggesting possible reasons as to how these risk factors occur and impact on Pacific women. With inequitable distribution of poor mental health outcomes and problem gambling behaviour among Pacific women clearly prevalent, it is imperative that the gap in knowledge surrounding this issue be reduced to improve overall mental well-being. Pacific women hold a central role in the functioning of Pacific families and communities (Mallon, Mahina-Tuai, & Salesa, 2012). The role they perform is critical, and improvement of their mental health has the power to have long-lasting positive impacts on Pacific families, Pacific communities, and New Zealand as a whole (Ministry of Health, 2008).

1.3 Significance of the Research

The significance of this dissertation is evident through helping to shed unique insight into the gambling behaviours among Pacific women living in New Zealand. It draws attention

to how this behaviour, having the potential to becoming problematic, is associated with individual mental health risk factors. The findings may help propose possible recommendations and solutions for public health policy, as well as add to the body of knowledge surrounding problem gambling as a mental health issue, and its association to mental health among Pacific women. The overarching aim and objectives highlighting the purpose of this dissertation are as follows:

Aim: To investigate problem gambling as a mental health issue and its association with mental health risk factors among Pacific women living in New Zealand.

Objectives:

1. Describe the background of problem gambling behaviour and prevalence among Pacific women within a mental health context.
2. Measure the relationship between problem gambling with individual mental health risk factors, in a large sample of Pacific women living in New Zealand.
3. Analyse the results and gain a comprehensive understanding of the cultural and societal factors linked to problem gambling and its association with mental health risk factors.

1.4 Dissertation Outline

The overall structure of this dissertation consists of 5 chapters. As outlined above, this dissertation is focussed on investigating the association between problem gambling and mental health risk factors among Pacific women living in New Zealand. This chapter comprises of a contextual background of Pacific people living in New Zealand, it provides a concise definition of 'problem gambling,' and furthermore, it briefly describes problem gambling and mental health among Pacific people in New Zealand. In addition, this chapter states the problem that has been identified among Pacific women and proposes why this research is significant and essential.

Chapter 2 of this dissertation presents the literature review that was undertaken. It focused on gaining a better understanding of the problem by utilising academic resources available that were related to problem gambling and mental health among Pacific people, in particular, Pacific women. In addition, this chapter also defines 'gambling' and 'mental health,' as well as highlights how these issues are present in a

New Zealand context, to paint a picture of how Pacific Island people compare to other ethnic groups present.

Chapter 3 comprises the methods and processes that were undertaken in this study. It presents a brief background of the Pacific Island Families (PIFS) Study, specifically focused on the 2014 phase of the PIFS, as the data being analysed in this dissertation was collected from this phase.

Chapter 4 of this dissertation presents the results from the data utilised in the bivariate and multiple logistic regression analysis that was performed, following the methodology.

Chapter 5 of this dissertation comprises a discussion that is based on the results observed in this study. This chapter will showcase an understanding of the results obtained from the study, detail the strength and limitations that were discovered, propose strategies to addressing the problem and lastly the key implications that this study has on Pacific women and New Zealand as a whole.

Chapter 2: Literature Review

2.1 Introduction

This literature review focuses on understanding how ‘problem gambling’ as a serious health issue is associated with the mental health of individual’s, particularly on Pacific women living in New Zealand. It will aim to do so by firstly providing concise definitions of gambling and problem gambling and then outlining its impact within a New Zealand context. In addition, it will highlight the gambling and problem gambling situation among Pacific people and explore reasons as to why they gamble.

It will then define mental health, followed by a brief overview of the mental health situation in New Zealand. However, a stronger focus will be directed toward exploring the mental health risk factors that have detrimental impacts on Pacific women. Finally, this literature review aims to investigate how gambling that leads to problem gambling is associated with the mental health of Pacific women in New Zealand. This sets a precedent to the study, therefore helping to bridge the gap in knowledge surrounding this health issue.

2.2 Gambling: A New Zealand Context

According to the New Zealand Gambling Act 2003, gambling is defined as “*paying or staking consideration, directly or indirectly, on the outcome of something seeking to win money when the outcome depends wholly or partly on chance*” (Parliamentary Council Office, 2003, Section 4). Within New Zealand, gambling is a form of entertainment that encompasses an array of gambling activities such as casino gambling, electronic gaming machines (EGM), Lotto, Instant Kiwi, track (horse and dog) betting, sports betting, Keno, housie (bingo), internet gambling and telephone gambling (Rossen, 2015).

When observing the history of gambling in New Zealand, it is clear to see that there has been an immense expansion over a short period. Throughout the 1970s and 1980s, gambling was confined to Golden Kiwi (state lottery system) and horse and dog race betting (Abbott, Bellringer, Garrett, & Mundy-Mcpherson, 2014). The 1980s gave rise to new forms of gambling such as Lotto, EGMs in Pubs and clubs and Instant Kiwi (Abbott, Bellringer, Garrett, & Mundy-Mcpherson, 2014). Further growth in the

1990s was witnessed in the establishment of four casinos in Auckland, Christchurch, Queenstown and Dunedin (Abbott, Bellringer, Garrett, & Mundy-Mcpherson, 2014). The 1990s was also a time where sports betting became legalised and spawned the introduction of free to air national television coverage of horse and dog races (Abbott, Bellringer, Garrett, & Mundy-Mcpherson, 2014). During the 2000s, gambling in New Zealand had reached its peak. This period observed the introduction of one more casino being established in Hamilton and exponential growth in casino EGM venues and machines (Abbott, Bellringer, Garrett, & Mundy-Mcpherson, 2014). To date, there are currently six casinos located in New Zealand, with a second one established in Queenstown (Ministry of Health, 2010). In 2004, EGM gambling accounted for half of all forms of gambling and the total gambling expenditure for the year sat at \$2.04 billion (Abbott, Bellringer, Garrett, & Mundy-Mcpherson, 2014).

The rapid expansion of gambling in New Zealand was quickly halted with the passing of new gambling legislation in the form of the Gambling Act 2003. This highlighted the much-needed focus on promoting public awareness, harm prevention and harm minimisation that's associated with gambling (Abbott, Bellringer, Garrett, & Mundy-Mcpherson, 2014). The Act was largely successful due to its ability to minimise the number of non-casino EGMs present as well as give local authorities the power to apply limitations on the number of gambling machines available within their communities (Abbott, Bellringer, Garrett, & Mundy-Mcpherson, 2014). The success of the passage of the 2003 Act by Government and concerted efforts with the Ministry of Health, with initiatives and health promotions aimed at minimising gambling harm, witnessed a significant reduction in the prevalence of gambling machines and gambling expenditure in New Zealand (Abbott, Bellringer, Garrett, & Mundy-Mcpherson, 2014).

In New Zealand, Lotto has been in the past and has remained the most popular choice of gambling among individuals (Abbott, Bellringer, Garrett, & Mundy-Mcpherson, 2014). The 2012 New Zealand National Gambling Study revealed 62 percent of adults chose this form of gambling during the past year. This was followed by raffles (47 percent), then Instant Kiwi (33 percent), bets with friends and workmates (15 percent), non-casino EGM's (14 percent) and dog race betting (12 percent) (Abbott, Bellringer, Garrett, & Mundy-Mcpherson, 2014). The same study revealed that among men and

females, the proportion that gamble is very similar (53.5 percent and 50.7 percent respectively). Furthermore, among the New Zealand population, the prevalence of gambling was the lowest among Pacific (42.9 percent) and Asian people (37.3 percent) (Abbott, Bellringer, Garrett, & Mundy-Mcpherson, 2014). The highest rates of gambling prevalence were observed among European (54.9 percent) and Maori (53.3 percent) people (Abbott, Bellringer, Garrett, & Mundy-Mcpherson, 2014). Another interesting finding from the study showed that gambling participation was much more common among the elderly citizens. The prevalence of gambling among individuals ages between 15-24 years was significantly less when compared to older age groups (Abbott, Bellringer, Garrett, & Mundy-Mcpherson, 2014).

2.3 Problem Gambling: A New Zealand Context

According to the Ministry of Health Report (2006), problem gambling is when “a gambler's excessive gambling or loss of control over gambling can result in harm to the gambler and the people around them.” In New Zealand, problem gambling is a significant public mental health issue as it has negative consequences on the individual, as well as their community (Mason, 2006). These consequences are present within and more importantly influenced by environment and broader society that the individual is involved with (Mason, 2006). The issues that affect problem gamblers not only impacts on their mental and physical health but also on the people that surround them. Furthermore, problem gambling can be tremendously detrimental to an individual's financial situation and on the personal relationships in which they share (Mason, 2006). Without a doubt, the detrimental impacts of problem gambling behaviours stretch far beyond the individual level.

Within New Zealand, statistics gathered from the 2002/03 New Zealand Health Survey (NZHS) indicated that the prevalence rate of current problem gamblers was 1.2 percent of the population, which represented 32,800 people (Mason, 2006). Significant findings from Mason (2006), illustrates that the key risk factors for problem gambling within New Zealand are associated with having lower educational attainment, being aged 25 to 34, being employed, and having Maori and Pacific ethnic backgrounds. The 2002/03 NZHS also exposed significant associations between problem gambling and addictive behaviours, as well as worse self-rated health status. These associations were evident through specific findings detailing that over half of

the problem gamblers (53.5 percent) had potential hazardous drinking behaviour as compared to non-problem gamblers (16.8 percent) (Mason, 2006). Moreover, even when critical sociodemographic variables were adjusted for, statistics portrayed that non-problem gamblers were four times less likely to exhibit hazardous drinking behaviour than problem gamblers (Mason, 2006).

In addition, the investigation of smoking behaviour also depicted that problem gamblers also fared significantly poorer than non-problem gamblers. This was evident in the fact that a more substantial proportion of problem gamblers (58.3 percent) smoked more cigarettes daily than non-problem gamblers (22.5 percent) (Mason, 2006). Once more, when key sociodemographic variables were controlled, it revealed that non-problem gamblers were three times less likely to smoke cigarettes daily than problem gamblers (Mason, 2006). Furthermore, 44.4 percent of gamblers stated that when their gambling behaviour increased, so did their cigarette intake (Mason, 2006). The picture painted so vividly portrays that the addiction of problem gambling is strongly associated to other unhealthy risky addictive behaviours. Ultimately, a compounding effect of more unhealthy behaviours occurs creating an even greater health issue.

With regards to self-related health status among problem gamblers, the NZHS found that individuals exhibiting problem gambling behaviours were more likely to feel nervous, less happy, feel worn down or tired, get sick more often, have poorer general health, spend less time working or carrying out activities, work less diligently, and lastly accomplish less than usual (Mason, 2006). The fundamental theme from the survey highlighted the unsurprising fact that the consequences of problem gambling were substantially more detrimental to individuals who exhibited problem gambling behaviours when compared to those who weren't at risk.

2.3.1 Problem gambling: Pacific people in New Zealand

The term "Pacific people" is used to collectively describe numerous ethnicities from the South Pacific (Polynesia, Micronesia & Melanesia) (Ministry of Health, 2008). Within New Zealand, there are five main Pacific ethnic groups which are; Samoans, Cook Islanders, Tongans, Niueans and Fijians (Pasifika Futures, 2017). It is important to note that these groups even though at times may seem similar, are diverse and unique in the richness of their own cultures, traditions, customs and languages

(Ministry of Health, 2008). This is a significant idea to uphold as using a collective term to describe the population can mislead health professionals and policy makers and disguise the community as being homogeneous (Ministry of Health, 2008). Therefore, when investigating the impacts of problem gambling among Pacific people, it is unfitting to assume that all Pacific ethnic groups gamble for the same reasons. Different Pacific ethnicities must be examined separately to gain a better and more informed understanding.

Studies carried out during the 2006/07 period, such as the national NZHS and the national Gaming and Betting Survey, both revealed lower gambling participation rates amongst Pacific people (Bellringer et al., 2013). The 2006/07 NZHS indicated that only 55 percent of the Pacific respondents had gambled in the previous year, in contrast to the 65 percent of the general population (Bellringer et al., 2013). A similar trend was identified in the national Gaming and Betting survey, which noted that 71 percent of the Pacific respondents had gambled in the past year, in contrast to 82 percent of the general population (Bellringer et al., 2013). These statistics taken at face value can be very misleading. This is because despite having lower participation rates in gambling, Pacific people have a significantly higher risk of becoming problem gamblers than most other ethnic groups in New Zealand. For instance, in 2008 Pacific people accounted for 21.2 percent of problem gamblers (Urale, Bellringer, Landon, & Abbott, 2015). This is exceptionally alarming as they comprised of only 6.9 percent of the total New Zealand population at the time (Urale, Bellringer, Landon, & Abbott, 2015). This was further highlighted in results obtained from the 1991 and 1999 national prevalence studies that were conducted in New Zealand, which identified Pacific people as being six times more at risk than New Zealand Europeans (Bellringer, Perese, Abbott, & Williams, 2006).

Furthermore, the 1999 survey data noted a 'bimodal' distribution for gambling among Pacific peoples (Bellringer, Perese, Abbott, & Williams, 2006). This situation was present because it emphasized many non- and infrequent gamblers as well as frequent-participation/ high expenditure gamblers within the population group (Bellringer, Perese, Abbott, & Williams, 2006). Studies suggest that within populations that portray a bimodal distribution of gambling, individuals may be considered as being more at risk of developing problem associated with gambling (Bellringer, Perese,

Abbott, & Williams, 2006). Abbot & Volberg (2000) explain that is due to individuals having significant continuous gambling involvement, lacking prior experience with the different forms of gambling, and being exposed to stress associated with acculturation, high levels of unemployment and under-employment.

In addition, even though Pacific people do not gamble as frequently as other ethnic groups, for those that do gamble, they tend to spend a lot more than the average person. Relative to other ethnic groups in New Zealand, the 1999 survey discovered that Pacific people on average spent more money per month gambling (62 dollars compared to 41 dollars) (Bellringer, Perese, Abbott, & Williams, 2006). When comparing gambling among genders and ethnicity and adjusting for age, the risk of developing problem gambling among Pacific males was 3 times higher than European/ Other men. Similarly, Pacific women were 1.5 times more at risk of developing gambling problems than European/ Other females (Urale, Bellringer, Landon, & Abbott, 2015). When taken at face value, the reduced prevalence of Pacific gamblers creates a false sense of achievement among the Pacific community and health professionals. However, contradiction creeps in and the initial understanding is quickly nullified when discovering that Pacific people remain a high-risk group for developing problem gambling addiction.

2.3.2 Why do Pacific people gamble?

When looking at how problem gambling impacts on different ethnic groups within New Zealand, it is clear to see that Pacific people are disproportionately affected. This has been highlighted by the increasing number of Pacific people since 1999, who have sought gambling treatment services (Perese, Bellringer, Williams, & Abbott, 2009). It is widely accepted among scholars that there is a paucity of research available that definitively illuminates the factors that drive individuals from being non-gamblers to being problem gamblers. According to Abbott et al. (2015), it is still unclear as to why Pacific people living in New Zealand are more at risk of becoming problem gamblers. However, when understanding the reasons as to why they gamble, a central concept to acknowledge is that different Pacific ethnic groups gamble for various reasons. Therefore, it is incorrect to treat each diverse Pacific ethnic group homogenously.

Clarke et al (2006), uncovered that the main reasons Pacific people in New Zealand started and continued to gamble were to meet traditional obligations (within family, community, and church), solve financial problems, for excitement and entertainment, and because of the ease of access to gambling marketing and gambling facilities in social settings. In terms of deprivation, which combines census data associated to the social, cultural and economic factors, approximately 60 percent of Pacific families live in the most deprived areas of New Zealand (Ministry of Health, 2008). Abbott and colleagues (2015) hypothesised that the over-representation of gambling facilities in deprived areas, coupled with Pacific people historically having little to no exposure to gambling, may perhaps explain the high rates of Pacific problem gamblers.

The impact of migration has also affected the high gambling rates of Pacific people in New Zealand. Acculturation is the ability for immigrants to adapt to the mainstream culture by adopting or borrowing traits from the host culture (Raylu & Oei, 2004). In this case, some Pacific people can adapt to New Zealand culture faster and to a greater degree than others or vice versa. Raylu & Oei (2004), noted that increased problem gambling among cultural groups, like Pacific people, can be caused by two processes. These two processes are successful acculturation (increased adaptation to a culture that has very normalised and accepted views towards gambling), or a breakdown in the acculturation process (difficulties adapting to the host cultures views on gambling) (Raylu & Oei, 2004). This is due to the difference in the structure of society and the daily roles and activities that Pacific people carry out in the islands as compared to in New Zealand. Bellringer et al. (2013), revealed that Pacific people found gambling activities and venues in New Zealand to be more abundant and readily available than back in the Islands, thus intensifying the problem.

Furthermore, in the islands, Pacific people were busier with daily living activities, whereas in New Zealand they had more free time (Bellringer et al., 2013). The same study investigated the roles of the church and family in the onset of gambling. It was common to find that some church denominations within Pacific communities endorsed gambling as a way of fundraising (Bellringer et al., 2013). Within some Pacific communities, bingo or housie was another form of gambling that was accepted as a means of fundraising for family or church commitments associated with traditional gift-giving obligations (Bellringer et al., 2013). This is extremely worrying

as the line between meeting church obligations and one's own family obligations become blurred. This can result in a stronger emphasis placed on helping everyone else first whilst neglecting individual or family financial needs.

Gift giving is the common traditional practice among Pacific peoples that involves the ceremonial exchange of gifts, service, time, food and money, as a way of showing homage to others (Perese et al., 2011). Gift giving primarily occurs during weddings, birthday celebrations, and funerals, with the arbitrary choice of exchange involving money (Perese et al., 2011). Samoan people are often fearful that if they are unsuccessful in meeting family obligations, they are at risk of being alienated (Cowley, Paterson, & Williams, 2004). This can create immense strain on the mental health of an individual. Therefore, Pacific people use gambling as a means of acquiring more money so that they can fulfil their gift-giving obligations. Perese et al., (2011) identified that the act of gift-giving among Pacific people still remains an important cultural practice, however, is closely associated with being a driving force that induces gambling. This was consistent with Bellringer et al., (2006) findings.

Among Samoans, Tse et al., (2005) revealed that Samoans gambled to pay debts, to help their families, to pay fa'alavelave (to meet family obligations), way to meet gift-giving opportunities, to escape daily activities, a means of stress-relief and to socialise. Guttenbeil-Po'uhila et al., (2004), discovered that Tongans gambled because of obligations to their families, church, community, and state, meet financial needs, increased access and availability to gambling venues and machines, for entertainment and relaxation and because of migration. It was suggested that Tongan people not be fully aware of the consequences of gambling and are unable to handle, control and use gambling venues as recreational (Guttenbeil-Po'uhila, Tu'itahi, Hand, & Htay, 2004). Niuean people gamble for financial, social and mental health reason. These reasons were to relieve loneliness because their peers gambled, unemployment, looking for something new and different to try, for companionship, to meet financial needs and for the feel-good emotion that it evoked when they won (Tse et al., 2005).

A common finding observed among different Pacific ethnic groups is one that highlights the importance of being in a community that share the same values of religion, tradition, culture and family. These values are central to most Pacific cultures

and bring about immense positive impacts on Pacific people. However, as a contrast to this, the literature shows that there can exist negative impacts for Pacific people if a good balance isn't found. In this situation, it has been discovered that an imbalance in upholding cultural values and practises whilst still meeting personal or family financial needs, can lead to Pacific people resorting to unhealthy gambling behaviours to bring forth financial equilibrium.

2.3.3 Gambling and problem gambling among Pacific women in New Zealand

Bellringer et al. (2006), indicate that currently there is scant research on female gambling behaviours, let alone Pacific female gambling behaviours. There is a strong need for more research on gambling among Pacific women, as there is strong evidence depicting increased gambling participation rates and increased numbers of Pacific women presenting to problem gambling treatment services. Most of the research relating to Pacific mothers and gambling are consistent with Abbot and Volberg's (2000) findings which specify a bimodal distribution for gambling. This means that there is a significant proportion on non-Pacific female gamblers, but among those females that gamble, they exhibit higher average expenditure than any other ethnic group (Bellringer, Perese, Abbott, & Williams, 2006).

Key findings revealed by Bellringer and colleagues (2006), indicated that among Pacific women, associations were made between gambling and education, marital status, cultural orientation, and comorbid disorders. The findings presented that an increase in gambling behaviour was associated with lower levels of educational attainment and increased tobacco and alcohol use (Bellringer, Perese, Abbott, & Williams, 2006). Furthermore, migrant Pacific mothers were found to be more likely to gamble than Pacific mothers born in New Zealand (Bellringer, Perese, Abbott, & Williams, 2006). The other interesting finding observed was that single Pacific women were less likely to gamble than Pacific women who were married or in a de-facto relationship (Bellringer, Perese, Abbott, & Williams, 2006).

When assessing ethnicity differences and gambling behaviour, Tongan mothers were approximately three times more likely to gamble than any other Pacific ethnicity, and they were also more likely to spend \$20 or more per week gambling (Bellringer, Perese, Abbott, & Williams, 2006). In addition, it was noted that Samoan women

were least likely to gamble than any other Pacific ethnic group (Bellringer, Perese, Abbott, & Williams, 2006). These findings were consistent with Bellringer and colleagues (2005) findings.

The cultural aspect of gift-giving among Pacific women was also found to have an association with levels of gambling. The association revealed that among Pacific women who practised gift-giving, they were found to be more likely to gamble than mothers who did not adhere to this custom (Perese, Bellringer, Williams, & Abbott, 2009). This association was also consistent with findings observed by Perese et al. (2011). Furthermore, Pacific women who practised gift-giving had increased gambling expenditure than Pacific women who did not practise it (Perese et al., 2011). Studies also suggested that Pacific women who have a strong sense of cultural and personal identity had a reduced likelihood of gambling participation. This highlights the importance for Pacific women to build strong self-esteem, nurture empowerment and understanding better ways to effectively adapt within New Zealand society to reduce unhealthy and risky behaviours.

Regarding gambling preference, Lotto was the more preferred form of gambling among Pacific women (Bellringer et al., 2008; Bellringer et al., 2012). Interestingly though, when observing Housie as a form of gambling, Pacific women showed increased levels of gambling and increased gambling expenditure toward it, despite it not being the most preferred activity (Perese, Bellringer, Williams, & Abbott, 2009).

2.4 Mental Health: A Global and New Zealand context

According to the World Health Organisation (WHO) mental health is defined as "a state of well-being in which every individual realizes his or her potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community" (World Health Organisation, 2013). Mental health is considered a fundamental aspect of all people, collectively and individually. For instance, it allows people to live their fullest life, aids in the formation of meaningful relationships with others, provides the opportunity to be productive in studies and work, encourages the pursuit of leisure activities and more importantly is vital in assisting in decision making when it comes to education, employment, housing and other life choices (World Health Organisation, 2012).

When the mental health of an individual becomes compromised, this can have detrimental impacts not only on the individual's life but their families and on the society in which they are involved with (World Health Organisation, 2012). This is because individualistic attributes, social circumstances, and the environment, all interact with each other to influence an individual's mental health and well-being (World Health Organisation, 2012). The interaction of all these factors can either have detrimental or protective impacts on the individual's capacity to function productively (World Health Organisation, 2012).

It is widely accepted that some people in society are more vulnerable to experiencing adverse mental health outcomes than others. The characteristics of populations who are more susceptible to poorer mental health and well-being are usually strongly reflected among impoverished communities or from those who suffer chronic disease, or from people who make up minority groups within society (World Health Organisation, 2012). The disadvantages to mental well-being that are the result of social inequalities tend to originate before birth and have the potential to amass throughout an individual's life (World Health Organisation, 2014).

A keynote to understand is that mental health does not just mean that there is an absence of mental disorders. Mental disorders encompass a wide range of mental states and illnesses such as anxiety, depression, schizophrenia, and alcohol and drug dependency (World Health Organisation, 2014). According to the World Health Organisation (2013), mental, neurological and substance use disorders account for 9 out of the 20 leading causes of years lived with disability worldwide and 10 percent of the global burden of disease (World Health Organisation, 2013). This is not only a significant concern for the health and well-being of populations worldwide, but it also has a substantial economic impact. For instance, according to an analysis undertaken by the World Economic Forum, it was hypothesised that 16 trillion US dollars would be lost over the next twenty years because of the snowballing global impact of mental disorders (World Health Organisation, 2013).

In Aotearoa New Zealand, poor mental health is a growing and significant cause for concern for health professionals. It is estimated that one in five New Zealanders is

currently living with some form of mental illness and or/addiction (Health and Disability Commissioner, 2018). Furthermore, according to the national mental health survey, Te Rau Hinegaro, it has been estimated that approximately half of all New Zealanders will at some point in their life be affected by mental illness or addiction (Health and Disability Commissioner, 2018). The substantial impact of this finding is further exacerbated when looking at the level of severity among the population. The same survey indicates that around 5 percent of New Zealanders will suffer from severe mental health or addiction, 9 percent will suffer from moderate conditions and 7 percent from a mild condition (Health and Disability Commissioner, 2018). Within New Zealand, the most common presentation of mental disorders affecting people includes anxiety, depression, mood-related disorders and substance abuse (Health and Disability Commissioner, 2018).

Most people think that the presence of mental health or addictions issues only occurs during the later years of life. In fact, these issues start in the early stages of life and can worsen as time goes on if left untreated. This is highlighted in the diagnosis of emotional and behavioural problems that impact around 4 percent of children aged between 2 to 14 years old (Health and Disability Commissioner, 2018). Furthermore, among secondary school students, it is reported that one in four suffer from poor emotional well-being, and depressive symptoms are prevalent among 9 percent of male students and 16 percent of female students (Health and Disability Commissioner, 2018). Unhealthy mental well-being is a risk factor for suicide, and in terms of measuring New Zealand's suicide rate against OECD countries, we stand amongst the worst (Health and Disability Commissioner, 2018). In 2003, among the 15 to 19-year-old population in New Zealand, suicides alone accounted for 35 percent of all deaths (Health and Disability Commissioner, 2018).

Among those who suffer from some form of mental or addiction condition, it is not uncommon to find that they also suffer from other co-existing mental health conditions (Health and Disability Commissioner, 2018). This was evident in noticing that among the people who present to mental health and addiction treatment services, health professionals found that around 70 percent of them also suffered from co-existing mental health conditions and approximately 50 percent were noted to be

suffering from existing substance abuse problems (Health and Disability Commissioner, 2018).

When observing the distribution of poor mental health conditions among different populations, it was revealed that some groups are more at risk than others. In the case of New Zealand, Maori and Pacific Island people are over-represented in statistics pertaining to poorer mental health disorders and addictions (Health and Disability Commissioner, 2018). It has been noted that there is a strong need for different sectors of society to coordinate funding's, resources and treatment services efficiently and effectively to manage, treat and protect the mental health and well-being of all people globally and particularly within New Zealand (World Health Organisation, 2013). Mental health is influenced by and interacts with all factors of life and society, and its impacts stretch far beyond just that of the individual, but also into the social and economic realms of everyday living.

2.4.1 Mental Health of Pacific people in New Zealand

Due to the lack of research and studies carried out before 2006 surrounding the prevalence of mental health issues among Pacific people in New Zealand, very little was known. There existed only a handful of mental health surveys, and from the ones that did exist, the true prevalence of mental illnesses among Pacific people was always underestimated. As a result, limitation issues arose which in turn made it extremely difficult for health professionals to plan for the needs of the Pacific community living in New Zealand (Ministry of Health, 2008).

A huge leap forward was made with the undertaking of New Zealand's first national survey from 2003 to 2004 to obtain information regarding mental health outcomes in New Zealand (Browne, Wells, & Scott, 2006). The mental health survey is known as 'Te Rau Hinengaro' and when translated means 'many minds,' referring to the many states or levels of the human mind (Browne, Wells, & Scott, 2006). The survey was significantly helpful in understanding the prevalence of mental illnesses among Pacific people as it made sure that the Pacific population was oversampled. Pacific participants accounted for 18 percent of the survey sample despite representing only 7 percent of the total New Zealand population (Ministry of Health, 2008).

Results from the Te Rau Hinengaro national survey revealed that the prevalence rates of mental disorders and suicidal behaviour were higher than the rate of the general population. Among the sampled population 46.5 percent of Pacific people, at some point in their life had experienced a DSM-IV CIDI 3.0 mental disorder compared with only 39.5 percent of the overall population (Browne, Wells, & Scott, 2006). Furthermore, 25 percent of Pacific people had experienced some mental disorder as compared to 20.7 percent of the total population, over the past 12 months (Browne, Wells, & Scott, 2006). Four aggregated groups of mental disorders were assessed in the survey and included anxiety disorders, mood disorders, substance use disorders, and eating disorders (Ministry of Health, 2008).

Taking the four groups into consideration, the most commonly reported lifetime mental health disorders among Pacific people were anxiety disorders (27.7 percent), mood disorders (19 percent), substance use disorders (17.7 percent) and eating disorders (4.4 percent) (Browne, Wells, & Scott, 2006). It was discovered that 16.2 percent of Pacific people experienced an anxiety disorder compared with 14.8 percent of the total population, mood disorders experienced by Pacific people was 8.6 percent as compared with 7.9 percent of the total population and 5.3 percent of Pacific people had a substance use disorder compared to 3.5 percent of the total population (Browne, Wells, & Scott, 2006). The rate of eating disorders for both Pacific and the entire population was found to be similar, about 1.5 percent (Browne, Wells, & Scott, 2006).

Te Rau Hinengaro also discovered that among the Pacific population sampled, comorbidity was also present. Comorbidity is defined as the co-occurrence of one or more diseases and disorders in an individual (Teeson et al., 2001). Comorbidity of mental disorders is extensive and is usually related to poor treatment outcome, severe illness course and increased use of mental health services (Teeson et al., 2001). The results showed that Pacific people who experienced a mood disorder also suffered an anxiety disorder (34.9 percent) and substance abuse disorder (16.8 percent) (Teeson et al., 2001). In addition, among Pacific people who experienced substance abuse disorder, they also suffered a mood disorder (27.6 percent) and anxiety disorder (41.8 percent) (Teeson et al., 2001).

In terms of the severity of mental health conditions over the past 12 months, Te Rau Hinengaro indicated that among the Pacific population severe disorders were present among for 5.9 percent of the people, moderate disorders were present among 11.6 percent of the community and mild disorders were present among 7.6 percent of the population (Browne, Wells, & Scott, 2006). It was also discovered that young Pacific people were more at risk of poor mental health than older people and the prevalence of any mental disorder was significantly higher among New Zealand-born Pacific people than Pacific migrants (31.4 percent as compared to 15 percent) (Browne, Wells, & Scott, 2006).

The increased prevalence rates of mental illness among Pacific people in New Zealand is further exacerbated by the lack of understanding by western medical model approaches. The way Pacific people understand mental illness differs significantly from the modern western approach (Ministry of Health, 2005). When looking at mental health among Pacific people, it is crucial to use a holistic approach that encapsulates spiritual and cultural factors (Ministry of Health, 2005). For instance, among the older Pacific population and among Pacific people who are strongly influenced by their culture and spirituality, mental illness is considered as a punishment for a sin that was committed by the individual or the individual's family (Ministry of Health, 2005). Modern western approaches fall short by not acknowledging this aspect of Pacific culture and tend to use a biomedical approach instead.

2.4.2 Mental health risk factors among Pacific people in New Zealand

Many studies have identified that certain factors increase the likelihood for a person to develop mental health issues. The World Health Organisation (2012), has determined that a life course approach to understanding mental health is supportive as it acknowledges that risk factors experienced in the initial stages of life can go on to impact on mental health for many years and even throughout a person's entire life-span. Mental health risk factors are characteristics that increase the likelihood of poor mental health (World Health Organisation, 2012). Risk factors for mental health issues are deeply associated with social inequalities, where the increased risk of experiencing poorer mental health is related to an increase in social inequalities (World Health Organisation, 2014).

According to the World Health Organisation (2012), the socioeconomic conditions that people live in can either be protective or harmful towards mental health. Pacific people have been identified as being the most substantial proportion of the population who live in the most deprived areas in New Zealand (Pasifika Futures, 2017). Deprivation is a combination of data that relates to income, housing, employment, education and access to transportation and communications (Pasifika Futures, 2017). The more deprived an area is, can have immense impacts on the choices that an individual can make and the lifestyle that they can live, which can ultimately impact on mental health. It also has implications on the number of resources available to for people to have access so that they can be informed to prevent, minimise and treat mental health issues that may arise (Pasifika Futures , 2017).

Employment is the main factor that influences the amount of income a person can earn. Over the years, there has been consistent over-representation of Pacific people in unemployment rates in New Zealand. In 2006 the employment rate for Pacific people was disproportionately high (11.1 percent) as compared to the national unemployment rate (5.7 percent) (Pasifika Futures, 2017). Stankunas et al (2016), identified that unemployment over a lengthy period can be detrimental to mental well-being as it increases the likelihood of an individual becoming depressed. In addition, as exemplified in Montgomery et al (1996), unemployment has been identified as a mental health risk factor as it was found to be linked to an increase in unhealthy addictions such as smoking and alcohol. In summary, unemployment has been identified by the World Health Organisation (2012), as a “well-established risk factor mental ill-health” because stress, anxiety, depression, substance abuse, and other poor mental health conditions can be linked directly to it. Since Pacific people are overrepresented in unemployment statistics in New Zealand, it’s not difficult to assume that their mental health is impacted negatively.

Income earnings painted a very similar picture which highlighted that Pacific people have the lowest median income (\$23,686) than all other ethnicities in the population and the lowest median weekly earnings (\$485) as compared to the Maori (\$524) and New Zealand European (\$670) weekly median earnings (Pasifika Futures, 2017). Pacific people are over-represented in statistics relating to reduced income and

unemployment. Studies have found that the added financial pressures to meet housing and dietary needs and other personal, family and church obligations can be detrimental towards mental health outcomes (Urale, Bellringer, Landon, & Abbott, 2015). According to the World Health Organisation (2008), income is very closely related to poverty and social deprivation. It has been determined that factors of poverty that impact on mental health negatively include; low socioeconomic status, exposure to stressful life events (such as violence and crime) and poor housing conditions (World Health Organisation, 2008).

In addition, low income has also been recognised as being associated with social isolation, helplessness, hopelessness and feelings of disempowerment, all of which have detrimental effects on mental well-being (World Health Organisation, 2008). People who earn low income can experience financial stresses and worries which can impact on mood, sleeping habits and lifestyle choices (World Health Organisation, 2008). Emerging evidence has highlighted its impact on reducing access to mental health services which could possibly explain the underrepresentation of Pacific people to mental health care services. Mounting evidence also suggests that low income can alter diets, physical activity and habits which can cause immense unhealthy impact on individuals; a possible explanation to the increased prevalence of problem gambling Pacific people.

Physical health has been proven to show a strong link to mental health. The relationship between physical health and mental health is still robust even when controlling for other mental health risk factors (Ohrnberger, Fichera, & Sutton, 2017). Studies suggest that physical health may impact on mental health through many other societal factors, such as employment, income and education (World Health Organisation, 2014). When using employment as an example, poor physical health may result in a loss of employment. This in turn affects the level of income attainment thus reducing access to healthier foods and environment (Ohrnberger, Fichera, & Sutton, 2017). Ultimately a vicious cycle is produced as reduced income is proven to be strongly associated with poorer mental health outcomes. Another example can be witnessed among the elderly population where several studies have found strong relationships of positive outcomes of exercising with mental health (Ohrnberger, Fichera, & Sutton, 2017).

Alcohol and tobacco are both considered mental health risk factors because harmful and abusive use of the two substances can both lead to an addiction or drug dependence, which are recognised as a mental health disorder. According to the National Institute on Drug Abuse (2007), addiction is described as a serious mental health problem and is defined as a “chronic, relapsing disorder characterized by compulsive drug seeking and use despite adverse consequences”. Within New Zealand, alcohol and drug addiction is the sixth highest contributor to the burden of disease (National Committee for Addiction Treatment, 2011). Furthermore, 3.5 percent of the total New Zealand population or approximately 150,000 people suffer from serious alcohol and drug dependence (National Committee for Addiction Treatment, 2011). Many studies have highlighted that there is a strong correlation between smoking and alcohol. Findings from these studies show that among those that drink alcohol, they are more likely to smoke and among those that smoke are more likely to drink (U.S Department of Health and Human Services, 2007). Among the Pacific population in New Zealand, results obtained from the NZHS 2013/14 period indicated that Pacific people were more likely to report past year hazardous drinking and that smoking rates among Pacific adults and children were significantly higher than Europeans (Ministry of Health, 2014).

When investigating the association of acculturation with mental health, studies have indicated that there does exist a significant relationship. The common findings from these studies suggest that an individual who presents low acculturation becomes more at risk of developing poorer mental health outcomes. For instance, Paterson et al (2016) discovered that Pacific women who maintained strong traditional cultural practises and ties to their homeland (separators) were more likely to present for higher levels of psychological distress than Pacific mothers who assimilated better with New Zealand culture. Similar findings were noted by Rogler et al (1991) among Hispanic communities, and these authors suggested that this was due to individuals being relocated from the comfort of their own traditional cultural networks and not having enough time to reproduce the similar networks in the host society.

Education is considered an important social determinant of health and well-being. Increased education is linked positively to health because it allows individuals to

make better informed decisions regarding the improvement of health at an individual, family and community level (Shankar, et al., 2003). Furthermore, increased education plays a significant role in shaping the employment opportunities of an individual (Shankar, et al., 2003). Employment is directly linked to income and as a result is strongly associated to better health outcomes. Increased educational attainment is highly regarded as being a protective factor to mental health (Shankar, et al., 2003). In contrast, unemployment is regarded as a significant mental health risk factor. This is because it greatly reduces an individual's capacity to make better and healthier lifestyle choices, especially regarding physical activity, career options and employment opportunities, food choices and decisions involving riskier behaviours (World Health Organisation, 2012). For instance, poor education or a lack of knowledge can result in individuals making unhealthier decisions when it comes to smoking, alcohol and gambling behaviours, which could ultimately result in increased likelihood of developing an addiction problem (World Health Organisation, 2012).

Chapter 3: Methodology

3.1 Introduction

This study utilised a quantitative approach to understanding the factors related to problem gambling among Pacific women living in New Zealand, within a mental health context. The study drew its data from existing research, the Pacific Island Families (PIF) study. The data collected for this study is based solely on the 2014 phase. As suggested in the literature review, Pacific women experience significantly higher risks of becoming problematic gamblers as well as experiencing poorer mental health outcomes. Therefore, this study focusses on adding to the body of knowledge surrounding problem gambling and its association with mental health risk factors among Pacific women.

3.2 Pacific Island Families (PIF) study

The PIF study was developed through a collaboration with Pacific communities, researchers and health, and social agencies because it was identified that Pacific people in New Zealand were being over-represented in much adverse health and social statistics (Paterson et al., 2007). This coupled with a fast-growing population of Pacific people meant that the need to develop such a study was considered extremely important.

The PIF study employs a multi-disciplined, broad-based and inclusive design that gathers information from Pacific mothers, fathers and children (Paterson et al., 2007). The study is a large longitudinal study that is scientifically and culturally strong and appropriate. The primary research commenced in 2000 with the target population consisting of eligible Pacific Island infants delivered at Middlemore hospital located in South Auckland (Paterson et al., 2007). The eligibility criteria for the study required at least one parent of the infant to be of Pacific Island ethnicity and to also be a permanent resident of New Zealand (Paterson et al., 2007). Primary caregivers of the child such as foster parents, grandparents, aunts, and new partners were also included in the study if they fit the criteria (Paterson et al., 2007). The study was able to capture data from 1398 children born in Middlemore hospital when the children were aged six weeks and 1, 2, 4, 6, 9, 11 and 14 years of age (Paterson et al., 2007).

The PIF study chiefly aims to 1) identify and characterize positive and adverse health outcomes among Pacific individuals and families; 2) understand the factors and processes that influence and shape those outcomes; and 3) make evidence-based strategic recommendations to improve the well-being of Pacific people as whole, which ultimately benefits the rest of New Zealand (Paterson, et al., 2007).

3.3 PIF Study: The 14 – Year Phase

This study examines data obtained from the PIF longitudinal study in the 2014 phase. Pacific mothers were invited to participate in the research and to provide consent for their youth's (adolescents aged 14 years) participation. Data were collected from 923 mothers from 21 March 2014 to 24 July 2015 employing home-held interviews carried out through Computer Assisted Personal Interviews (CAPI) (Bellringer, Kolandai-Matchett, Taylor, & Abbott, 2016). Mothers who lived out of Auckland participated in the study via online or postal methods (Bellringer, Kolandai-Matchett, Taylor, & Abbott, 2016).

Ethics approval for the 2014 phase of the PIF study was granted by the Southern Health and Disability Ethics Committee on 4 December 2013 (Bellringer, Kolandai-Matchett, Taylor, & Abbott, 2016). At all stages of the study, the identity of the participants was protected. This was ensured with protective measures being followed, such as 1) confidentiality was guaranteed by giving all participants a specific code; and 2) providing that there be no reporting of any personal identifying information of all participants (Bellringer, Kolandai-Matchett, Taylor, & Abbott, 2016).

Cultural awareness was also a significant priority throughout the whole PIF study. It was a goal of the research team to ensure that every step of the research process was true to upholding Pacific cultural integrity, safety, and appropriateness (Bellringer, Kolandai-Matchett, Taylor, & Abbott, 2016). For instance, the research team was made up of different fluent Pacific language speakers, and interviewers were matched (Bellringer, Kolandai-Matchett, Taylor, & Abbott, 2016)

3.3.1 PIF study maternal questionnaires

For the PIF study, maternal interviews were carried out by trained Pacific female bilingual interviewers, around six weeks following the mother's childbirth (Paterson et al., 2007). Interviews were carried out in the mother's home in their preferred language (Paterson et al., 2007). The interview questions were made available in four languages; English, Samoan, Tongan and Cook Island Maori (Paterson et al., 2007). The duration of the home interviews was an hour long and only commenced once mothers had given their consent (Paterson et al., 2007). This process of data collection was carried over the life of the study, including the other seven phases to observe consistency. The primary focus of the interviews was to help researchers gain a better understanding of the children's health and development, as well as understanding overall family functioning (Paterson et al., 2007).

3.4 Quantitative study: Participant inclusion/exclusion criteria

This current study employs the amassed data obtained from the 2014 phase of the PIF study relating to the demographic and health survey questions. Since this study aims at investigating the associations of problem gambling with mental health risk factors among Pacific women, participants who were of non-Pacific ethnicity and male were excluded from the study. The remaining participants in the PIF cohort who fit the inclusion criteria were women who identified as being of Pacific Island ethnicity. This study analyses the data collected from them.

3.4.1 Statistical Analysis

Quantitative data for this study were analysed using IBM SPSS 20 with the level of significance set at the 0.05 level. Descriptive statistics (n, mean, percentages and standard deviation) were used to present data relating to the demographic variables of the participants.

Due to the availability of a small sample size when analysing gambling risk level, instead of grouping participants into the usual 'low risk,' 'moderate risk' and 'problem gamblers' groups, participants were now collapsed into two groups; 'at risk' and 'no risk.' Prior to the bivariate analysis, some variables (e.g., age, annual household income, physical activity, and employment) were re-categorised where appropriate.

Bivariate logistic regression was then performed to examine the strength of associations between the gambling-related outcome variable (PGSI) and the explanatory variables, in this case the mental health risk factors (psychological distress, acculturation, weekly income, annual household income, education, employment, smoking, alcohol, physical activity, and socioeconomic deprivation). Each explanatory variable was analysed independently with the PGSI as the dependent variable.

Following the bivariate regression, multiple logistic regression utilising multivariable logistic regression models was performed. This was carried out to further examine the strength of the potential explanatory variables that were observed in the bivariate analyses. The last stage of analyses included a final multivariable model that adjusted for confounding variables which utilised a forward stepwise regressing of likelihood based on the Akaike Information Criterion (AIC). This final model was performed to produce more in-depth statements than the bivariate analysis and provided strengthened evidence of associations between problem gambling risk levels and explanatory mental health risk factor variables.

Results of the data analysis were reported to include odds ratios that described the statistical strength of associations between the gambling-related outcome variable (PGSI) and the explanatory variables (mental health risk factors). Results were reported as being statistically significant if $p \leq 0.05$.

3.4.2 Measures

Survey Variables

Problem Gambling Severity Index (PGSI)

The PGSI is a quick and straightforward population screen that entails nine items (Sharp et al., 2012). Four items of the PGSI assess problem gambling behaviours and five of the items are designed to assess the adverse consequences of gambling (Sharp et al., 2012). The PGSI items are present within the PIF study survey questionnaire book and are often used as a substitute to the Southern Oaks Gambling Screen (Sharp et al., 2012). An advantage of the PGSI is that it shifts away from the conventional method of categorising gamblers into non-problem gamblers and pathological

gamblers but instead allows for the identification of various subcategories of problem gamblers with different levels of risk status (Sharp et al., 2012). The nine items of the PGSI asks participants questions relating to their past 12 months gambling experience. The 9 item questions are:

1. Have you bet more than you could really afford to lose?
2. Have you needed to gamble with larger amounts of money to get the same feeling of excitement?
3. Have you gone back another day to try to win back the money you lost?
4. Have you borrowed money or sold anything to get money to gamble?
5. Have you felt that you might have a problem with gambling?
6. Have you felt people criticized your betting or told you that you had a gambling problem, regardless of whether or not you thought it was true?
7. Have you felt guilty about the way you gamble, or what happens when you gamble?
8. Has your gambling caused you any health problems, including a feeling of stress or anxiety?
9. Has your gambling caused any financial problems for you or your household?

Participants are asked to answer the 9-item screen using a 4-point Likert scale (0 = never; 1 = sometimes; 2 = most of the time; 3 = almost always) (Sharp et al., 2012). The scores are then tallied up to help distribute the participants into different subgroups. For this study, two subgroups were decided upon due to the small sample size. A score of 0 categorised participants into the ‘no risk’ group and a score between 1 and 27 categorised participants into the ‘at risk’ group.

Psychological distress (GHQ-12)

The General Health Questionnaire, developed in 1972, is a self-administered screening tool that is tailored to identify current psychological distress among adults at a particular point in time (Goldberg & Hillier, 1979). A scaled version of the General Health Questionnaire is the 12 item, GHQ-12, which is utilised in the PIF study. The purpose of the GHQ-12 is to screen for any symptoms which are related to non-psychotic disorders and highlights two significant areas of interest, an individual’s incapacity to carry out normal everyday activities and the presence of new and distressing psychological

phenomena (Paterson, Tautolo, Lusitini, & Taylor, 2016). The 12-item questions included in the PIF study are:

1. Have you recently been able to concentrate on whatever you are doing?
2. Have you recently lost much sleep due to some worry?
3. Have you recently felt constantly under strain?
4. Have you recently felt that you could not overcome your difficulties?
5. Have you recently been feeling unhappy and depressed?
6. Have you recently been losing confidence in yourself?
7. Have you recently been thinking of yourself as a worthless person?
8. Have you recently felt that you are playing a useful role in life?
9. Have you recently felt capable of making decisions about things?
10. Have you recently been able to enjoy your normal day-to-day activities?
11. Have you recently been able to face up to your problems?
12. Have you recently been feeling reasonably happy, all things considered?

Participants are asked to answer the 12-item screen using a 4-point Likert scale which ranged from “not at all” (score of 0) through to “much more than usual” (score of 3) (Paterson, Tautolo, Lusitini, & Taylor, 2016). Based on their scores, participants could obtain a total score between 0 and 36. For the purpose of this study, participants were collectively group into two groups, ‘non-symptomatic’ of psychological distress (score of 2 or less) and ‘symptomatic’ of psychological distress (score between 3 and 36).

Socio-demographic information

The data relating to this variable was obtained from self-reported questions within the PIF study. These questions investigated variables such as age, ethnicity, gift-giving commitments, weekly income, household income, and educational attainment.

Acculturation

To measure acculturation levels within the cohort, the General Ethnicity Questionnaire (GEQ) was utilised in the PIF study. The GEG is an instrument designed to measure cultural orientations with different groups by merely modifying the reference group (Tsai, Ying, & Lee, 2000). This instrument is based on grouping individuals into four categories: Assimilation (replacing Pacific with New Zealand culture), integration (participants identifying with both cultures), separation (participants only affiliating with Pacific

culture) and marginalisation (participants unable to identify with both cultures) (Paterson, Tautolo, Lusitini, & Taylor, 2016). Within the PIF study, the GEQ was shortened and modified to be tailored specifically for Pacific (PI acculturation) and New Zealand (NZ acculturation) (Paterson, Tautolo, Lusitini, & Taylor, 2016). The PI acculturation questionnaire provided participants with an 11-item questionnaire. The first five questions ask participants how much they agreed or disagreed with the following statements and the last six questions ask participants how much they participated in the following activities:

1. I was brought up in a Pasifika way
2. I am familiar with Pasifika practises and customs
3. I can understand a Pasifika language well
4. I have several Pasifika friends
5. Most of my friends speak a Pasifika language
6. I participate in Pasifika sports and recreation
7. I speak a Pasifika language
8. I have contact with Pasifika families and relatives
9. I eat Pasifika foods
10. I visit a traditional Pasifika healer when I have an illness
11. I go to a church that is mostly attended by Pasifika people

The NZ acculturation questionnaire works the exact way the PI acculturation questionnaire does, with the only difference being the substitution of 'Pasifika' with 'New Zealand.' Scores for the questionnaire ranged from 0 (equalling strongly disagree and not at all) to 5 (equalling strongly agree and a lot). From scores, participants are then grouped into the four categories previously mentioned.

Physical Activity

For this study physical activity was measured using the New Zealand Physical Activity Questionnaire-Short Form (NZPAQ-SF). The NZPAQ was developed by the Ministry of Health and Sport and Recreation New Zealand (SPARC) (Maddison et al., 2007). It is a tool designed to assess the three dimensions of physical activity (frequency, duration, and intensity) (Maddison et al., 2007). The tool requires participants to recall the frequency in which they performed brisk walking, moderate, vigorous (e.g., housework or gardening) or a combination of both over the past seven days (Maddison et al., 2007).

The next part of the tool requires participants to indicate the duration of the activity. From the reported answers, participants in this study were then categorised into three different groups based on days that they were active (less than two days, 3 to 5 days and 6 to 7 days).

Smoking status

Smoking is defined as the inhalation of tobacco via cigarettes or loose tobacco (Ministry of Health, 2008). For this study, smoking was categorised into two groups; 0 = Non-smoker and 1 = Smoker. Participants were categorised if they reported to the question “Over the past week, how many cigarettes did you smoke a day?”.

Socioeconomic deprivation

In this study, socioeconomic deprivation was measured using the NZDep2013. This tool provides a deprivation score that combines 2013 census data that is related to income, home ownership, employment, qualifications, family structure, housing and access to transport and communications (Atkinson, Salmond, & Crampton, 2014). The 8-item questionnaire in the PIF study asks participants to report “yes or no” to the following questions:

1. In the last 12 months have you personally been forced to buy cheaper food so that you could pay for other things you needed?
2. In the last 12 months, have you been out of paid work at any time for more than one month?
3. In the 12 months ending today did you yourself receive payments from any of these three benefits: Jobseeker Support, Sole Parent Support or Supported Living Payment?
4. In the last 12 months have you personally put up with feeling cold to save heating costs?
5. In the last 12 months have you personally made use of special food grants or food banks because you did not have enough money for food?
6. In the last 12 months have you personally continued wearing shoes with holes because you could not afford a replacement?
7. In the last 12 months have you personally gone without fresh fruit and vegetables, often, so that you could pay for other things you needed?

8. In the last 12 months have you personally received help in the form of clothes or money from a community organisation (like the Salvation Army)?

Scores for the NZDep2013 are then totalled and categorised into five categories for analysis; 1) no deprivation characteristics 2) one deprivation characteristic 3) two deprivation characteristics 4) three or four deprivation characteristics 5) five or more deprivation characteristics (Atkinson, Salmond, & Crampton, 2014).

Alcohol Consumption

To measure alcohol consumption in the study the Alcohol Use Disorders Identification Test-Consumption (AUDIT-C). It is a 3-item questionnaire that was derived from the 10-item AUDIT (Bradley, et al., AUDIT-C as a brief screen for alcohol misuse in primary care, 2007). The purpose of the AUDIT-C is an alcohol screen that can help identify patients who are hazardous drinkers or have alcohol use disorders (Bradley, et al., AUDIT-C as a brief screen for alcohol misuse in primary care, 2007). For this study, participants were asked: "How often did you have a drink containing alcohol in the past 12 months?". From this single item question in the AUDIT-C, participants were grouped into two groups; No (no drinks in the past 12 months) and Yes (had a drink in the past 12 months).

Chapter 4: Results

This chapter presents the results from the quantitative study that was carried out. The study focuses on the 2014 phase of the PIF study. Two tables can be found in this chapter, and they relate firstly, to the sample characteristics of the participants that are eligible (Pacific PIF study females), followed by a bivariate analysis of problem gambling risk levels with the demographic and mental health risk factors, which will then be addressed.

4.1 Epidemiological investigation of Pacific women in the Year 14 Phase of the PIF study

4.1.1 Sample characteristics

Within the 2014 Phase of the PIF study survey sample, it was observed that a total of 958 participants were included. Of this initial sample size, male participants comprised 19 and non-Pacific ethnic participants consisting of 73, of the total sample size. Following their exclusion, the remaining sample size for the study consisted a target population of 866 PIF study Pacific Island females. Among the target population, 50.3 percent were of Samoan ethnicity, and 47.4 percent fell into the 40 to 49 years old age bracket. The mean age of the target population was 43 years (SD = 6.83). Data relating to the full demographic information obtained can be observed in Table 4.1.

Of the 441 Pacific female participants who completed the gambling survey questions, 346 (78.5 percent) were classified as having ‘no risk’ of problem gambling, while 95 (21.5 percent) were classified of being ‘at risk’ of problem gambling. A total of 697 female participants (80.7 percent) reported being non-symptomatic of psychological distress. Education levels observed within the target population were comparatively high, as just under half of the participants (43.8 percent) reported attaining secondary education and 37.5 percent of participants reaching tertiary education. In terms of acculturation levels, 37.8 percent of participants affiliated with the assimilation group and 31.3 percent affiliated with separator group.

Similar percentages were observed within the ‘weekly income (after tax)’ variable for participants, which highlighted 37.6 percent fell into the NZ \$251 to \$500 bracket and 37.7 percent fell into the NZ \$501 to \$1000 bracket. Within the ‘annual household

income (before tax)' variable, the smallest proportion of participants (28.5 percent) reported falling into the NZ \$80,001 to \$100,001 bracket.

A large percentage of the participants reported as being in employment (79.6 percent), as compared to only a small percentage of participants (6 percent) who reported as being unemployed. Among the participants, 28.6 percent were smokers in the past seven days, and 40.2 percent consumed alcohol within the last year. Traditional gift-giving commitments were reportedly practised by more than half of all participants (77.1 percent). 16.9 percent of all participants reported low socioeconomic status and approximately half of all participants (50.1 percent) reported carrying out some form of physical activity in less than two days per week. For a more detailed look into descriptive information regarding all mental health risk factor variables observed, refer to Table 4.1.

Table 4.1. Descriptive information of demographic variables (n = 866)

Variable	Total	N or (mean)	% or (SD)
Age (years)	783	(43.20)	(6.83)
≤ 39		270	34.5
40-49		371	47.4
≥ 50		142	18.1
Ethnicity	866		
Samoan		436	50.3
Cook Island		147	17.0
Niuean		41	4.7
Tongan		214	24.7
Other Pacific		28	3.2
Problem Gambling Severity Index (PGSI)	441		
No Risk		346	78.5
At Risk		95	21.5
Psychological Distress (GHQ-12)	864		
Non-Symptomatic		697	80.7
Symptomatic		167	19.3
Education	853		
No formal qualifications		159	18.6
Secondary		374	43.8
Tertiary		320	37.5
Acculturation	796		
Assimilator		301	37.8
Separator		249	31.3
Integrator		94	11.8

Marginalizer		152	19.1
Weekly Income (After Tax)	729		
Up to NZ \$250		113	15.5
NZ \$251 to \$500		274	37.6
NZ \$501 to \$1000		275	37.7
NZ \$1001 and more		67	9.2
Annual Household Income (Before Tax)	558		
Up to NZ \$40,000		190	34.1
NZ \$40,001 to \$80,000		209	37.5
NZ \$80,001 to \$100,001		159	28.5
Employment	864		
Unemployed		52	6.0
Employed		688	79.6
Other		124	14.4
Smoking Status (previous seven days)	861		
No		615	71.4
Yes		246	28.6
Alcohol (any) in the last 12 months	861		
No		515	59.8
Yes		346	40.2
Traditional Gift-giving commitments	862		
No		197	22.9
Yes		665	77.1
Socioeconomic Status	866		
High (No deprivation characteristics)		95	11.0
One		148	17.1
Two		204	23.6
Three or Four;		273	31.5
Low (Five to Eight Deprivation characteristics)		146	16.9
Physical Activity	866		
Less than two days		426	50.1
3 to 5 days		318	37.4
6 to 7 days		107	12.6

Key: n = number; SD = Standard Deviation

4.1.2 Individual mental health risk factors among ‘at risk’ female Pacific problem gamblers in the PIF study

In the bivariate logistic regression of problem gambling (at risk or no risk) with the individual mental health risk factors among the PIF study Pacific women, statistically significant associations were found with education ($p < 0.001$), acculturation ($p = 0.03$), weekly income ($p = 0.006$) and employment ($p < 0.001$).

Furthermore as highlighted in Table 4.2, non-statistically significant relationships were found between problem gambling (at risk or no risk) with the other mental health risk factors; age ($p = 0.22$), ethnicity ($p = 0.188$), psychological distress ($p = 0.06$), annual household income ($p = 0.09$), smoking status ($p = 0.99$), alcohol consumption in the last 12 months ($p = 0.09$), socioeconomic status ($p = 0.26$) and physical activity ($p = 0.29$).

Pacific women with secondary qualifications had about a third less likely odds of being at risk problem gamblers when being compared to Pacific women with no formal qualifications (OR 0.34, 95% CI 0.19, 0.60, $p = 0.0002$). Similarly, Pacific women who attained tertiary education had about a third less likely odds of being at risk problem gamblers, when compared to Pacific women with no formal qualifications (OR 0.36, 95% CI 0.20, 0.65, $p = 0.001$).

When observing acculturation as a mental health risk factor, Pacific women affiliated with the separator group were approximately two times more likely to be at risk problem gamblers than to Pacific women with affiliations to the assimilator group (OR 2.045, 95% CI 1.16, 3.60, $p = 0.01$).

Pacific women who earned between NZ \$251 and NZ \$500 had 0.39 less odds of being at risk problem gamblers than Pacific women who earned up to NZ\$250 per week (OR 0.39, 95% CI 0.20, 0.77, $p = 0.006$). Pacific women who earned more than NZ \$1001 and more per week had 0.15 times less odds of being at risk problem gamblers than Pacific women who earned up to NZ \$250 per week (OR 0.15, 95% CI 0.04, 0.54, $p = 0.004$).

When observing employment as a mental health risk factor of problem gambling, Pacific women who were employed had 0.25 times less odds of being at risk problem gamblers than Pacific women who were unemployed (OR 0.25, 95% CI 0.11, 0.59, $p = 0.002$).

Table 4.2. The bivariate odds ratio of being an at-risk (vs. no risk) problem gambler by individual mental health risk factor variables

Variable	Total n	n	OR	(95% CI)	p-value
Age (years)	403				0.22
<39		142	Reference		
40-49		189	1.52	(0.89 - 2.60)	0.12
>50		72	0.98	(0.47 - 2.05)	0.96
Ethnicity	441				0.18
Samoaan		233	Reference		
Cook Island		81	0.05	(0.23 – 0.99)	0.05
Niuean		23	0.72	(0.23 – 2.19)	0.56
Tongan		91	1.22	(0.70 – 2.13)	0.49
Other Pacific		13	1.51	(0.45 – 5.10)	0.51
Psychological Distress (GHQ-12)***	441				0.06
Non-Symptomatic		351	Reference		
Symptomatic		90	1.66	(0.98 - 2.81)	0.06
Education	436				<0.001
No formal qualifications		87	Reference		
Secondary		188	0.34	(0.19 – 0.60)	0.0002
Tertiary		161	0.36	(0.20 – 0.65)	0.001
Acculturation	417				0.03
Assimilator		172	Reference		
Separator		116	2.05	(1.16 – 3.60)	0.01
Integrator		50	1.39	(0.64 – 3.03)	0.41
Marginalizer		79	0.80	(0.38 – 1.70)	0.56
Weekly Income (After Tax)	385				0.006
Up to NZ \$250		60	Reference		
NZ \$251 to \$500		141	0.39	(0.20 – 0.77)	0.006
NZ \$501 to \$1000		146	0.61	(0.32 – 1.16)	0.13
NZ \$1001 and more		38	0.15	(0.04 – 0.54)	0.004
Annual Household Income (Before Tax)	313				0.09
Up to NZ \$40,000		103	Reference		
NZ \$40,001 to \$80,000		108	0.62	(0.33 – 1.17)	0.14
NZ \$80,001 to \$100,001		102	0.49	(0.25 – 0.95)	0.04
Employment	441				<0.001
Unemployed		24	Reference		
Employed		356	0.25	(0.11 – 0.59)	0.002
Other		61	0.62	(0.24 – 1.62)	0.33
Smoking Status (previous seven days)	440				0.99
No		287	Reference		
Yes		153	0.99	(0.62 – 1.61)	0.99
Alcohol (any) in the last 12 months	441				0.93

No	220	Reference		
Yes	221	1.02	(0.65 - 1.61)	0.93
Socioeconomic Status**	441			0.26
High (No deprivation characteristics)	50	Reference		
One	78	1.46	(0.55 – 3.89)	0.45
Two	97	1.31	(0.50 – 3.39)	0.58
Three or Four;	140	2.13	(0.88 – 5.15)	0.09
Low (Five to Eight Deprivation characteristics)	76	2.19	(0.85 – 5.66)	0.10
Physical Activity*	441			0.29
Less than two days	222	Reference		
3 to 5 days	158	0.68	(0.41 – 1.13)	0.14
6 to 7 days	61	0.73	(0.35 – 1.50)	0.39

Key: n = number, OR = Odds Ratio

*Number of days in the previous week that the individual reported meeting physical activity recommendations (at least 30 minutes of moderate activity or at least 15 minutes of vigorous activity per day)

**Classified using the NZidep, calculated as the sum of positive responses to eight items used to assess socioeconomic deprivation.

***Classified using the GHQ-12, grouped according to reported GHQ-12 scores. A score of 2 or less = non-symptomatic and 2 or more = symptomatic of psychological distress.

4.1.3 Multiple Logistic Regression

In the model building procedures with the multiple logistic regression, it was identified that the best set of variables that explained the association of problem gambling with mental health risk factors were employment, education and weekly income. Through the multiple logistic regression, statistically significant associations were found with employment ($p = 0.002$), education ($p = 0.01$) and weekly income after tax ($p = 0.04$).

Highlighted in table 4.3, Pacific women who were currently employed during the 2014 phase had about a third less likely odds of being at risk problem gamblers when than Pacific women who were employed (OR 0.29, 95% CI 0.11, 0.74, $p = 0.01$). The other significant finding was observed when analysing education. Pacific women with secondary level had just under half less odds of being at risk problem gamblers than Pacific women with no formal qualifications (OR 0.44, 95% CI 0.23, 0.83, $p = 0.01$). Similarly, Pacific women with tertiary level attainment had 0.41 less odds of being at risk problem gamblers than Pacific women with no formal qualifications (OR 0.41, 95% CI 0.21, 0.79, $p = 0.007$).

The overall p-value for weekly income showed statistical significance ($p = 0.04$), however no statistical significance was observed within each weekly income earnings bracket. Results showed that Pacific women who earned between NZ \$251 and \$500 per week had about half less odds of being at risk problem gamblers than Pacific women who earned up to NZ \$250 per week (OR 0.54, 95% CI 0.26, 1.12, $p = 0.10$). In addition, Pacific women who earned NZ \$1001 and more, had a third less odd of being at risk problem gamblers than Pacific women who earned less then NZ \$250 per week (OR 0.33, 95% CI 0.008, 1.28, $P = 0.11$).

It is worth noting that the measurement of psychological distress (GHQ-12) was nearly statistically significant in the bivariate analysis ($p = 0.59$). However, further analysis using multiple logistic regression methods, articulated that there was no statistically significant association with at-risk problem gambling when adjusting for the other mental health risk factors (OR 1.52, 95% CI 0.848, 2.740, $p = 0.159$)

Table 4.3. Adjusted odds for Pacific females at-risk of problem gambling with mental health risk factors attaining significance in multiple logistic regression (n = 380)

Variable	Odds Ratio	(95% CI)	p-value
Employment			0.02
Unemployed	1.00		
Employed	0.29	0.11 – 0.74	
Other	0.56	0.19 – 1.62	
Education			0.01
No formal qualification	1.00		
Secondary	0.44	0.23 – 0.83	
Tertiary	0.41	0.21 – 0.79	
Weekly Income (After Tax)			0.04
Up to NZ \$250	1.00		
NZ \$251 to \$500	0.54	0.26 – 1.12	
NZ \$501 to \$1000	1.10	0.53 – 2.31	
NZ \$1001 and more	0.33	0.08 – 1.28	

Chapter 5: Discussion

This dissertation aimed to investigate and understand the association between problem gambling as a significant mental health issue and the individual mental health risk factors attributed to it. Using the PGSI screening tool as the dependent variable in our bivariate logistic regression, it was discovered that significant associations existed between 'at risk' Pacific female problem gamblers with levels of educational attainment, levels of acculturation, weekly household income earnings and employment status. Further analysis using multiple logistic regression methods narrowed those four explanatory variables to three, with statistical significance observed in weekly income, employment and education. The purpose of this chapter is to delve deeper and investigate how mental health risk factors such as unemployment, low educational attainment and reduced weekly income are associated with problem gambling amongst Pacific women. Focussing on these three factors (education, income and employment), this discussion shows how these factors can be negative driving forces that increase the risk for Pacific women to become problem gamblers. Through this process, a deeper and more well-rounded understanding may support and assist in reducing problem gambling behaviour among Pacific women.

Pasifika Futures (2017), noted in their report that Pacific people in New Zealand earned the lowest median income when compared to all other ethnic groups. Our findings from the bivariate analysis indicated that Pacific women with lower weekly income (less than NZ \$250 per week) within the study, were the most likely group of becoming at-risk problem gamblers. This is consistent with Afifi et al. (2010), which identified that lower income was found to be strongly associated with increased odds of problem gambling among women. In addition, Bellringer et al. (2012), identified that worsening financial situations experienced by Pacific mothers was significantly associated with gambling.

As discussed in the literature review, the financial burdens that people suffer can cause depression, stress and increase their susceptibility to addiction. One way in which mental-wellbeing becomes compromised is when individuals experience trouble trying to meet financial needs related to housing, diet, family, culture and church obligations (World Health Organisation, 2013). Within this study, it was identified that 77.1 percent of all Pacific women were still actively participating in traditional gift-giving practices. With regards to Pacific people and problem gambling, it has been suggested that some Pacific

people have resorted to gambling as a means of achieving these gift-giving obligations (Cowley, Paterson, & Williams, 2004). In some instances, families have had to mortgage their homes, become bankrupt or go without food to meet these requirements (Cowley, Paterson, & Williams, 2004). Perhaps, reduced income among Pacific women and the added financial stresses to meet financial obligations, whether it be family, cultural or church-related, could be a possible explanation as to why an association exists with at-risk problem gambling. This hypothesis draws upon Urale et al. (2016), in which a discovery was made that gambling among Pacific people was thought of as an easy way to counter financial hardship.

Previous literature indicates that low income is directly associated with poverty and social deprivation. The place where a person lives, the housing conditions that they live in, the food they eat, and many other factors are determined by income (World Health Organisation, 2008). Findings from the bivariate analysis in this study showed an association between low income and increased problem gambling risk, which are consistent with Bellringer et al. (2012) and these findings also revealed increased prevalence of gambling was substantially associated with Pacific mothers living in high deprivation communities. Further research from Bellringer et al. (2016) suggested a possible reason for this was the increased accessibility to many electronic gambling machines and other gambling venues available within these communities. In addition, circumstances of reduced income and poverty were contributing factors to the misguided belief that through gambling, money could be made with ease (Bellringer, Kolandai-Matchett, Taylor, & Abbott, 2016). Although this study found no statistical significance with problem gambling risk and socioeconomic status, it is important to note that income is a measurement of socioeconomic status (Winkleby, Jatulis, Frank, & Fortmann, 1992). Having low income greatly reduces access to better living conditions in less deprived areas. Therefore, possibly explaining the association observed in this study. However, more research needs to be carried out.

This study identified a statistically significant association between employment and problem gambling risk level in the bivariate analysis and the multiple logistic regression analysis where confounding factors were controlled. When assessing unemployment as a mental health risk factor to problem gambling, a statistically significant relationship revealed increased odds of being at-risk of problem gambling. In fact, this study discovered that Pacific women who were employed had a third less odds of being at-risk

problem gamblers than Pacific women who were currently unemployed. This finding is contradictory to the Ministry of Health's 2006 report on the analysis of the NZHS 2002/03, which identified employment as being a risk factor to problem gambling in New Zealand. However, it is important to note that shifts in risk factors of problem gambling over time are not uncommon. This is exemplified in 1999 NZHS which indicated unemployment as a risk factor to problem gambling followed by a shift to employment being the risk factor in the NZHS 2002/03 survey. Further highlighted in results from 2011/12 NZHS revealed that there was no association observed between problem gambling status and employment (Rossen, 2015). World Health Organisation (2012), states that unemployment has the increased potential to lead to unhealthy and addictive behaviours. Perhaps this explains why an increase in the risk of problem gambling among Pacific women is observed. As highlighted in the literature review, employment directly influences income attainment. Being unemployed dramatically reduces an individual's access to income (World Health Organisation, 2014). Therefore, the lack of financial stability and the ongoing need for Pacific women to meet financial obligations could possibly drive them to be more at-risk of problem gambling. Thus, providing a possible explanation of the statistically significant association in this study's findings.

Consistent with previous PIF studies carried out on problem gambling among Pacific women, this study found that education had a statistically significant association with problem gambling risk level in the bivariate and multiple logistic regression models. This study findings revealed that Pacific women with secondary and tertiary level qualifications had less odds of being at-risk problem gamblers than Pacific women with no formal qualifications, 0.44 times and 0.41 times respectively. This finding differs to the results obtained by Bellringer et al. (2005) and Bellringer et al. (2006), whereby the trend at the time revealed that increasing propensity to gamble was related to increasing educational level. As mentioned in Shankar et al. (2003) and the World Health Organisation (2012), poor education has the power to misguide the decision-making capacity of individuals, increase risky behaviours and deteriorate employment opportunities, thus impacting on financial gain. These negative impacts can aid in the understanding of how a significant association between poor education and at-risk problem gambling are related in this study.

This study suggests that among Pacific women, there exists insufficient knowledge, attainable through increased education, that helps them make better informed decisions

or take more preventative steps when participating in various forms of gambling. It has been reported that as educational attainment increases among people, so does their overall health and mental-being (Shankar, et al., 2003). This is further emphasised by the World Health Organisation. (2014) report that states that various forms of educational institutions are important part of society, as they have the capacity to expose people to upstream preventative programmes that can improve health outcomes. The knowledge of gambling that Pacific women acquire is often misinterpreted and shared as tools to provide financial gain for the family, cultural community and God (Urale, Bellringer, Landon, & Abbott, 2015). Ultimately, a normalised view of the problematic behaviour is developed, consequently blurring the lines of its risk to mental health and well-being. A prime example of these views can be observed in Urale et al. (2015) and Tse et al. (2005), where attitudes and beliefs towards gambling were perceived by Pacific participants as having insignificant impact on their lives. These studies presented that some Pacific participants in the study regularly participated in raffles and other modes of gambling, to socialise and meet family and church obligations, while being unaware or choosing to be insensitive to their gambling behaviours, and more importantly to the detrimental harms they were burdening themselves with.

This study also noted that 62.4 percent of all Pacific women either had no formal qualifications or attained up to secondary level education, 18.6 and 43.8 percent respectively. When assessing poor education as a mental health risk factor to problem gambling, it is crucial to recognise that poor education is linked to a lack of employment opportunities available and a reduction in the level of income attainment (World Health Organisation, 2008). This is highlighted in the Ministry of Education (2018) report, that reveals that when compared with New Zealanders with no formal qualifications, the median hourly earnings for people with tertiary level qualifications were 55 percent higher. Therefore, it can be hypothesised that this could be a possible explanation for the statistically significant association observed between poor education and at-risk problem gambling. The difficulties experienced among Pacific women in finding jobs while having poorer educational attainment, fewer employment opportunities and poorer income attainment, compounded with the financial pressures to meet family and church obligations, could possibly explain why they are more at risk of developing problem gambling behaviours. Nevertheless, an association does not indicate a causal relationship and future research examining these hypotheses is necessary.

The most surprising finding in this study concerns the association between problem gambling risk with psychological distress. The literature review undertaken guided the hypothesis that an association would be found between the two variables. However, no significant association was discovered when controlling for mental health risk factors such as education, income and employment. It is important to note though that good mental health according to the World Health Organisation (2013), is not just the absence of mental disorders but encompasses all factors of mental well-being that help people live the healthiest life that they can, reach their fullest potential and cope with everyday life stresses. Therefore, it is important that associations were found between the mental health risk factors investigated in this study with problem gambling. This can help guide further research and strategies aimed at a more preventative approach to problem gambling, instead of just relying on gambling treatment services.

Moreover, it is important to consider, that increasing educational attainment, increasing income earned and improving employment status won't necessarily reduce the risk of problem gambling among Pacific people. As discussed previously, trends of variable's association to gambling risk do have the potential to change so it is important that future studies are carried out so that initiatives and goals can be adjusted to adapt to these transitions.

5.1 Recommendations

This study has identified that employment, income and education have shared direct and indirect relationships with each other and impact on problem gambling risk levels. This is acknowledged in the understanding that education influences employment opportunities and employment dictates income attainment. Furthermore, increased education has the potential to challenge cultural beliefs, attitudes and practises that promote gambling behaviour (Shankar, et al., 2003). A positive message from this study to carry forward into future research is that the mental health risk factors identified are modifiable. This means that something can be done to transition them from being risk factors to protective factors. Ultimately, this study suggests that strategies aimed towards increasing education have the power to influence employment and income, and challenge cultural practices that may be detrimental to mental well-being, thus modifying them into protective factors.

Hence, this research suggests the following recommendations below that adopt a health promotion approach tailored to providing improved knowledge and education on problem gambling as a severe mental health issue and the cultural and societal mental health risk factors associated with it. The following recommendations relate to the effective planning and implementation of a series of educational workshops surrounding problem gambling, to be administered by trained Pacific health professionals for Pacific people. To further improve culturally sensitivity, it is suggested that the health professionals involved be fluent in Pacific languages where appropriate, and workshops be held in local, culturally appropriate, meeting venues where applicable i.e. churches or community halls:

1. The first workshop is targeted towards young Pacific female secondary school students. The aim of this workshop is to encourage young Pacific students to upskill and gain tertiary or equally significant qualifications after completing their secondary school education. This initiative aims to help change future financial situations for Pacific people through boosting future income attainment opportunities. Furthermore, it will increase their exposure and access to problem gambling and other preventative programmes that impact positively on health.
2. The second workshop is also targeted towards young Pacific females in secondary school and tertiary levelled educational settings. This initiative will be aimed at increasing gambling and problem gambling knowledge to help reinforce the significance of prevention rather than treatment. Furthermore, emphasis will be placed on educating students on the different forms of gambling within Pacific communities so that they are more aware of its presence and are able to go back to their communities and pass on their knowledge.
3. The third workshop will be targeted towards Pacific women in their local community settings. These workshops will be aimed at helping unemployed Pacific women find employment, as well as encourage others to upskill in terms of receiving formal education. Woven throughout the workshop material, can also be educational information relating to the different modes of gambling found in Pacific communities and the impacts of problem gambling on their people. This material can help Pacific women identify when gambling activities are present and help them to make more informed decisions when it comes to gambling for personal, family or cultural financial gain.

Further to workshop strategies suggested, it is also important to acknowledge that government policies must continually strive to address the underlying systemic issues that impact on Pacific people and their communities. These underlying issues relate to the ever-increasing cost of living and the inability for Pacific families to meet basic needs; such as healthy foods, better housing conditions and access to transportation. As indicated in the literature review, the inability to meet these obligations have driven some Pacific people to be more at risk of problem gambling. The need to address these wider socioeconomic issues are essential as it can help improve income and household financial situations, thus reducing problem gambling risk. Therefore, strategies developed at a policy level need to be aimed at:

1. Providing more affordable homes for Pacific people
2. Reduce pricing of healthy food items i.e. fruits and vegetables
3. Reduce major costs associated with transportation and provide more incentives for Pacific people to increase their access to affordable public transport
4. Reduce and better control the amount of gambling venues and electronic gambling machines that are available in highly populated Pacific island communities

5.2 Strengths and limitations of the study

5.2.1 Strengths

The PIF study is a credible and robust international data set. This is exemplified in the publishing of more than 110 peer-reviewed scientific papers. This is an ideal study to be utilising in a secondary analysis because most of the data was well recorded over the years, resulting in high level of validity. Furthermore, a significant strength lies in the cultural sensitivity maintained in the procedures and methods undertaken. For instance, data was gathered by trained Pacific bilingual female health researchers.

Since the PIF study is a longitudinal study this provides the opportunity to identify developmental trends over a long period of time allowing for the analysis of gambling risk trends among Pacific women identified in this study to be compared with gambling risk trends identified in previous studies. Another strength of this research is that it adds to the existing body of literature about problem gambling and its associations to the mental health risk factors surrounding Pacific women. As addressed in the literature review, there is currently a paucity of research regarding problem gambling among Pacific women. This study was able to find significant associations between problem

gambling risk level with education, employment and income. By understanding the impacts of these modifiable risk factors, future strategies and initiatives can determine the most efficient and effective way to address them.

5.2.2 Limitations

The findings in this study refer only to associations observed and not causal relationships. Hypotheses obtained from results were made as possible explanations for associations based on previous studies and academic literature.

The PGSI is a widely used tool for assessing problem gambling risk behaviour. A possible limitation may arise in Pacific mothers under-reporting their gambling behaviour due to various reasons. This limitation can also arise with the other variables analysed such as the GHQ-12, smoking status, alcohol consumption and physical activity.

Low numbers of participants that gambled meant that participants had to be grouped into two categories (no risk vs at-risk). Gambling risk levels among participants could not have been collapsed further to show associations to mental health risk factors at each level.

Even though Auckland has the largest Pacific Island population in New Zealand, the data gathered is not a true representative of the whole Pacific population in New Zealand. Problem gambling prevalence and mental health risk factors found to be associated with problem gambling observed among Pacific women in South Auckland might be different among Pacific women in other parts of New Zealand. Nevertheless, the PIFS has never claimed to be representative of the whole Pacific population, therefore onus falls upon the researcher to interpret results appropriately.

5.3 Conclusion

Problem gambling has been identified as a severe mental health issue afflicting on the lives of Pacific people, particularly Pacific women. The literature review has revealed that there are certain mental health risk factors such as, low acculturation, poor education, smoking and alcohol and low income, unemployment poor socioeconomic status and inadequate physical activity, that increase the likelihood of Pacific women becoming more at-risk than others.

However, this study has identified that statistically significant associations among Pacific women were only observed between at-risk problem gambling with income, employment and education. The study noted that mental health risk factors such as poor educational status, reduced income attainment and unemployment, all impact on problem gambling among Pacific women negatively by showing increased risk.

This study calls for a restructuring of health resources available and focussing them towards modifying the risk factors of mental health observed in this study and transforming them into protective factors of problem gambling. Education as a mental health risk factor to problem gambling has been identified as the most pivotal factor as it can influence employment opportunities and increase income attainment. Therefore, the recommendations made encompass a health promotion approach aimed at improving education levels and increasing problem gambling awareness among Pacific women by utilising culturally sensitive strategies. As articulated by Nelson Mandela so fittingly "education is the most powerful weapon which you can use to change the world". The findings revealed in this study will hopefully add to the body of knowledge surrounding this health issue and the mental health risk factors associated with it. Ultimately, the final goal is to reduce problem gambling among Pacific women and improve their mental health.

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