

VAEVAE MANAVA:

**Context and perception of food security for Tongan mothers
and health workers**

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**A thesis submitted to
Auckland University of Technology
in partial fulfilment of the requirements for the degree
of
Master of Public Health (MPH)**

2011

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LIST OF PRESENTATIONS FROM THE THESIS

Tino Lelei Fono: Holding Hands: sharing our strengths, 25 September, 2009 Sorrento in the Park, Auckland. Pacific Island Food and Nutrition Action Group (PIFNAG)

School of Public Health Seminars Series: 29 September, 2010, Akoranga Campus, AUT University.

Postgraduate Nutrition class (Prof. Elaine Rush), 09 June 2010, Akoranga Campus, AUT Auniversity

ATTESTATION OF AUTHORSHIP

I hereby declare that this submission is my own 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), no material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or any other institution of higher learning.

Signed.....

Date.....

ACKNOWLEDGEMENTS

“Koloa ‘a Tonga koe fakamālō”

“‘Oku ou mafeia ‘ae me’a kotoa pe ‘iate ia ‘oku ne fakakaukau au”

(Filipai 4:13)

“I can do all things through Christ who strengthens me”

(Philippians 4:13)

*Thank you Lord for the blessings of knowledge and wisdom, thy name
is glorified.*

*‘Oku ‘oatu heni ‘a’eku fakamālō loto hounga’ia mo’oni ki he kakai
kotoa pe na’a mou tokoni’i ‘ae finemotu’a ma’olalo mo ta’e’iloa ni ‘o
lava ai ke taufonua ‘ae feinga ako ni. Fakatauange ki he ‘Otua kene
toe fakalahi atu ‘ae ngaahi tāpuaki ‘oe mo’ui kiate kimoutolu pea mo
homou ngaahi famili foki.*

I must admit that this research has been a very challenging personal and academic journey, which I have completed with the love and support of many people.

To my primary supervisor, Professor Elaine Rush who deserves special gratitude for her enduring care and support, untiring guidance and patience. Your phrase *“you can do it”* always empowered me during periods of doubt and uncertainty. I am also grateful for my secondary supervisor, Associate Prof. John F Smith who provided valuable inputs and always opened doors for me during this time.

Deepest *‘fakamālō lahi’* to all my fourteen participants (Tongan mothers and Health workers), who willingly shared their lived experiences to make this thesis exist. Your contribution to this study will benefit the health of our people, the Tongans in New Zealand.

My sincere thanks to the Faculty of Health and Environmental Science Dean, Max Abbott, Head of the School of Health Care Practice and the Equity Head Portfolio, Naumai Smith (my greatest inspirational leader), Dr. Juliet Nanai, Junior Samuelu and the Equity Team for their support of funding as well as office resources that assisted my writing, and also allowed me flexibly and some time off from my work to complete my research. Thank you also to the AUT Manukau Masters Scholarship for financially supporting the last six months of my study. *Mālō* AUT again for supporting Manukau postgraduate students by providing the best Post-grad. Computer Lab. Most of us, who are also working, need a place away from home that fits in with our Pasifika lifestyle.

I would also like to acknowledge OPA Director, Pauline Winter and Prof. Tania Ka'ai for funding and creating spaces for us (Maori and Pasifika Students) through Wananga and writing retreats that really supported our study. Massive *fakamālō* to Prof, Peggy Fairbarn-Dunlop for your word of wisdom, support with Pasifika writing retreat and assurance of our safety at Manukau Campus. To Dr. Ineke Crezee for your ongoing encouragement as a true friend, advisor and supporter in relation to my study. To my greatest mentor, Tui O'Sullivan, thank you so much for your love and inspiration throughout lifetime as a staff and student at AUT.

I want to express my sincere "fakamalo 'aupito" to my fellow Manukau Postgraduate pionner friends, Jeanne Teisina, Lorraine Pau'uvale, 'Aulola Lino, Mr Vaivai Kailahi (my cultural advisor), Laumau Tunufa'i, John Patolo, Yvonne Williamson and Benita Kumar. We have practiced the concept of *vaevae manava* through sharing everything together during bad and good times of this lonely journey. I can not thank you enough guys because without you all, this thesis wouldn't possible.

A special acknowledge to my mother, *Fisi'ihone Ma'ata Lenati* for your love and your invariable fasting and prayers have contributed to the completion of this research. Once again thank you for your faith and determination to fight through life this long to see the end of this tunnel and I thank God for you.

To Rev. Dr. 'Ahio, Toilea, Mateaki, Litia, and all my in-laws 'and their families', your valuable prayers and supports are immeasurable. *'Ikai ha lea e fe'unga ke fakamālō'ia 'aki ho'omou ngaahi lotu moe tokoni kotoa pe kiate au lolotonga 'ae ki'i feinga ni.*

May I also extend my appreciation to my brothers, Sione, Popi and Rev.Sione Mohi and cousins, Feleti, Steve, Sepo Jr and all your spouses and children. To my nephews Isileli, Kumuniloto and nieces Petiola, Litiuingi Jr, Kalo, Ma'ata and Deziyah, thank you so much for helping out to look after mum when I needed time out to do my writing. To my uncles and aunties, Tapenisi, Malakai and Tangikina, Rev. Samisoni Lenati and their families, I thank you with all my heart for your love, support and prayers.

Last but not the least of my deepest *fakamālō* to my beloved husband, *Launga Tasi 'Ahio* who journeyed with me and believed that I have the potential to excel through this study. Thank you for your understanding and coping with my mood changes along this long journey. I am forever grateful for you !!!

'Ofa atu moe lotu

ABSTRACT

Food security refers to the “ability of individuals, households and communities to acquire appropriate and nutritious food on a regular and reliable basis by socially acceptable means”. In 2000, interviews with the first cohort of South Auckland mothers of new born babies going into the Pacific Island Families (PIF) longitudinal study, 43.6% of 1376 Pacific Island mothers (n=607) reported that their families’ either ‘sometimes’ or ‘often’ ran out of food. Factors associated with this state of food insecurity included “lack of money”, being of Tongan and Niuean ethnicities and having two or more children in the family. This high prevalence of food insecurity was derived from an interviewer-led questionnaire, and was the starting point for my wanting to know more about and gaining a better understanding of Pacific -and specifically Tongan- perspectives and lived experiences of food security.

This study explored the perceptions and context of food security for seven Tongan health workers and seven Tongan mothers living in South Auckland today. Initial discussions revealed that there were misinterpretations about the meaning of the English words “food security” and the Tongan translation of “fakalato – having enough” and that the indicative questions used had to be shaped and presented in a way that avoided misinterpretation. A blend of Delphi and Talanoa ways of communicating was integrated into two rounds of interviews. The interviews were in Tongan and English, transcribed in Tongan and English, entered into the NVivo8 software system and thematically analysed. This thesis also contains English back translations for the Tongan transcriptions.

Three main themes relating to food security emerged. These were knowledge and understanding, family income, and the influence of acculturation. The experiential examples elicited highlighted that Tongan socio-cultural ways of being were a key factor underlining causes of food security and ways of dealing with food insecurity for the Tongan mothers. The overarching finding was that these mothers gave priority to sharing food immediately required within the community, rather than focusing on individual family needs and responsibilities and the future.

For example

“The importance of satisfying our appetites is to be able to have energy to complete our various duties in our Tongan way of life. If we can’t fulfill our obligations then we are feeling sick.”Mother

By way of contrast, the health workers recognized the need for planning ahead rather than reacting to immediate demands

“I’m sharing this about my own family, we each contribute \$10 per week and keep it as our donation money for the family and church obligations or even if we want to go eat out at a nice restaurant. People think that we are rich, but we are not!! It is possible to plan for the future no matter how much money you have.” Health worker

In addition, mothers and health workers recognised that money was not the answer but changes in policy and physical environment such as local gardening projects could be one way forward. The similarities and differences in perceptions of mothers and health workers demonstrate the conflict that can occur with differing levels of acculturation and changes in the environment.

From the information gained a culturally specific interpretive framework based on the concept of *vaevae manava* or the sharing of resources was developed. The proverb of how Tongan fishermen share the resource from the sea symbolizes the Tongan ways of being in relation to the notion of sharing and food security. The concept of *vaevae manava* (in relation to the sharing of food) should be considered in any intervention to address the effects of food insecurity. Specific recommendations are that a whole of community approach is required and that communications use language that has shared understanding.

Given the current socio-economic situation in New Zealand, it is likely that food insecurity for Tongan will increase. The sharing nature of Tongan cultures offers a strength that could be a major driver of change to enhance food security for Tongans in New Zealand.

ABBREVIATIONS

Abbreviation	Meaning
AUTEC	Auckland University of Technology Ethics Committee
CMDHB	Counties Manukau District Health Board
HW	Health workers
HDL	High Density Lipoprotein cholesterol
LDL	Low Density Lipoprotein cholesterol
NSW	New South Wales
NZ	New Zealand
PIF	Pacific Islands Families Study
PIFNAG	Pacific Island Food and Nutrition Action Group
TM	Tongan mothers
WINZ	Work and Income New Zealand

GLOSSARY

Expression	Meaning
fakalato fakame'atokoni	food security
fe'unga	enough
fusimo'omo	food insecurity
fonua	land or placenta
hama	the outrigger portion of the outrigger canoe
hohoko	discussion related to genealogy and connections
katea	hull of the outrigger canoe
kiki	meat including poultry and seafood
lu sipi	taro leaves with mutton flaps cooked with coconut cream
mafana	inward warmth
manava	food (from the sea)
malie	interesting
me'akai	food or root crops like taro, kumara, cassava, banana etc
nofo 'a kainga	kin-based relationships
papao	outrigger canoe
pito	umbilical cord
talanoa	cycles of discussion/telling stories to reach a shared understanding
tauhi va	maintaining relationships
'umu	earth oven (hangi)
vaevae manava	sharing of food

CHAPTER ONE: INTRODUCTION AND BACKGROUND

“...pea ke tapuaki mai mu’a ‘Eiki ‘ae me’atokoni kuo foaki ke fakamālohi ai homau sino matelie ni, ke lava ‘o fakakakato ai homau ngaahi fatongia ki he fāmili, siasi pea moe fonua foki...” (Koe lotu kai fakafāmili ‘a’eku kui tangata kuo mama’o: Semisi Sepo Lenati ‘o Haveluloto)

“...and may God bless the foods that are given to strengthen our physical body, to be able to accomplish our obligations to the family, church and the country....” (My late grandfather, Semisi Sepo Lenati’s of Haveluloto family dinner prayer)

1.1 Introduction

Food for Tongans and other Pacific societies is far more valued in terms of socio-cultural roles, than just the need to satisfy the physical human body. For any traditional activities and practices associated with food, Tongans ensure that food is enough and abundant, because food symbolises the wealth and richness of self and wellbeing. In the Tongan culture, concepts concerning food are associated with one’s social status in the community. This is also embedded in the perceptions of being “healthy” when the obligations to families, villages, church and country are completely fulfilled.

When Tongans migrate to new countries such as New Zealand, they bring with them their basket of cultural practices, beliefs and values; their world view. The traditional Tongan culture around food is underpinned by the belief that food plays a major role in all aspects of health. However, disparities between Tongans and other Pacific ethnicities in terms of health outcomes have apparently worsened since Tongans first migrated to New Zealand in the 1940s (personal communications with Tongan elders). For example, Tongan women had the highest burden of diabetes compare to other Pacific group; and Tongan men and women had the highest total cholesterol to high density lipoprotein (HDL) ratios compared to Samoan (Grey et al., 2010). A high total cholesterol/HDL ratio is a risk factor for cardiovascular disease. Disparity in health outcomes has been recognised by successive New Zealand governments, in particular by the Ministries of Health and Social Development. The Ministry of Pacific Island Affairs was established in 1985 with the main functions of “policy and monitoring, and communication and relationships management” with a “linking role across government agencies and

between government and Pacific communities” (Ministry of Pacific Island Affairs, 2010).

In order to better understand why Pacific health has apparently deteriorated and why there is a need for Pacific specific government action, the history and health of Pacific people in New Zealand needs to be examined.

1.2 History of global public health

In the nineteenth century, globally public health was primarily focused on controlling the spread of infectious disease, improving sanitation and the provision of clean water and food (Food and Agriculture Organisation, 2003; Grant, Ferguson, Toafa, Henry, & Guthrie, 2004). At the turn of the 20th century, urban reformers were motivated to reduce the spread of infectious diseases from overcrowded conditions in the central cities, by decreasing housing density. At the same time, advertising of food high in fat and sugar, and car dependency had been increasing (Dearry, 2004). Towards the end of the 20th century, the global public health focus shifted from controlling the spread of infectious disease to the prevention of non-communicable disease (Dearry, 2004). Non-communicable chronic diseases such as diabetes, cancer and cardiovascular disease have strong relationships with poor nutrition and physical inactivity of communities (Morris, 2002).

Traditional 19th century Tongan food was described by Hughes and Lawrence (2005) as “nutritionally adequate and a good source of vitamins and minerals” (p. 299). However, this nutritional food culture was altered when the western culture and globalization impacted on Tonga in the 19th and early 20th centuries (Taumoeofolau, 2009). Since then, Tongans have increased consumption of imported foods from New Zealand and Australia and these include fatty meats and simple carbohydrates. They eat less traditional foods like fish, taro greens, yam, and prefer more imported food like mutton flaps, chicken parts and bread (Hughes & Lawrence, 2005). Moreover, the obesity rate has dramatically increased in association with dietary changes and less exercise.

Tonga, like its neighbouring Pacific territories had a substantial proportion of its population migrate to New Zealand, Australia and other developed countries for economic reasons in the 60s (Fairbairn-Dunlop & Makisi, 2003). New Zealand offered

better opportunities for work and study, for instance under the Pacific Access category, which allowed more Tongans to migrate to New Zealand. A downside of this mass migration was that living in New Zealand was associated with an increase in obesity and chronic disease for a people who were already overweight (Taumoeofolau, 2009; World Health Organisation, 2003), and who became more inactive. It was recognised by Fukuyama et al. (2006a), that childhood obesity was already high in Tonga before migration. World Health Organisation (cited in Heimuli, 2010) stated that “the Pacific nations of Samoa, Tonga, the Cook Islands and Niue had a higher prevalence of obesity than New Zealand, but a similar gender difference was apparent” (p.14). The consensus is that a dramatic increase in body weight in Pacific adults and children occurred after migration to New Zealand (Grant et al., 2004), because of reduced access to traditional food and less physically laborious employment (Carter, Lanumata, Kruse, & Gorton, 2010; Snowdon, Negin, & Moodie, 2011). Globalisation, with its associated increased exposure to fast food chains, has also had this effect on many populations (Food and Agriculture Organisation, 2003; Hughes & Lawrence, 2005)

1.3 Pacific population health in New Zealand

An overview of the Pacific population’s health status is imperative to understand Tongans’ health standards within New Zealand. The Pacific population in New Zealand is made up of six main ethnic groups (Table 1) that now make up 6.9 percent of the total New Zealand population (Ministry of Pacific Island Affairs, 2010; Statistics New Zealand, 2011)

Table 1: Size of main Pacific ethnic groups in New Zealand and estimated resident population in home country 2006

Country	Usual resident population in New Zealand 2006 Census	Estimated resident population in home country 2006
Samoa	131,103	176,908
Cook Islands	58,008	21,388
Tonga	50,481	114,689
Niue	22,476	2,166
Fiji	9,861	905,949
Tokelau	6,822	1,392

Sourced from the demographic Pacific progress, Statistics New Zealand 2010

Nineteen percent of the total Pacific population is made up of Tongans alone, with 70% of these residing in the Auckland Region (Statistics New Zealand & Ministry of Pacific Island Affairs, 2010). In 2005 18% of the New Zealand resident Tongan people were living in South Auckland (Statistics New Zealand, 2006a). The Tongan population is the third largest group of Pacific population in New Zealand, and yet has the fastest rate of growth due to both migration and a high fertility rate (Ministry of Health, 2007; Statistics New Zealand, 2011), with a threefold increase between the years 1986-2001 (Ministry of Pacific Island Affairs, 2010; Statistics New Zealand & Ministry of Pacific Island Affairs, 2010). Pacific peoples prefer to live in urban rather than rural areas due to good supporting mechanisms offered by the proximity of family and community to new immigrants. The Ministry of Pacific Island Affairs reported in the 1999 Pacific Directions Report that in relation to other groups the general health status of Pacific peoples in New Zealand is extremely poor and that their educational status is low compared to the rest of the population in terms of participation and achievement (Ministry of Pacific Island Affairs, 1999). According to the report from the National Advisory Committee for Health and Disability (1998), “Pacific people in New Zealand still experience a heavy burden of avoidable morbidity and mortality” (p.11). Two related drivers for higher rates of non-communicable diseases are a lack of food security (i.e. food insecurity) and obesity. These will be discussed in turn.

Food security involves access to affordable, nutritious food at all times and requires that the food is both culturally and socially acceptable. Food insecurity is the opposite as it is “the lack of access to safe, nutritious, affordable food, which has an effect on overall nutrition and physical health” (King, Maniapoto, Tamasese, Parsons, & Waldegrave, 2010). For example, it may be that food is not available (not enough time to shop for food or to prepare it, location and quality of shops, gardens), or that more nutritious, healthier food costs too much or that food is not acceptable. Food insecurity is increasing in the world (McMichael & Schneider, 2011) and has been recognised in New Zealand since 1997 (Parnell, Reid, Wilson, McKenzie, & Russell, 2001). Furthermore, from 1997 high levels of food insecurity for New Zealand Pacific people have been reported (Ministry of Health, 1997, 2003c; Rush, 2009).

It is now well accepted that the pathways that drive the increases in food insecurity cannot be explained by genes or individual food choices alone but also involve social and cultural determinants (Carter et al., 2010) that are also part of the obesogenic environment. In recent decades, in developed countries, the prevalence of obesity has risen more in the lower than the higher socioeconomic status communities (Rigby, 2002). The rise in the prevalence of obesity is closely associated with food insecurity and is particularly evident for Pacific people (Ministry of Health, 2003b). Obesity is defined in adults as a body mass index (BMI, weight (kg) /height (m²)) of more than 30 kg/m² and overweight as a BMI more than 25 kg/m². The BMI is used globally to determine prevalence of overweight and obesity. Adult overweight and obesity prevalence has increased dramatically and Pacific Island peoples have some of the highest rates in the world. Pacific nations of Nauru, Cook Island, Tongan and Samoa had obviously 20% higher prevalence of obesity than New Zealand (Figure 1).

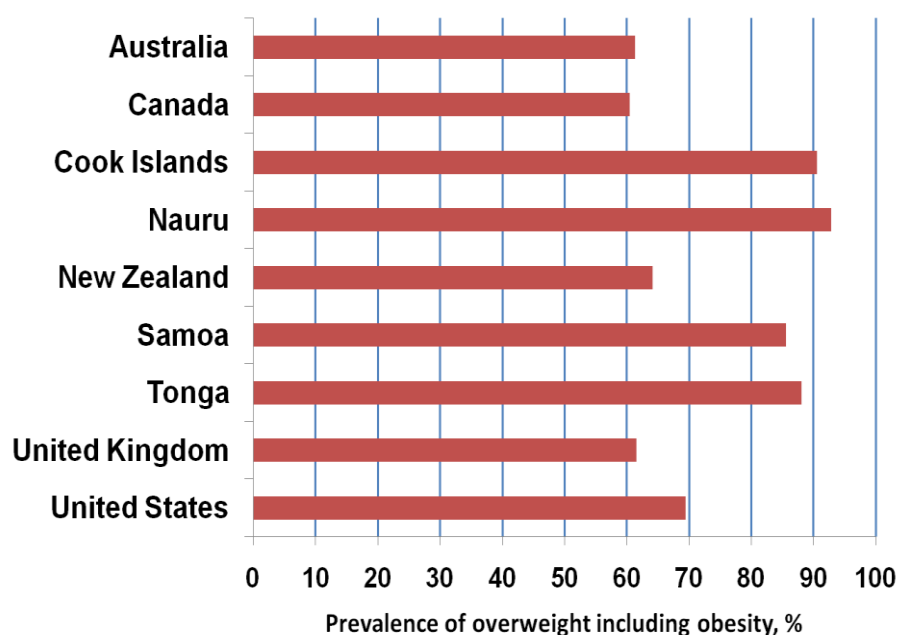


Figure 1: Prevalence of overweight and obesity by country for the year 2005 (World Health Organisation, 2011)

1.4 Obesity prevalence in New Zealand

By the year 2008, one in three adults (36.3%) and one in four (26.5%) New Zealand adults was reported by the 2006/2007 New Zealand Health survey to be either overweight or obese respectively (Ministry of Health, 2008). Upon comparing the main

ethnicities within the population of New Zealand, Pacific populations were found to have the highest prevalence of overweight and obesity (Ministry of Health, 2009). When comparing Pacific people in New Zealand by gender, 47% of Pacific women and 26% of Pacific men were reported to be obese as a result of poor diet and physical inactivity. (SPARC, 2005). Pacific children aged 3-7 years old were at least 10 times more likely to be obese than the New Zealand European/Others (Gordon et al., 2003).

1.5 Background of the Pacific Island Family Study.

The Pacific Island Families (PIF) Study is a large, scientifically and culturally robust longitudinal investigation conducted by the AUT University's Centre for Pacific Health and Development Research. The study includes 1389 Pasifika infants born to 1376 mothers (some were twins) at Middlemore Hospital in 2000. The study was designed to increase knowledge about the health, psychosocial, and behavioural characteristics of Pacific peoples with young children resident in New Zealand. The PIF study has followed the selected birth cohort with interviews and measurements at 6 months, 1, 2, 4, 6 and 9 years. Currently more measures are underway as the children are now 11 years old. From the beginning the interactions of parents and children have been with trained interviewers fluent in at least one Pacific language. The interviews cover socio-demographic, cultural, environmental, child development, family and household dynamics, childcare, lifestyle, and health issues (Paterson et al., 2008).

This study reported that 6 weeks after the birth of their child, 43% of the 1376 mothers reported that their families either "sometimes" or "often" "ran out of food due to lack of money" (Rush, 2009; Rush, Puniani, Snowling, & Paterson, 2007). This study suggested that the prevalence of food insecurity was higher for Tongans than for other groups (Rush, 2009). The information from the PIF study has inspired the topic for this thesis which aimed to add depth and understanding to the findings of the PIF study.

1.6 Journey into the research topic

My first paid job in New Zealand was interviewing the Tongan mothers and children in the first two phases (six and twelve months, 2000 - 2001) of the PIF study. I recognised the pattern of the rapid increase in body size of most Pacific children. The PIF reports

disclosed many and varied factors influencing Pacific infants' development and family functioning including family food security issues which were associated with the high obesity prevalence in the Pacific families. In particular it was reported that the Tongan and Niuean mothers identified more food security issues than Samoan, Tokelauan and Cook Island mothers.

As I studied the quantitative findings from the PIF Study concerning Tongan families and food security, I saw the importance of carrying out in-depth qualitative research to explore the PIFS findings. The purpose of my proposed study which this thesis reports was to better understand the issues with a view to translating the findings into informed community action to reduce food insecurity.

1.7 Summary

Food security is an important concern for the health of the rapidly growing Tongan population in New Zealand. There is a need to improve the context and understanding of food security in Tongan families in New Zealand. The importance of understanding human differences that are influenced by social-cultural determinants of life as in the Pacific population are essential for the development of policies and intervention programmes aimed at addressing obesity levels and improving the overall health of the population and reducing Pacific disparities in New Zealand.

1.8 Aims of the study

Based on the evidence provided by the PIF findings, this research study aimed to:

- explore the relevance of PIF outcomes pertaining to food security for Tongan families in New Zealand, within a Tongan research framework.
- gain better understanding of the context and perceptions of Tongan mothers and health workers and how they might see solutions.

The objective was to talk with Tongan mothers and health workers about food security and record their understanding.

Two primary questions to investigate the aims were “what are the perceptions of Tongan mothers and health workers that explains the high prevalence of food insecurity?” and “what can be done to improve food security?”

1.9 Struture of the thesis

The thesis is divided into six chapters.

This first chapter opened with the historical global health background, and provided a discussion on the current health issues facing the Pacific population in New Zealand. The rationale of the study was introduced followed by the main purpose which set the context of the study.

The second chapter provides a review and critique of the current international and national literature of relevance to this study. Tongan cultural concepts that are related to the issue are also explored.

Chapter three discuss the methodology employed by the study and how it was applied to the research questions.

The findings of the study are presented in two chapters (Chapter four and five). The demographic characteristics of the participants and the three main themes of the findings are discussed in Chapter four. After analysis of the three main themes, a personal interpretation of the underlying cultural concepts is explored to explain the determinants of food security for Tongans in New Zealand and is presented in Chapter five.

Chapter six summarises the findings and discusses their possible interpretation and how they add to the current body of knowledge. Implications of the study and recommendations for the improvement of food security for Tongans in New Zealand are also given.

CHAPTER TWO: LITERATURE REVIEW

“A suitable analogy is with a pool of genetic material left quietly in a corner of a rain forest. One minute, we find a single, simple life form; the next, the forest floor is crawling with different species and the air is bright with a flash of a multi-coloured wings. From its simple beginnings, food security has become a cornucopia of ideas” (Maxwell, 1996, p. 155)

2.1 Introduction

This chapter reviews and critiques the relevant global and national literature that highlights the definitions and concepts of food security. What it means to be Pacific and more specifically Tongan in the New Zealand context and the relationship to food insecurity will also be discussed to provide a framework and rationale for establishing the importance of the study. The obverse of food insecurity is food security and it is the term food security that is used in many official documents.

2.2 Global definitions and concepts 1970-2010

Maxwell (1996, p. 155) reviewed evidence that concepts of food security have “evolved, developed, multiplied and diversified” over time. During the mid 1970s “Global Food Crisis”, the concept of food security was a principal focus of the 1974 World Food Conference in Rome (Maxwell, 1996), and before that, in the 1948 Universal Declaration of Human Rights, food was recognized as the only core element needed to satisfy the human standard of living (United Nations, 1948 cited in Ministry of Pacific Island Affairs, 1999). Maxwell and Smith (1999) stated that this global concern clearly emphasised the finite *volume* and *stability* of *national* and *global* food supplies whereby food security was then defined by the World Food Summit of 1974 as the:

“availability at all time of adequate world food supplies of basic foodstuffs to sustain a steady expansion of food consumption and to offset fluctuations in production and prices” (Maxwell, 1996, p. 156)

Over the next decade the primary concern of food supplies shifted to an emphasis on *access* to basic food at *individual* and *household* levels. Thus new dimensions levels of analysis were developed to address these alterations in monitoring requirements which

led the Food and Agricultural Organisation, FAO (1997) to expand the definition of food security to

“ensuring that all people at all times have both physical and economic access to the basic food they need” (Maxwell, 1996, p. 169)

Accessibility was again a priority. In terms of poverty, access was interpreted as access to basic food that people “needed”, but the quantity of food was not considered in this context at that time (*Ministry of Health, 1997*). Three years later, the World Bank Policy (Ministry of Health, 2003c) advised that accessing any basic food was essential but more important was the intended outcome; to support a healthy lifestyle starting at the individual level. By then food security was re-defined as

“access by all people at all times to enough food for an active, healthy life” (Frank, 1986, p. 359)

The meaning of food security was explored again a decade later at the World Food Summit 1996 (WHO, 2011) and the current definition determined to be “quite ambiguous” because food safety and the balance of nutrients were not included in the definition. In other words the concept of “enough food” did not make clear what “enough” meant. How much food, calories, and what balance of nutrients are required to allow every individual to live an active and healthy life? (Ministry of Health, 2008). The definition of food security was further elaborated in terms of:

“when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life” (WHO, 2011, p. 01)

Therefore, within the 1990s, the main focus was on accessing enough food starting at the individual and translating up to the global level. Thus, Maxwell and Smith (1999) concluded that the concept of “food security could no longer be considered uni-dimensional, but must be treated as a multi-objective phenomenon” (p.16). (Rush, 2009) also added that as the concepts and definitions of food security grow, the more complex it is because it means many things to many people. Food security has now been internationally recognized as a complex inter-linked issue among individuals, the household, the community, the nation and the international economies (Ministry of Health, 2003c). In addition, it engages with economic, social, cultural, environmental and political ways of understanding. The complexity of this concept is reflected by the

200 definitions reported by researchers in published writing within just a decade (Maxwell & Smith, 1992 as cited in FAO 1993). Maxwell (1996) also argued that “multiple uses of the term ‘food security’ reflect the nature of the food problem as it is experienced by poor people themselves” (p.155).

Ruel et al (2009) clearly described the essential determinants of food security at all strata of society as the *availability* and *accessibility* of food. The New South Wales Centre for Public Health Nutrition (1998) added that food security is determined by what foods are available and the resources and knowledge to access and use that food. At the same time, the Food and Agricultural Organisation, the International Fund for Agricultural Development and the United Nations Development Programme emphasised food access and availability, while the United States Agency for International Development included how the food was used (Maxwell & Smith, 1992). Since the definition of food security has been the subject of a great debate over many years, there must be a more relevant way to approach this health issue that would be useful in the New Zealand context.

2.3 New Zealand Context

Food security implies a simple supply and demand food equation, but the fact remains that it is not a clear-cut or straightforward notion because food security is a goal (Rush et al., 2007). Since the benefits of food security are too complex to measure or categorise, it should be conceptualised as an extension of the human right to food. Maxwell (1996) contributed that food security must be understood in terms of the nationality and logic of the persons or social units involved, while Rush et al. (Rush, 2009) concluded that “food security is difficult to measure in useful ways unless the context and people are considered” p.10.

The New Zealand Health Strategy (Ministry of Health, 2000) put forward goals that related to food security and aligned with the primary aims of the Ottawa Charter (World Health Organisation, 1986). These goals are: creating healthy environments; reduction of inequalities in health status; healthy communities, families and individuals; healthy lifestyles; and better physical health. The question is how these goals have been implemented to reduce food security issues in the New Zealand context?

First the concept of what is nutritious food should be explored. According to the New Zealand Food and Nutrition Guidelines for Healthy Adults (Ministry of Health, 2003a), the vital healthy food choices (including Pacific foods available in NZ) are based on the recommendation to “eat well by including a variety of nutritious foods from each of the four major groups each day

- Eat plenty of vegetables and fruits (at least 5 servings)
- Eat plenty of bread and cereals, preferably wholegrain (at least 6 servings)
- Have milk and milk products in your diet, preferably reduced or low-fat options
- Include lean meat, poultry, seafood, eggs, nuts and seeds (1serving)” (p.18)

There is plenty of anecdotal evidence that healthier choices are more expensive. In a 2007 study by Ni Mhurchu and Ogra (2007) electronic sales data from supermarkets were used to determine the 1000 top selling items and derived two shopping baskets; one regular and the other healthier options and compared them for price and nutrients. They found a small differential in the price of \$6.40 more for the healthier basket. The less healthy basket cost \$90 – a differential of almost 7%. The researchers did find that meat and spreads were more expensive. Conversely in a region-wide survey undertaken in 2006 in the Waikato, Wang et al (2010) found a price differential between the healthy versus the regular basket of 29%. This difference may be due to increased food availability and choice in a supermarket in an urban area and the reality of foods available at all outlets including dairies, petrol stations and local stores for people in both rural and urban areas. Pacific people mainly reside in urban areas but this does not mean they have easy access to a supermarket. Household income is positively associated with the amount spent on food and compared with average families, welfare dependent families in Australia find that the ability to budget for and buy healthy food is a challenge (Kettings, Sinclair, & Voevodin, 2009).

Since the 1990s the statistics of increases in food insecurity align with the increase of obesity. Between 1997 and 2002 there was a marked decrease in food security for households with Pacific peoples, as well as for Māori and New Zealand European and other (NZE0). The statistics from the PIF study for Pacific mothers who gave birth in 2000 also show a high prevalence of food insecurity of up to 50% of New Zealand’s

Pacific adults and children have a burden due to food security issues, more so than other ethnic groups (Table 2). The surveys also show that the more children a family has, independent of ethnicity, the more likely the family is to experience aspects of deprivation and food insecurity. In short, the more deprived the more insecure.

The Obesity Action Coalition (Rush, 2009) and Te Hotu Manawa Maori (King et al., 2010; 2008) reported on food security in relation to the Maori and Pacific population in New Zealand. The Ministry of Health and the Health Research Council of New Zealand funded research to be carried out on the social-cultural factors associated with food security and physical activity for Maori and Pacific people in New Zealand (King et al., 2010). Another collaborative research team (Bowens et al., 2009) looked at enhancing food security and physical activity for Maori, Pacific and low-income peoples in New Zealand.

The aspects of food security have been examined by government agencies, researchers and other private sectors in order to address food insecurity issues for the Maori and Pacific population in New Zealand which are the most at-risk populations of food insecurity. Therefore, the Pacific people worldview of food security will be further discussed in the next section since this study is focused on Tongan participants.

Table 2: Summary of surveys for household food security – percentage who responded sometimes

Can afford to eat properly			Food runs out		Eat less		Variety of food limited		Rely on others		Use food grants/banks		Stressed about lack of money for food		Stressed when no food for social occasions	
	Always	Some times	Some times	Often	Some times	Often	Some times	Often	Some times	Often	Some times	Often	Some times	Often	Some times	Often
1997 NNS	%															
All	86	13	14	2	12	2	23	6	7	2	4	1	11	2	11	2
Pacific	60	37	39	10	37	4	36	12	28	2	14	2	26	6	24	6
Maori	68	30	26	6	24	5	39	9	17	4	14	2	20	7	22	4
NZEO	89	10	9	1	9	1	20	4	4	1	2	0	9	2	10	1
2000 PIF																
Pacific			39.6	3.9	33.0	3.4	34.5	4.9	27.7	2.5	13.7	0.4	21.4	2.9	30.3	4.4
2002 CNS	%															
All (2771)	77.8	20.1	18.5	3.6	15.3	2.8	25.6	9.0	10.3	1.5	8.6	0.8	18.1	6.4	16.9	3.3
Pacific (808)	46.6	47.9	47.7	6.2	44.2	3.5	51.3	9.1	27.8	1.3	18.1	1.2	39.9	6.7	37.4	5.0
Māori (1057)	64.3	33.6	30.6	6.9	24.5	6.2	31.1	14.1	19.8	3.6	17.4	2.6	27.9	12.1	21.5	6.5
NZEO (908)	86.1	12.1	10.9	2.1	8.7	1.5	20.6	7.2	4.9	0.9	4.4	0.1	12.1	4.4	12.8	2.0

(Rush, 2009) (Used with permission from Elaine Rush)

2.4 Pacific peoples cultural views and the world-view of importance of food for Tongans

Food used to be called a basic human need along with water and peace, shelter, education and primary health care. It has also been noted as a prerequisite for health. The historical context of food for Pacific people is explained by Mahina (1999) as “food is socialized in the process, giving rise to a specific cultural pattern concerning with human activity like production, preparation distribution and consumption” (p.283). Finau and Finau, (1992) added that food to Pacific people is a high priority cultural commodity. Food plays a major role in Pacific culture, where the size, volume and symbolic status of food represent the degree of hospitality, generosity, and warm-heartedness. The sharing of food and hospitality is an integral part of Pacific culture.

When considering the context of Pacific peoples in Aotearoa, they should be considered as relatively new migrants with strong spiritual and cultural connections with traditional food and family (King et al., 2010; Rush, 2009). In 2000, 92% of the Pacific mothers in the Pacific Island Family study reported that they were affiliated with the church (Cowley, Paterson, & Williams, 2004); while Statistics New Zealand (Statistics New Zealand, 2006b) reported that most Pacific adults in New Zealand have arrived relatively recently, have a low socioeconomic and educational status and relatively poor health. In addition, 77% of 2045 Pacific adolescents who participated in the Obesity Prevention in Pacific Communities study stated they attended church, and upon comparing their BMIs it was found that the attendees were heavier than non-attendees (Utter, Schaaf, Ni Mhurchu, & Scragg, 2007) . This association between attendance at church and body weight may reflect the fact that the church environment might be associated with more community eating occasions. `

The spiritual, physical and emotional meanings of food are intertwined and affect the way food is viewed in the Pacific context and has a large role in the daily life activities of Pacific people. It is essential for Pacific people to provide plenty of food for family, church, community and other social gatherings for the purpose of sharing with the others, and not just with your own immediate family. This reflects why Pacific people are more likely to be living as part of an extended family. In 1996, a total of 35% of all Pacific Islands people in New Zealand were living as part of an extended family (SPARC New Zealand, 2005). This type of living arrangement was more common with

Tongan people in comparison with other Pacific ethnic groups. The number of Tongans living with extended family members increased to 56% in 1996 (SPARC New Zealand, 2005). At the same time, food security issues have been a burden to a large proportion of Pacific families and are highly influenced by culture and worldview, geographical location, origin and socioeconomic status in New Zealand (Rush, 2009).

Pacific people in New Zealand have been identified as ‘transnational migrants’ because they are living and functioning in dual cultural contexts. While they are adjusting to the New Zealand context, they are still preserving their connections with the country of origin and the culture (King et al., 2010).

2.5 Is there a problem?

A paradigm shift of viewing food, health and change in the Pacific culture is totally a new concept for Pacific people. Environmental changes for Pacific islands people in New Zealand has been considered to be the main factor in the high obesity levels in the New Zealand Pacific Island community (Funaki-Tahifote, 2010). This is concerning with the change in the supply of food and the availability of food in the Pacific Islands compared to New Zealand. People have more ready access to energy dense foods that are high in fat and sugar -such as takeaways- that are not readily available in the islands.

The latest alarming prevalence of obesity in the world and New Zealand has been discussed in Chapter One and this is primarily of concern as obesity is associated with cardiovascular disease, diabetes and some cancers (Drewnowski & Specter, 2004a; Townsend, Peerson, Love, Achterberg, & Murphy, 2001).

However, the cultural context of Pacific food patterns and dietary preferences in New Zealand must be taken into consideration in order to address the issue of food security. The use of foods products on social occasions like ceremonial exchanges and church activity has also dramatically increased due to access to more unhealthy food and reduced involvement in physical activity in the new land (Mahina, 1999). The question remains why Pacific people are still continuing with these cultural beliefs and values when their association with most Pacific health issues has been recognised?

Tongans and Niueans were reported by the PIF study to have high factors of food insecurity such as: lack of money, food running out, eating a limited variety of foods when compared with other Pacific ethnic groups (Rush, 2009). Pacific peoples in New Zealand, similar to other ethnic groups, tend to congregate and live in areas where

others from their land of origin reside. While there are similarities, Pacific peoples do not form a homogeneous group, with language and other customs a barrier to integration. There is a need for ethnic-specific approaches to health issues at community levels and this is where Pacific Health Providers and the Pacific health workers they employ are best deployed. The ‘one size fits all’ approach to health care is fraught with difficulties when ethnic and cultural differences are not acknowledged in health promotion, treatment and prevention of any health issue.

2.6 Solutions

Funaki-Tahifote (2010) commented in the Marriner (2010) that ‘hopefully by 2015 we hope health inequalities for Pacific peoples in the Auckland District are reduced with a focus on priority conditions’. The hopes and plans of all health sectors in New Zealand are aimed at a better way to intervene with Pacific people in New Zealand for better future health.

King (2010) encapsulated the evidence that socio-cultural factors are associated with food security and should be considered for health interventions for Maori and Pacific people in New Zealand when stating that the

“symbolic significance of many non-material forms and types of capital that originated in the Pacific nations can be encouraged and used to provide a basis for culturally based initiatives to encounter dislocation experienced by Pacific transnational migrants to New Zealand” (p.173)

Since in New Zealand the Pacific church communities are seen as a replacement of homeland village communities, it has been recommended by many researchers (Bowens et al., 2009; King et al., 2010; Rush, 2009) that they should be a vital institution for inclusion for any Pacific health intervention (King et al., 2010). As part of the process to determine and control food consumption at personal level, involvement of the household should be considered first (Maxwell & Smith, 1992). In the Pacific household it is usually the mother who buys the food and controls the food supply (Teevale, Thomas, Scrag, Faeamani, & Nosa, 2010).

2.7 Summary

Food insecurity affects a large proportion of the Pacific communities in New Zealand and South Auckland and has a large impact on families with young children. Adequate nutrition is essential for optimal health and it is important to understand differences in nutrition and therefore health that are influenced by social and cultural factors. Differences in ways of doing things and understanding should be considered for newly migrant populations in particular the Pacific people in New Zealand (New Zealand Network Against Food Poverty, 1999). Food insecurity is complex and the way of improving food security includes working with the gatekeepers in the home i.e. the mothers, the one that purchase the food to make the changes in the food that is available to their family. The other strategy is through Pacific health providers and the Pacific Health workers they employ, who work with Tongan and other Pacific people. Therefore, the primary aim of this research was to explore the understanding and opportunities to improve food security in Tongan families with young children.

CHAPTER THREE: DESIGN AND METHODS

3.1 Introduction

This chapter discusses how the research questions were investigated, based on the literature review. Firstly, the overview of the approach and rationale for the chosen methodology will be described. Secondly, the discussion of the methodology and methods used in the study will also be covered together with the strengths and limitations of the research methodology. Thirdly, the process of how ethical approval was gained will be outlined alongside with the process for the selection of participants and how the data was collected. Finally, the data analysis process will be described.

3.2 Background to the research methodology chosen

A review of thirty-nine journal articles published between 2002 and 2008 (Appendix 1) from the PIF study was undertaken, with all articles being selected because of their relevance to food security and the health of the Pacific children in the study. Two journal articles specifically addressed the food security issue while the remaining thirty-one articles concerned issues related to food security such as gambling, traditional gifting, the household living situation, family income and breastfeeding. Reports and statistics (Appendix 2) on the determinants of Pacific health from Counties Manukau District Health Board (CMDHB) and Statistics New Zealand were also explored to assist the research study. Essentially the researcher was testing the veracity of the PIF quantitative findings through the devised qualitative framework. Figure 1 illustrates the vision of the researcher on how the connections between the quantitative data arising from the PIF study and the research participants (health workers and Tongan mothers) could be made through the addition of a qualitative study.

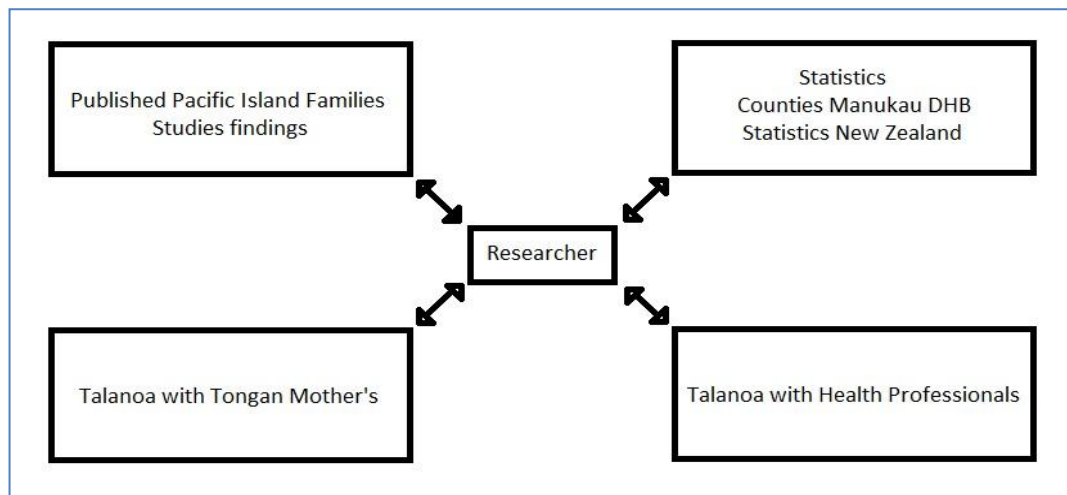


Figure 2: Link between PIF quantitative study and the qualitative research.

The qualitative approach was best suited to this study because the lived experience of the participants needed to be better understood. One of the features of qualitative research that has been described by many researchers (Bogdan & Biklen, 1992; Henwood & Pidgeon, 1992; Stiles, 1998) is the importance of viewing the meaning of others' understanding and hearing first-hand (face to face) of the experiences and behaviours of the participants. According to Boeije (2010), participants in an explanatory description qualitative technique may express views, give words to the experiences and describe causation and circumstances. Participatory research also means that the participants can be part of the solution.

3.3 Methodology: Delphi –Talanoa inquiry

The research strategy employed in this study adapted the ancient Greek research methodology of the Delphi Method. The standard version of Delphi is that a panel of experts' answers the questions in two or more rounds and may revise their answers. In the context of this research it would have been very difficult to get "panels" together as mothers and health workers all lead very busy lives. Furthermore it is less likely that Pacific (Tongan) would speak freely in a group as there are unspoken ways of behaving including not speaking out against someone else's opinions and especially an elderly person (personal observation). The Pacific data collection technique of one-to-one *talanoa* sessions (Robinson & Robinson, 2005) has the purpose of producing a culturally appropriate approach to gaining an in-depth understanding of Tongan perceptions, behaviours and stories of food security; and to understand the reasons these

behaviours occur. By adding *talanoa* to the principles of the Delphi techniques, the credibility of the participants' feedback was consistently double-checked through multiple communications and analysis with each participant. Participants were given a second chance to contribute to the researcher's selected themes where then can be summarized as the final themes for the study.

3.3.1 The Delphi Method

The Delphi technique is defined by Linstone and Turoff (2002), as a “method of structuring a group communication process so that the process is effective in allowing a group of individuals, as a whole to deal with complex problem” (p.3).

Thus Delphi method was chosen for this research study because it is the most widely used technique to elicit experts' opinions (Masser & Foley, 1987). It has been adopted as a common research technique in the field of medical, nursing and other health service-related research (Jones & Hunter, 1995). It is important to consider the Delphi method as a process involving phases or multiple communications with the participants rather than a single data collection event, to allow for consensus building on an issue through the completion of two or more questionnaires. However, for the purposes of this research, participants were not required to write their responses but instead an open one-to-one *talanoa* session was conducted with the individual participants to bring forth their responses. The *talanoa* method is the most respected and appropriate method of collecting data from Tongan participants. It is well recognised that Pacific people are more receptive to providing verbal feedback, rather than responding in the form of written feedback (Counties Manukau District Health Board, 2006).

3.3.2 The Talanoa method

The term *talanoa* was defined by Churchwood (1959) as “to talk (in an informal way) to tell stories or related experiences”. According to Manu'atu (1966), *talanoa* is the “art of acting and thinking in communication within oneself and with other people” (p.39). The *talanoa* method is a Pacific research tool (Caraher, Dixon, Lang, & Car-Hill, 1999; Morton, 1966; Otsuka, 2005; Prescott, 2009) , which aims to collect and analyse information in a way that is culturally appropriate to *Pasifika* ways of communicating and understanding. The word *talanoa* is derived from the words *tala* which literally means ‘to tell, communicate or history’ and *noa* meaning ‘anything or in general’

(Caraher et al., 1999; Prescott, 2009) The benefit of the *talanoa* process is the opportunity given to participants to tell their story in detail, providing the necessary context they feel appropriate. Prescott cited in Foliaki et al. (2008) that *talanoa* is not a plain process to tell what you know but more in-depth with “sharing of ideas, sharing of realities and a sharing of understanding”. The core philosophy of *talanoa* is an open style of deliberation, focusing on respect, tolerance, flexibility, openness and fairness (Robinson & Robinson, 2005).

Prescott (2009) summarises how the traditional *talanoa* has been expanded and applied in the research field:

‘the application and use in educational research in Fiji (Otsuka, 2005) and Tonga (Vaiotei, 2003), housing research with Tongans in New Zealand (Alatini, 2004) and political harmonisation in Fiji and Tonga (Halapua, 2003; Taufelungaki, 2006) is testimony to its ongoing relevance as an effective means of communication’ (p.65).

Although Prescott (2009) illustrated that the process of *talanoa* provided an opportunity to reach greater understanding of Tongan business in Pacific Islands communication, the Delphi-Talanoa methodology was employed by the researcher so as to elicit and combine the participants’ ideas to build consensus on the health issue and avoid face-to-face confrontation because the participants do not actually talk to one another - the participants only talk to the researcher/interviewer. Therefore, the researcher and participants were expected to work collaboratively when collecting and analysing the data at every phase of the survey so it would be able to produce an unambiguous understanding of the research topic.

But before proceeding, it is imperative that this study context validate its position, or argument, that the study was conducted from the perspective of the Tongan people within their community. The dominant or main stream cultures are not always compatible with the unique Pacific theory and practices of knowledge when addressing an issue in life (Vaiotei, 2003). As supported by Tu’itahi (2005), Tongans view things differently in “their entirety and interconnectedness and shared information in story telling format, rich in facts, feelings and opinions” (p.17). Krause and O’Brien (2001) (cited in Otsuka, 2006) signified the strength of cross-cultural research as the interpretation of the human condition in its social, cultural and historical context in order to achieve understanding.

A qualitative Delphi-Talanoa design was appropriate for this study to explore the perceptions of Tongan mothers and health workers on the PIF study findings related to food security issues.

In adopting this approach the communication of the participants with the researcher was enhanced as follows:

Firstly, the study was undertaken by a Tongan researcher, in a culturally sensitive and respectful manner and therefore was more likely to provide better quality information that reflects real-life ethnic priorities. Culturally appropriate methodology makes fieldwork more reliable and valued (Otsuka, 2005).

Secondly, the weaknesses of the Pacific method are strengthened by the Greek Western technique and vice versa. For instance, *talanoa* removes the distance between a researcher and participants, and provides research participants with a face they can relate to (Vaiioleti, 2003), through using the *talanoa* method. The participants have the freedom to openly *talanoa* with the researcher.

Thirdly, the analysis of data by an individual qualitative researcher often overlooks crucial nuances of the data due to bias decision or expectations that might influence the understanding of the data. This issue might be overcome by using the multiple communications of Delphi framework where several experts (Health workers and Tongan mothers) examine the data through two rounds with time to think/reflect between and come up with more accurate conceptualisations (Hill, Thompson, & Williams, 1997).

Fourthly, conducting one-to-one *talanoa* with an open ended questionnaire could be one way to overcome the disadvantage which is normally found in a group where one individual commonly dominates the whole discussion.

The process of how data was collected for the study will be discussed next.

3.4 Methodological Process

The following section describes how data collection proceeded using the Delphi-Talanoa framework (Figure 3). The study design, gaining ethical access to the field, participant selection, ethical considerations, data collection and analysis strategies of the research will be discussed.

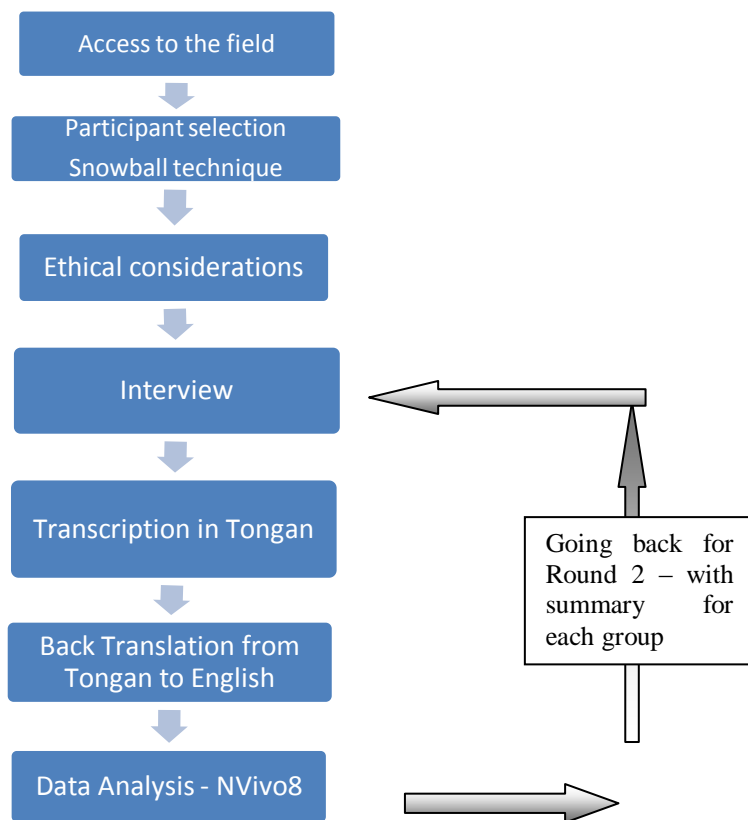


Figure 3: Delphi- Talanoa framework summary

3.4.1 Access to the field

Access to the field of study at the first round of *talanoa* began with ethical approval granted by the Auckland University of Technology Ethics Committee (AUTEC) (Appendix 3) on the 10 August, 2009. The Participant Information Sheet (Appendix 4) and Consent forms (Appendix 5) required by the Ethics committee are also included in the appendices to this thesis. The second round of *talanoa* gained the ethical approval of the AUTEC which was requested on the 31 March, 2011. As a Tongan with more than ten years' teaching experience both in Tonga and New Zealand, and considerable involvement with the Tongan community in South Auckland, the researcher was able to utilise her networks to gain access to the participants to the study.

3.4.2 Participant selection

Twenty individuals (10 Tongan mothers and 10 Tongan health workers) from the area of South Auckland were to be purposively selected for the participants in this study. The health workers were chosen to present the health professional views, while Tongan mothers with at least two children aged less than 5 years' old were chosen to present the

perceptions and reality at the same stage of life as when the mothers were questioned about food security in the PIF study.

However, once a total of fourteen participants -seven participants from each group had been interviewed it was noticed that the talanoa were getting to be somewhat repetitive. Given this fact and the limited time available for the research, it was decided that it would be better to have a smaller number of interviewees than originally planned and to spend more time on in-depth interviews and follow-up.

The initial approach for participant recruitment was through presentations at conferences and seminars such as Pacific Island Foods and New Zealand Action Group (PIFNAG) National Conference and the AUT University Department of Community Health Development series of seminars. Being given the opportunities of presenting the outline of her research topic benefitted the researcher in that it allowed her to gain confidence at the beginning of her research journey. More importantly, however, the interaction with the public allowed the community to know that the study was planned and the opportunity was taken to invite some conference and seminar participants to participate in the study.

Consequently potential participants were approached at conferences, church meetings and Tongan community networking meetings such as the church women's choir, the Tongan women's bible study group at the Otahuhu Free Wesleyan Church and the Tongan Early childhood Teachers' Association. The "snowball technique" was used through friends or relatives of the researcher's Tongan contacts. If the potential participant agreed to be approached their contact details were given to the researcher and used for further communications leading to a meeting to make sure the participant knew what was involved and to obtain informed consent. Seven participants were Tongan Health Workers working in the community directly with Tongan people at the time of the interviews. Seven more Tongan mothers were invited from among a group of Tongan mothers who had families with at least four children, two of whom were still under five years old. The chosen family size (of at least 4 children) was based on the PIF findings involving families with two or more children and the 2002 Children Nutritional Survey with families including five or more children (Fitzgerald, Parnell, Schaaf, Scragg, & Wilson, 2003), therefore the mothers selected by the researcher were assumed to be more likely to have experienced food security issues based on their family size.

The two groups, the Tongan health professionals and Tongan mothers were also deemed important for the study as both groups are experts in their own areas of proficiency. The human experiences shared within these groups should accumulate to a better understanding of how to address the context of food security and provide two different perspectives.

3.4.3 Ethical considerations

The protection of human rights and cultural values of the participants was crucial and was a consideration in the research design (Davidson & Tolich, 2003; Tolich, 2001). It was very important that the rights of the participants were protected throughout the study. According to the principles of ethics discussed by Tolich and Davidson (1999), voluntary participation, informed consent, and maintenance of both confidentiality and anonymity, will be addressed in detail.

Voluntary participation

Both the researcher's verbal statements and the written Information Sheet ensured that the participants only participated in the study of their own volition without any overt or covert coercion. The researcher made sure that she did not use any persuasive language when detailing the proposed study to potential participants. The study was explained and the participants were given enough time to think about the study before the invitation to the study was accepted. The process and the duration of the study were clearly discussed right at the beginning so that the participants did not feel inconvenienced in hindsight, and more importantly, were still happy to greet the researcher at the second round of *talanoa*.

Informed consent form

The consent form that was approved by AUTECH as discussed earlier was used to gain the participants' autonomous authorisation to participate in the study. The researcher clearly explained the purpose of the study with their rights to withdraw at anytime during the study, following which the Participant Information Sheet was given. All questions asked by the participants were clearly answered by the researcher, before gaining written consent from all participants.

The researcher was also aware of any emotional issues related to the topic and was prepared to terminate the *talanoa* series if such situation occurred, however two Tongan mothers were very emotional and cried, and still insisted to carry on with their stories. No participant was in any physical risk during the interview, which was a great benefit to data collection.

Confidentiality and Anonymity

In order to protect the identity of the participants, the participants were not anonymous to the researcher yet the stories that they shared during the *talanoa* series were protected which meant that no personal details or information were divulged at any point during or after the study. The researcher stressed at the beginning of the *talanoa* that all contributions remained confidential and that their privacy was respected by removing their names from the transcripts. The researcher only used pseudonyms with abbreviations of her choice in all transcripts and also in the body of the thesis. All files and raw data materials from the study were kept in a locked filing cabinet at AUT during and after completion of the study.

3.4.4 Interview process

Each *talanoa* session was conducted through open, face-to-face individual interviews of the participants by the researcher in two rounds. This was the preferred method used for this research, in order to obtain the most reliable consensus of opinion from the two study groups. The concept of one-to-one interaction between the participant and the researcher in the *talanoa* technique illustrated by Halapua (2003) was also applied in this survey, resulting in the establishment of a mutual relationship based on the deeper and holistic appreciation of each other's ideas. The findings of the first participant interviews were summarised (Appendix 6) by the researcher before presenting these to the participants during the second round of *talanoa*.

Appointment times for the first round of *talanoa* sessions were arranged and subsequently confirmed with the participants at a location where the participant felt most safe and comfortable. Such locations could be homes, workplaces or a public area. Before the first round of *talanoa*, the participants were given a copy of either the mothers' or the health workers' Participant Information Sheet written both in the English and Tongan languages. After they had had time to read this they were asked if

they had any questions or would like any clarifications. The research process was verbally explained to them following the study information in the Information Sheet. It was emphasised that participation in the research was entirely voluntary and they were allowed to withdraw at any time during the duration of the study without needing to give a reason. Once the participants agreed to participate in the study Consent Forms were signed to confirm their agreement.

Although the nature of *talanoa* is not engaged with structured questionnaires or set agendas, this research study was guided by the following semi-structured open-ended questionnaires (Question 1-7) to conduct the *talanoa* so as to focus on the research topic. The main research questions were formulated to investigate the determinants of food security and were explained using a string of Tongan terms:

1. ***Vakaia*** –is a noun in the Tongan language literally means “to look at carefully or thoughtfully or to examine”. The main purpose of this question was to firstly examine the level of understanding of the Tongan participants about the meanings of food security and healthy food. Before engaging in effective communication, it is vital to explore the level of understanding of the participants of the topic. The questions were “*What does food security mean for you?*” *What is healthy food?*
2. ***Talia*** -The word *talia* is also a noun in the Tongan language which literally means to “receive or accept a request”. What had been offered by the researcher in this research were the PIF study findings in relation to food security (please refer to the section on the journey into the research topic in the Introduction). The researcher explained the PIF study findings to the participants and made sure that the participant understood what they were, e.g. “Have you heard of the PIF findings before?” and “What do you think about the PIF findings in terms of food security?” before asking if they accepted these or not.
3. ***Nofo’ia*** - Once the level of understanding had been uncovered further questions were asked about their lived experiences. This is the precious story of the participants that the researcher needed to understand in order to gain a deeper awareness of the context of the participants’ experiences. Questions such as “What experiences do you have of food security issues (food insecurity) in the Tongan Community?” and “Can you explain and give examples?”

4. ***Liunga***- literally means ‘behavioural change’.

These questions aimed to discover how food security affected the behaviour of the Tongan people in the community. Since the participants shared their experiences, there was also a need to observe the changes in the behavior of the people in the community. Questions such as “*How does food security affect the behaviour of people of your community (church, extended family and others)?*” and “*What would be ways to improve these (if there’s any)?*”

5. ***Fakafe’atungia*** – literally means ‘the barrier’

It was important to discover the barriers to food security in the Tongan community. In order to design an intervention programme to support food security, barriers need to be understood first by asking the question: “*What are the barriers in your community to food security?*”

6. ***Fakafaingamalie*** –means “What is available now to support food security?”

This question was asked to health workers in order to find out what they provided to community as a supporting mechanism of food security. “*Has your Health Provider plan or delivered any Nutrition educational programme to help the community with food security issues?*” ‘As to the Tongan mothers, they were asked whether they shared any supporting system of food security that they were accessing in the community.

7. ***Ofongia*** – literally means “to hail out or call out in greeting when something or someone suddenly comes into view”.

When food security issues are discovered and with it the supports offered in the community, then respondents might be prompted for new ideas to see what Tongan and other Pacific communities might be able to do in the future. Therefore a question was asked such as: “*What more could be done?*” (to prompt the participants for any suggestions).

The above semi-structured questions were only asked by the researcher, in either the Tongan or English language, depending on the way in which the *talanoa* developed. The traditional open practice of *talanoa* described by Violeti (1999) was naturally employed by the researcher where precise questions were not administered right at the beginning, but rather discussed about anything that the participants preferred to talk about such as church activities, family matters for nearly 15-30 minutes before the researcher started to ask the semi-structured questions relating to the research.

Ka'ili (2008) and Mafile'o (2005), also related how, at the beginning of the *talanoa*, informal talk occurred first if they knew each other or how alternatively the interlocutors would talk '*hohoko*' (which means talking about ancestry and genealogy to connect family relationships)

Dependent on the participant each *talanoa* session for the research lasted approximately 60 to 90 minutes. The first round of *talanoa* was audio-taped on a digital recorder by the researcher for the transcribing process and stored as a digital file.

The Delphi process was conducted in a series of two *talanoa* rounds as follows:

Round 1: The individual participants were invited to express their opinions on the research questions, based on their knowledge and experiences through an open *talanoa* between the researcher and the participants. These opinions were grouped together under different themes and guided statements were drafted to be asked by the researcher for the second round.

After the first round, a table of summary (Appendix 6) of answers given by the participants was produced and submitted to the AUTC for an ethical approval to carry out the second round of *talanoa*. This summary table was discussed by the researcher and the participants in relation to three main themes which had emerged from the collected data.

Round 2: Participants were allowed to verbally rank their agreement through *talanoa* with each participant's comment collated from the first round. The rankings were summarised and assessed for the degree of consensus and were accepted as the final feed-back from the participants.

3.4.5 Data Analysis

3.4.5.1 Transcribing & translation

The recorded audio-tapes of the *talanoa* sessions from each round were transcribed by the researcher within 24 hours of the interview. This enabled the researcher to remember some of the non-verbal characteristics in the context of the interview. This process took longer than was expected due to the fact that transcribing processes was carried out by the researcher herself.

The taped interview was first transferred and stored as a media software file in the computer before commencing the transcribing process. All transcriptions were done by the researcher herself. The transcribed data was stored in Microsoft Office Word 7[™] documents with each participant's individual file before being exported into the NVivo 8 software for analysis. One of the benefits of using NVivo8 software in this study was that the raw transcribed data were stored as they were, either in Tongan or English language.

The translation process was normally carried out before analysis, however by using NVivo8 software the raw transcribed data for the study was easily manageable by the researcher during the next process of analysis before commencing on the translation process.

3.4.5.2 Purpose of analysis:

The main purposes of qualitative analysis is to systemically search and arrange the collected data into relevant categories and then code these categories into a coherent and manageable data set from which patterns of responses and answers to a research question may be deduced. Babbie (2008) explained that 'coding of data can be tedious and time-consuming' (p.441), therefore this current research used NVivo8 (QSR international, United States of America) for the analysis process.

3.4.5.3 Chosen data analysis methods – NVivo8 software

NVivo8 programme is a useful tool in qualitative analysis for recording and connecting the ideas of the participants, so enabling an indepth penetration and investigation of the data (Richards, 1999). The use of the software was also recommended to me by a qualitative expert colleague (N. Schulenkorf, personal communication, August 23, 2010) as an appropriate tool for analysing a large volume data. The NVivo8 programme was relatively easy to use as the researcher required only one tutorial session to learn the basics of the operation. The researcher found that using electronic, software-based research instead of manual paper-based allowed more freedom to play freely with ideas by links and comparisons of patterns and these could be saved, printed or discarded as the analysis proceeded.

First round of talanoa sessions

The health providers and mothers were treated as two separate groups representing professional and personal perceptions and experiences respectively. The transcribed data was first imported into the NVivo8 software, before being thematically categorized into emerging themes which elucidated the perceptions of the participants on food security. These were then treated as the findings for themes emerging from the first round of *talanoa*. These themes were then used to guide prompts to be provided by the researcher for the later *talanoa* rounds

Second round of talanoa session

The second *talanoa* round was based on the verification of the different themes collated in the first round. Any new ideas discussed by the participants were added to the main themes and lastly the participants were allowed to verbally rank how much importance they gave to the different themes from the first round. Next NVivo was used to analyse the collected data from the second round and this analysis appeared to confirm a mutual agreement on the themes. At this point the degree of consensus was reached and accepted as the final feedback from the participants.

The final feedback was then categorized into three main themes. The selective participants' comments were then directly transferred as they were into the body of the study findings accompanied by an English back translation. The translation process was also undertaken by the researcher. The strength of using both Tongan and English comments in the body of the study lies in providing an opportunity for Tongans as the studied population, and also other ethnic groups, to understand the real meaning of the stories shared by the participants.

3.5 Summary

This chapter has outlined the qualitative research design of the Delphi- Talanoa methods utilised in this study. It also discussed the overview and rationale for the chosen methodology as an appropriate choice to answer the research questions. The procedures of data collection, analysis and the ethical consideration were also explored.

The next chapter will highlight the findings of the research which will be presented in three main themes and associated sub-themes identified in the analysis process.

CHAPTER FOUR: FINDINGS.

4.1 Introduction

This chapter presents the information and stories shared by seven Tongan health workers and seven Tongan mothers about what food security means to them. The findings from the *talanoa* sessions are offered in two main parts. The first part describes the socioeconomic demographic characteristics of the study participants. The second part explains the three main themes of knowledge and understanding; income, and acculturation that emerged from the data analysis. These themes captured diverse and personal experiences around food security issues in New Zealand which impact on the health of the overall Tongan people.

The identity of the participants is protected through the use of pseudonyms. Tongan health workers were given the group title of HW followed by a randomly assigned number from 1 to 7, while Tongan mothers were indicated by the abbreviation TM again followed by a number between 1 and 7, as explained earlier.

4.2 Part 1: Socioeconomic demographic characteristics

4.2.1 Health workers' profiles

At the time of the study, the seven health workers who were interviewed were all working for different health providers in the South Auckland area. All but one of the health workers were raised in Tonga while one was born in New Zealand, returned to Tonga at 3 months of age and then migrated back to New Zealand 18 years ago, Table 3

Table 3: Demographic characteristics of the seven health workers interviewed.

Demographic	Characteristic
Age	33 - 58 years old
Gender	5 women; 2 men
Place of Birth	(6) Tonga; (1) New Zealand
Years in NZ	9 - 27 years
Years of working as a health worker	3.5 – 16 years

4.2.2 Tongan mothers' profiles

Compared with the health workers (Table 2) the mothers were of a more restricted age range and they had all been born in Tonga or overseas (Table 3), while only six of their combined number of thirty children had been born in Tonga. Mothers were selected because they had at least two children under the age of five years and were therefore most likely to experience food insecurity according to the findings of previous studies. Characteristics relevant to food security issues were that all mothers had at least four children and the practice of living with members of the extended family was demonstrated with three of the seven households including extended family members: grandparents, nephew and other relatives (Table 3). Furthermore, the source of the money for family shopping was diverse; including one or both parents' income and children benefit money gained from either Work and Income New Zealand (WINZ) or Inland Revenue (working for families).

Table 4: Demographic characteristics of the seven Tongan mothers

Demographic	Characteristics Median
Age, years	29 to 46
Migration, years	1 to 25
Number of children	4 to 7
Age range of children	10 months to 20 years
Number living in the house	6 to 9 people
Relationship of family members (Household composition)	Parent & Children Grandparents, Nephew
Income earners	(2) Both parents, (4) One Parent, (1) One parent plus an extended family member
Income per household	\$400+ to \$1600 per week (After tax)
Where does the money for shopping come from?	(3) Childrens' benefits money (3) both childrens' benefit and one parent salary (1) one parent only
Who is responsible for the shopping?	(4) Mother (1) Parents & Children (2) Parents & Children
Who prepares the food?	(5) Mother (2) Dad or sometimes eldest son

The relations of demographic characteristics of the participants to food security will be further discussed in the next chapter. Moreover, the indicative questions that were asked are summed up in Part 2, with three main themes emerging.

4.3 Part 2: Emerging Themes

After the transcription and identification of the recurring themes within the enormous amount of data captured from the *talanoa* sessions, the information was coded into three main themes with four sub-themes each (Table 4). The three main themes are:

Theme 1: Knowledge and understanding - describes the level of knowledge and understanding of the concepts of food security that Tongans expressed.

Theme 2: Income –describes relationships between income and food security.

Theme 3: Acculturation –depicts how Tongan culture as practiced in New Zealand is associated with food security.

One group, the health workers, always referred their *talanoa* to the experience of their clients, which were the Tongan mothers and their families while Tongan mothers contributed with their own real life experiences by sharing the stories of their lives. Many touching stories arose during the *talanoa* series and some participants became emotional e.g. tears were shed. This shows the connectedness of the *talanoa* between the researcher and participants that brings out the feelings of ‘*māfana*’ (inwardly warmth) and ‘*mālie*’ (interesting) (Manu'atu, 2000).

Table 5: Key themes and subthemes that emerged from the *talanoa* sessions

Key Themes	Sub-themes
Theme 1: Knowledge and understanding	1. Meanings of food security 2. Meanings of healthy food 3. Food purchasing behavior 4. Knowledge of community support systems
Theme 2: Income	1. Inadequate income 2. Budgeting Management 3. Lengthy employment hours 4. Help seeking- alternative activities...
Theme 3: Acculturation	1. Dietary acculturation 2. Cultural food preparation 3. Cultural beliefs, attitude and values 4. Language

To contextualise the health workers’ and mothers’ understanding and perception of food security each of the main themes has been expanded with examples of the participant’s comments extracted from the transcripts. The themes have been set out below.

Theme 1: Knowledge and Understanding

To understand the perceptions of the participants on food security, the research project focused on identifying how they understood the term ‘food security’, and the underlining practical experiences that reinforced this understanding. This theme was divided into four sub-themes: meanings of food security, meanings of healthy food, food purchasing behaviours; and the knowledge of community support systems; as shown in Figure 4.



Figure 4 : Outline of the four sub-themes of knowledge and understanding.

Sub-theme 1: Meanings of food security

In describing the participants’ knowledge about food security, it is not possible to measure or qualitatively compare the knowledge of the two groups of selected participants because of their differing life experiences. However, this section will discuss the participants’ first statements and the various interpretations of the words ‘food security’ using both Tongan and non-Tongan contexts. Following this the meanings of the phrases ‘having enough nutritious food’, and ‘how people access healthy and affordable food’ will be explored.

Definition of the word ‘food security’

Three Tongan mothers and two health workers described the meaning of food security through their understanding of the meaning of the word ‘security’. The meaning was related to the ideology of ‘*being secure as in being safe*’. Three health workers

disagreed with the word ‘*security*’ being used in the Tongan context, because it gave the wrong impression about the actual meaning of food security.

“The word food security is quite self- unexplanatory when you think about its meaning in the Tongan language.... The first time I heard about food security, I thought that it is about locking up the food in the cupboard, to keep it secure”. (HW 2)

Therefore, food security in this context was understood to mean the security of food in a safe place, or to lock away the food from the children so that it will last till the next meal. The meaning of food security was misinterpreted by some Tongans and not seen as relevant to health issues.

When the researcher first explained the concept of food security to the participants using the Tongan translation of *fakalato* for security, some of the participants responded to this word with an expression that bespoke lack of comprehension. The word *fakalato* is quite a broad and intensive word to be used in defining food security. Two Tongan mothers interpreted ‘*fakalato fakame’atokoni*’ in terms of trying to satisfy the body’s needs in order to carry out your tasks in many ways.

“Ko e feinga ke fakatoli’a e fiema’u fakame’atokoni ‘a e sino.”
“Trying to please or satisfy the body’s need for food.” (TM 6)

The Tongan translation may also misinform the understanding of the concept by Tongans by dwelling on the notion of trying to satisfy the body’s needs with any edible foods. The notion of ‘*satisfying the body’s needs*’ is trapped in the mindset of most Tongans where the body is driven by their appetites and their desire to taste certain foods. This is something that can be used as an excuse to eat at all the time and this may in turn lead to food security issues. Three participants contributed another example which they formulated as follows:

“Koe koloa pe kete foki atu ki ‘api kuo ai ha fu’u haka manioke mo ha haka sipi ke fakatoli’a ‘aki ‘ete faka’amu” (HW3)

“Just as long as I get home and there is boiled cassava and mutton flaps to satisfy my needs” (HW3)

“Koe fa’ahinga u’a na’a tau tupu hake mo ia ‘i Tonga ke kai pe ha me’a ‘oku ngako kae toki fiemalie.” (HW5)

“This kind of appetites that we grew up with in Tonga, is to eat any fatty food in order to get satisfy” (HW5)

However, three other participants (TM2, HW2, TM4) concluded by saying that:

“Koe mahu’inga hono fakatoli’a hotau ‘ua ke lava kema’u hotau ivi ke fakakakato ai hotau ngaahi fatongia kehekehe ‘i he anga ‘etau nofo faka-Tonga. Ka ‘ikai lava hotau fatongia pea ‘oku tau ongo’i meimei puke leva he stressed.” (TM4, laughing)”

“The importance of satisfying our appetites is to be able to have energy to complete our various duties in our Tongan way of life. If we can’t fulfill our obligations we get stressed and feel sick.” (TM4, laughing)

The meaning of food for Tongans is more than just a means of producing energy. It is how the energy has been utilised through fulfilling obligations and contributions to family, church and the community. Despite the aforementioned misinterpretation of the concept of food security and the Tongan word *fakalato* by participants they still interpreted the concept of food security in two main ways, i.e. as ‘enough nutritious food’, and ‘accessibility of healthy and affordable food’. These two main interpretations have been expanded on below.

Enough nutritious food

Having enough food to feed the family was the most frequently mentioned interpretation of the meaning of food security. The majority of the participants had a clear understanding that food security is all about having enough nutritious food for the family at all times. Yet, two health workers and three Tongan mothers did not emphasise the nutritious side of food when defining food security but considered that as long as there is enough food to feed the family, there was food security:

“koe koloa pe ke ma’u ha me’akai fe’unga ke kai e famili he taimi ‘oku nau fiekaia ai” (TM4).

“as long as there is enough food for the family to eat when they are hungry” (TM4)

The notion of ‘*fe’unga*’ (enough) is the most significant aspect of the meaning of food security. One health worker discussed ‘*fe’unga*’ based on her experience of working with Tongan families, by looking at the reasons why food might run out during the week. The participant explained:

“I think.... to define food security you have to create a band to spread it through, because when you don’t have enough food for the week, it doesn’t mean that you didn’t have any food. You may have bought enough to last the whole week but because you have unexpected visitors to your home as Pacific people do or the kids eat half of the

shopping during the first three days of the week or any other good reasons as the causes of not having enough food”. (HW4)

So having enough food is not entirely to do with less money within the household but is also affected by other determinants such as unexpected visitors and children’s needs. In addition, five TMs shared that they had enough food for the week but because of the unexpected contributions to be made to church or to be shared with other relatives who did not have enough food. The participants commented:

“Koe uike ni’ihi hange koe uike kuo ‘osi ne fai ‘emau shopping kihe uike pea toe vahevahe atu ia kihe kasini hoku mali mo hono ki’i famili (fanau ‘e toko 4) he na’e ‘ikai ke ai ha’anau shopping” (TM3)

“Some weeks like last week we did our shopping for the whole week, and we had to share it with my husband’s cousin family (four children) because they didn’t have any shopping” (TM3)

Interestingly, the participants also shared stories about the meanings of food security and food insecurity at the same time in terms of *‘fe’unga’*. Food insecurity was defined by another health worker as not having enough or a shortage of healthy food available:

“Fusimo’omo pe koe ‘ikai ma’u ha ngaahi me’akai fe’unga mo totonu ki he sino pe koe nounou fakame’atokoni” (HW6)

“Food insecurity or not having enough or not having the right types of food for the body, or the shortage of food” (HW6)

The concept of *fusimo’omo* is a very familiar word that Tongans use more often when *talanoa* about not having enough resources such as money, clothes, water and food. This might be related to the early stages of this research when the researcher had difficulty in finding the Tongan translation for food security rather than food insecurity, and it might reflect how Tongans experienced more food insecurity than food security.

Accessibility of healthy and affordable food

The findings of the research study suggested that participants also defined food security in terms of **accessibility of healthy food**. The food that is accessible to Pacific people also needs to be culturally appropriate and healthy. Distance and location of the food supply are the two main determinants of having access to healthy food.

Three Tongan mothers shared the importance of having affordable food regardless of the distance. For one participant the location of “cheaper” supermarket was in the Manukau area while the respondent lived in the Otahuhu area, so distance was seen as a

barrier rather than support to food security. One Tongan mother explained that her friend purchased daily shopping from the local dairy rather than from the supermarket because she did not have any motor vehicle available to her;

“‘Oku ou fa’a ‘alu ‘o ‘ave hoku friend he siasi kema oo fakataha ‘o fai mai e shopping mei he PAK’nSAVE koe’uhi he ‘oku ‘ikai he ‘iai ha’ane me’alele, pea ‘oku nau lahi fakatau pe kinautolu mei he dairy ofi ki honau api”. (TM1)

“I often take my friend from church to go shopping together from PAK’nSAVE because she’s got no vehicle, and they normally shop at the dairy close to their house” (TM1)

Some participants pointed out that having limited access to culturally appropriate food was also a barrier to food security. Culturally appropriate foods included cassava, taro, yams and other Tongan foods that are either imported from Tonga or grown locally in South Auckland or other parts of the North Island. The fact that this can be another barrier to food security, especially to elderly Tongans who have migrated to New Zealand, was discussed by one health worker who said:

“Food security is how you access to food and not only that but it’s culturally appropriate....that means we think about the location to culturally healthy food...e.g Tongan old people down in Dunedin complain about eating potatoes all the times... they don’t access to variety of our Tongan food and that is food security issues...” (HW 2)

One major problem that most of the participants commented on was how they struggled to access healthy and affordable food around the area of South Auckland reflecting the obesogenic environment for participants. One of the most important reasons they identified was the fact that the fast food outlets outnumber the healthier food outlets such as fruit and vegetable shops:

“Food insecurity is too much access to unhealthy food”. “too much accessible to wrong type of food like junk food and takeaways” (HW 4)

“If you go to the short street of old Papatoetoe shopping centre where we used to live, you will be surprised to count nearly ten Chinese takeaways located there”. (TM 7)

“‘Oku fa’a lahi ‘emau fakatau takeaway he ‘oku convenient ko’ene ofi mai ki ‘api ni he ‘oku luelue pe ha taha ia ‘o kumi mai ha \$10 chicken nibbles and chips for the kids. ‘Oku ‘ikai ngata pe he’ene ofi ka koe toe ma’ama’a kihe kai ‘ae fānau tokolahi”. (TM 6)

“We often buy takeaways because it is convenient as it is located closer to my house, and someone can just walk there and buy us \$10 chicken nibbles and chips for the kids. Not only that is close by but it’s cheaper to feed my many children”. (TM 6)

“Fast food is a big thing that I forgot to mention earlier. It is true that they are everywhere and especially at Mangere. Everywhere you go there is Chinese takeaway. If we compare that with the area of rich people at Remuera, there is hardly any Chinese takeaway” (HW3)

“Koe barrier he ‘ātakai ko hono placed all the fatty, fast food takeaways concentrated he ngaahi feitu’u ‘oku ai hotau ngaahi matakali hange ko Otahuhu, Mangere mo South Auckland, so that’s the only choice you’ve got if you lived there, so the problem is kapau he’ikai teke ‘ilo ‘e koe ‘oku kovi pe ‘ikai ka teke ‘alu pe koe ki ai he koe me’a ia ‘oku ‘iai, and you’re pou pou’i the demand eyes of the supplier to keep supplying”(HW 2)

“The environmental barrier is the placing of fatty, fast food takeaways everywhere in places where there are lots of our own people like Otahuhu, Mangere and South Auckland. So if you live around this area, that’s the only choice of food you’ve got. The problem is, even if you know that it is good or bad, you still have to go there. You are supporting the demand eyed of the supplier to keep supplying”(HW 2)

While many of the participants differed in respect of their understandings of food security, further question of “What does healthy food mean for you?” was asked to provide a better understanding of the concept.

Sub-theme 2: Definition of healthy food

The understanding of the concept of healthy food for Tongan mothers was explored and compared with to the *Food and Nutrition Guidelines* of the Ministry of Health (refer to Literature Review section). The participant’s definitions of healthy food are outlined in Table 6.

Table 6: Perceptions of the participants on the meanings of healthy food

Participants' definitions of healthy food.	Tongan Mother Transcripts
Eating lots of vegetables and fruits	"Variety of food that helps your children grow healthy, e.g fruits, veges 'n brown bread" (TM 7). "I practised cooking with lots of veges and eating fruits too." (TM4). "As long as there are plenty of veges in cooking family meals." (TM2).
Eating a balance of food	"Eating balanced food such as steak, gravy, piece of taro (cassava etc), with salad." (TM3).
Eat more home-cooked meals than takeaways	"Healthy food means eating more home-cooked meals than Chinese fat food takeaways e.g fish, lu sipi & fo'ime'akai (taro, banana etc.)" (TM1). "If you spend your \$20 for KFC to buy steak, veges [instead] and cook those at home, that is less expensive and much healthier." (TM5)
Food that makes us healthy/ won't make us sick	"The meanings of healthy food mean eating food that won't make you sick."(TM3)
Living longer	"Healthy food means living longer. If I eat healthy food, I live longer" (TM4)
Remove fats from meat	"Healthy food means taking fat off from meat." (TM6).

When comparing the study participants' perceptions on healthy food to the *New Zealand Food and Nutrition Guidelines*, many of the participants strongly defined nutritious food as eating plenty of vegetables and fruits at most meals of the day. This is definitely in line with the Guidelines Group 1 of the nutritious food described in the Literature Review Chapter. The level of understanding of the majority of the Tongan mothers in the community shows that they have taken on the basic idea of eating vegetables and fruit.

The idea of eating low-fat meat was also discussed by three of the Tongan mothers. In doing so, where meat and poultry are shared by the participants they are very much aware of the importance of trimming off fat before cooking. However, three mothers said that removing fat from the food did not meet with the approval of their husbands and other male family members.

In terms of takeaways and fast food, some participants classified Chinese and fast food around South Auckland as unhealthy food because

“they are mostly deep fried in oil and lots of unusual spices added on” (TM 4).

By contrast, home-cooked meals were perceived to be healthy food and were also referred to as the best meals of the day, an example being the traditional Tongan Sunday lunch. The customary practices of cooking are still very strong when participants share *talanoa* about their understanding of good food in terms of healthy food. When asked “What do you mean by good food?” many of the participants reported with the mindset of the traditional Tongan meals as the cooking of ‘*me’akai*’ (food crops like taro) and ‘*kiki*’ (meat including poultry and seafood). One participant (see Table 6) interpreted healthy food to involve eating a balanced meal consisting of *me’akai* (e.g taro) and *kiki* (steak) and some salad. This was also mentioned by TM3; such food is perceived by most Tongans as healthy food because all sources of food nutrients are included and as a result people live longer.

Sub-theme 3: Food purchasing behaviours

The participants also shared their experiences of purchasing food for their households. This section highlights the three main determinants of what type of food Tongans participants bought for their family. The determinants were concerned with the pricing of food, shopping skills and cooking skills, and are discussed in more detail below.

Food Pricing

The price of the food was the most significant factor that determined food purchasing behaviours for Tongan families. Most participants shared how they had to first check out and compare the prices of food before they bought the food product. The participants compared the prices by visiting and checking various shops, weekly brochures, advertisements on radio and television or through word of mouth from family members or people in church or the community.

“Oku ou sai’ia he ngaahi nusipepa tu’uaki ‘oku fa’a tufa mai ki hoku ‘api, he ‘oku malava keu ‘ilo ai e ngaahi koloa ma’ama’a pea u ‘alu shopping mei ai. Koe me’a pe ia ‘oku ou ‘uluaki check out koe ha price e koloa” (TM6).

“I like those advertisement brochures that are delivered to my house, because I am able to find out the cheaper goods, and then I go buy from there. That’s the first thing I always check: the price” (TM6).

“I got some of the food price from the ads on TV” (TM3).

It was highlighted by the participants that because of the price, they are more likely to purchase meat and other grocery foods that are comparatively high in fat, salt and sugars and low in fibre. Some mothers also shared how they had to sparingly spend their limited budget for groceries by shopping in discount food stores offering low-priced (generic) food products regardless of the distance. The following statements may be used as an example:

“Koe barrier ki he food security ‘i he’eku fakakaukau koe costing. Cost is a big issue , not only koe raise e cost e food ka koe anga e sio kihe cost e water that is cost more.” (HW4).

“The barrier to food security in my mind is costing. Costing is a big issue, not only that food prices gone up but we look at water rates which cost even more.” (HW4)

“‘Oku ‘ikai foki teu tokanga pe ‘oku ofi pe mama’o ‘ae ngaahi falekoloa ma’ama’a , ka ‘oku ou sio pe au kihe pa’anga ‘oku ou ma’u keu ‘alu ‘o fakatau’aki ke lava ke fakakakato e fakatau e me’akai ‘oku fiema’u kihe family”. (TM7)

“I don’t care if the discount shops are close by or further away, because I consider how much money I’ve got to spend on shopping, so that I can buy all foods that are needed by my family.” (TM7)

“‘Oku ma’ama’aage kiate au ke fakatau e \$10 chip and deep fried chicken nipples mei he siaina he’eku feinga ke kumi ha kiki ma’ama’a ‘aki \$10 ke cook ki hoku family tokolahi” (TM4)

“It is cheaper for me to buy \$10 chips and deep fried chicken nibbles from the Chinese takeaway shop than trying to buy cheap meat to cook with the \$10 to cook for my big family.”(TM4)

The prices of fruits and vegetables were cheaper in some particular stores in South Auckland compared to other places in New Zealand. Participants identified certain places like flea markets and Chinese fruit shops in South Auckland which sold cheaper fruits and vegetables in comparison with supermarkets like PaknSave and Countdown. Two health workers (HW1, HW4) talked about how they advised the Tongan and other Pacific patients with diabetes at the clinic to:

“buy the seasonal fruits and vegetables which are much cheaper and by the end of year you are basically eat all types of fruits and vegetables. For example, buy 99c per kilo apple during apple season and don’t buy them when they are \$2.99 at off seasonal” (HW4).

Other participants said:

“‘Oku ma’ama’a ‘aupito ‘a e fruit moe vesitable he ki’i fale fruit he Bairds Road ‘i Otara and the one at Mangere fehingaki moe KFC hala Mesi” (TM4)

“Fruits and vegetables at the Fruit Shops at Baird Road, Otara and the one at Mangere opposite the KFC, Massey Road are very cheap.”(TM4)

“Kou ‘alu ma’u pe he tokonaki kihe fea ‘i Mangere ‘o fakatau mai mei ai ‘emau fruits and veggies for my kids lunch for the week he ‘oku ma’ama’a ange ia” (TM1)

I always go to Mangere flea market on Saturday to buy fruits and vegetables for my kids’ lunches for the week because it is much cheaper”. (TM1)

Shopping skills

Another factor that determined what type of food Tongan families buy is the skill to shop for healthy food. It is important that people know how to make healthy choices when selecting food, particularly within a low socio-economic population who have limited budget available, and obtain the required skills to prepare healthy meals. Importantly, the story shared by the Tongan mothers demonstrated limited skills on how to shop for healthy food for the family meals. The fact that they identified mostly white bread, noodles, patties and sausages for their children’s meals demonstrates this point. The variety of food basics such as *me’akai* (carbohydrate) and *kiki* (meat) has relevance for family health. The question asked in accordance with this theme was: “What type of bread or milk do you buy?” Most mothers answered white bread and blue top milk. Some participants were mindful of the healthy option of wheatmeal bread and low fat milk, but stated that they were very expensive to buy for bigger families. As an example, one mother stated:

“‘Oku ou mahino’i ‘oku saiangae ‘ae mā wheat pea moe huaka’u ‘oku si’isi’i ai e feti, ka ‘oku fu’u mamafa ‘aupito hono price keu fakatau ki hoku famili tokolahi.”(TM4)

“I understand that wheatbread and low fat milk are better but I cannot afford to buy these for my big family because the prices are expensive.” (TM4)

Three Tongan mothers did not know about the differences between white and brown bread, full cream blue top milk and low fat milk and the nutritional values of other food sources. They admitted that they were not able to differentiate between these and because of that they were only buying the cheaper milk and bread varieties.

The skill of reading food labels while shopping was perceived as irrelevant by most Tongan mothers. Some mothers shared that they were not interested in food labels as long as the product expiry date was still alright. Two Tongan mothers said that they always bought frozen meat and never checked the meat labels because they thought these would be alright regardless of how long they had been frozen.

“I don’t really look at the labels but I check the expiry date. So if the dates are not expired than it’s fine with me” (TM1).

“Using a shopping list to do shopping is a good technique to save money and time and to shop safely” (HW5.)

“Kiate au koe lahi e ngaahi fakama’ama’a he shopping pea fakatau ‘e kita e ngaahi me’a na’e ‘ikai fiema’u pea ‘ave ia ‘o tuku he kopate moe aisi. Ko ia ‘oku fiema’u ke ngāue’aki e shopping list pea fai ki ai” (HW6).

“To me, the more discount sale prices at the shopping make you buy stuff that you don’t necessary need, and you store them in the cupboard and the fridge. So you need to use a shopping list and go accordingly” (HW6).

Cooking skills

Caraher et al (1999) clarified that “knowing about cooking techniques in principle is one thing, applying them yet another thing” (p.597). An important factor affecting purchasing behaviors consisted of the skills of Tongan mothers to cook family meals. The basic understanding Tongan mothers had about healthy food was reflected by statements about the lack of cooking skills applied to cooking healthy food for family meals. Five Tongan mothers out of seven took full responsibility of cooking for the family, but in two families the father took primary responsibility for cooking and sometimes the older children helped out as well.

Cooking skills are involved in the planning, preparation and production of a meal for the family on an everyday basis and depended on there being enough time for cooking and the knowledge of food preparation. Most Tongan mothers described a preference for the traditional way of cooking regardless of how many years they had been living in New Zealand. The Tongan concept is to cook *kiki* (meat) and a *haka* (taro, kumara, yam or any other root crops) for the main family meal. Mothers mainly made the decision for what was to be prepared for the family meals and other social functions

How often people cook at home also gives an indication of the practical usage of food preparation skills. One health worker commented that one reason why more people

prefer to eat fast food than cooking at home nowadays was because the quality of food they cook at home is not so popular for the family taste. This explains why some mothers did not have many cooking skills: they were in fact preparing the type of food that their families preferred, and which did not require a lot of cooking skills. Two mothers added that their children did not really eat Tongan food but preferred to eat bread and other junk food.

“Fakatata ki he ‘aho e fitu he uike, mahalo koe ‘aho pe 2 pe 3 ‘oku mau kai ai ha me’akai ‘oku security he ‘oku kuki ‘i ‘api, the rest of the week we eat junk food from takeaways.” (TM 4)

“For example, out of the seven days of the week, I think there are only two to three days that my family eats security food because I can do cooking at home, the rest of the week we eat junk food from takeaways.” (TM4)

Due to large family sizes, most mothers only thought about the quantity instead of quality of food. One health worker also noted that people prefer to eat the same kind of food at all meals because that’s what’s available:

“Koe kakai ‘e ni’ihi ‘oku nau kai pe me’akai Tonga he kai efiafi, toenga kihe aho taha, pea nau toe ‘a hake pe ‘o kai me’akai tatau, pea moe lunch ‘e toe ‘ai pe fu’u haka moe kiki ke kai he toenga e ‘aho, ‘o kai ai pe me’akai tatau.” (HW6)

“Some people they seem to eat the same kind of food at dinner, then eat the leftovers for breakfast on the next day. Then cook haka and dinner again for lunch and for the rest of the day, basically eat the same food.” (HW6)

Therefore, cooking skills determine the type of food available in the household and this is an important mediating factor for family food purchasing behavior. Some mothers and health workers discussed that they bought vegetables to practise healthy cooking at home but saw this as boiling vegetables and meat to make basic soups, the only recipe they knew. They “*know how to cook the food*”, yet they do not remove the skin as that is seen as the “*best part of the chicken*”.

“Oku ‘iai e knowledge e taha in how to use vegetables you grow at home, or how to prepare those foods, he ‘oku available pe me’akai healthy ia ka ‘oku fā’a talamai ‘ehe ngaahi fā’e ni’ihi ‘oku ‘ikai ‘ilo tenau ‘ilo pe ‘e cook fēfē’i ia ‘enautolu” (HW2)

“There is knowledge in knowing how to make use of the vegetables that you grow at home. The healthy foods are sometimes available, but some mothers said that they don’t know how to cook them (HW2)

Sub-theme 4: Knowledge about community support systems

All health workers shared *talanoa* about their various health providers' intervention programmes aiming to support food security in the community, but it was not known how many Tongan people knew about or made use of these programmes.

Educational support

Tongan health workers discussed community education and support programmes that included learning about shopping and cooking skills, healthy food for preschoolers, gardens and other courses. Most Tongan mothers said that they shared the skills that they gained from any community education classes.

“Koe taimi na’e ‘ikai teu ngaue ai neu fa’a ‘alu kihe kalasi kuki moe ako’i e founga shopping ta’etotongi ‘ae community, pea na’e ‘aonga ‘aupito.” (TM6)

“When I was not working, I used to go to a community cooking class and shopping skills, which was very helpful.” (TM6).

“I have learned how to shop smart after attending those free cooking classes at the Church Hall.” (TM4)

Even though participants' shared successful stories about current community educational programmes they also considered that current educational programmes were not enough to address the issue of food security for the Tongan and Pacific communities in New Zealand.

“There’s a lot of educational support needs to be done, like myself been here more than 20 years, and I know that immigrants need to be educated on how to live a simple successful life in New Zealand.” (HW4)

Some suggestions were provided by most of the participants to improve future intervention programmes and these are summarised below and will be discussed further in the section with Recommendations in Chapter six.

Immigration support:

Some participants discussed the needs to give special support to all new Pacific immigrants, including Tongans, from the very first day they arrive in New Zealand. This support system was proposed to be run by the New Zealand Immigration Department. The support system should be focused on teaching people “how to live

simple life in the new environment of New Zealand”. The participant in question expressed it as follows:

“There is a need to educate people who migrated from the Pacific about simple things about life New Zealand such as how to go about shopping. What budget they have got” (TM5.)

“I think the Immigration New Zealand should have a special training programme for the new arrivals to teach them how to explorer life in the new land of Aotearoa”(TM1).

Early Childhood Educational Programme:

Five healthworkers shared their intervention programmes that were running at the Early Childhood Education Centres and High Schools. It showed how vital it is to teach children early on so they would not forget it.

“’Oku ou pehē ‘oku mahu’inga taha pe hono ‘ako’i e fānau iiki kenau ‘ilo kihe me’akai mo’ui lelei ‘oku nau kei iiki he ‘ikai tenau toe mavahe mei ai.” (TM3)

“I think that it is vital to educate preschoolers to be aware of healthy food at a young age and they will never depart from it.”(TM3)

Summary of participant’s knowledge and understanding

This section has described aspects of knowledge and understanding of the Tongan health workers and Tongan mothers about food security which enabled them to access enough nutritious food for the family at all times. Although the participants shared their experiences about access to the high number of outlets offering unhealthy food around the South Auckland area, lack of knowledge and understanding were identified as the causes of all other determinants of food security. Lack of knowledge about the meaning of food security was the first of a number of issues that impacted on all other aspects such as food pricing, shopping skills and cooking skills. However, the participants might have had an understanding and knowledge about food security that was different to that of health providers and policy makers.

Theme 2: Income

How do Tongan participants perceive the relationships between income and food security? Family income impacts directly on access to food and how that food is used. Money and income in relation to aspects of food security were a recurrent topic throughout the *talanoa* sessions and included perceptions of inadequate income, budgeting issues, lengthy employment hours, and increased access to food parcels (see Figure 5). These four main issues related to income are explored in more detail below.



Figure 5: Schema of the four main issues related to income and food security.

Sub-theme 1: Inadequate income

According to the findings of the PIF, Tongans are at risk of food insecurity due to lack of money. Table 4 indicated the total gross income per week for the households of each of the seven Tongan mothers interviewed. The highest income of \$1600 per week was associated with the family of a mother who had a Bachelor’s degree in Early Childhood Education and who was working as an Early Childhood Teacher for an overseas company in full-time paid employment at an hourly rate of \$30 per hour. Apart from this one educated Tongan mother, the household incomes ranged between \$400 and \$1000 before tax per week. In other words, these relatively low incomes had to support families with four or more children and often more than two adults. When asked “Do

you agree with the PIF findings?” answers given during *talanoa* sessions revealed a certain amount of disagreement.

Three Tongan mothers agreed with the PIF study findings and shared their experiences of struggling to survive with less money available to feed their families. Their main source of income consisted of government benefits or from the wages of only one working parent. However, the other four Tongan mothers did not agree with the PIF findings. These participants explained that whatever amount of money was available should be enough for the family. They felt that some people did not get their priorities right or did not know how to budget their money wisely, and that this resulted in the lack of food available for the family. The following excerpts describe these differing perceptions as to the role of (lack of) money for Tongan families:

“I agree with the findings, because when my husband was working by himself we didn’t have enough money to feed our kids. I was frustrated and stressed out for not being able to provide enough food for my family.” (TM 7)

“‘Oku mo’oni pe ‘ae lau ia ‘ae ako ko’ena he ‘oku ou ‘osi sio tonu pe a’u he ngaahi fāmili Tonga, pea a’u pe kia maua ‘oku fusimo’omo (crying) ‘iai taimi ‘ikai ma’u ha pa’anga fe’unga ke tauhi ‘aki family.” (TM 3)

“That (PIF) study finding is right because I’ve seen it happen with some Tongan families, and even our family, food insecurity (crying) as there are times when we don’t have enough money for our family.”(TM 3)

“Oku ‘ikai keu tui au kihe result ‘oku tuku mai ‘e he PIF he ‘oku ‘osi lahi fe’unga pe pa’anga ia ke tauhi ‘aki e famili. Hange ko maua koe pa’anga ki he famili ‘oku ma’u pe mei he vahe ‘ae kau leka, ka kohono mo’oni koe palopalema koe ‘ikai ‘ilo ke budget. ‘Oku lahi pe koloa ma’ama’a ia ke fakatau ke fafanga’aki e fānau”(TM 6)

“I don’t believe the PIF results because there is enough money to look after my family. For us, for instance, the family income comes mainly from the Family Support, but the problem is how to budget. There are also some cheaper goods you can buy to feed the family” (TM6)

At the same time, five participants disagreed with the PIF findings and provided some interesting explanations. Their views were that Tongan families did have enough money to provide healthy food for the family but that this was limited due to excessive bills to be paid off, or because money had to go on family and church obligations (*kavenga*). The concepts of *tauhi- va* (*maintaining relationships*) in the Tongan culture or the Tongan way of life were also pointed out by the participants. In the mindset of Tongans it is very difficult not to get away from feelings of obligation towards church or family

and from needing to contribute to these, because this has always been so central to their lives.

“I believe in how I am spending my money because that’s how I was brought up, no-one is going to make me change from that.” (TM 3)

Other health workers stated that they agreed with the findings of the PIF study in terms of being aware of the issues around the lack of money such as the high cost of living in this country, the effects of migration and other issues related to acculturation and integration. So, the truth about lack of the money for Tongan families is, firstly, that there is not enough income and this results in their being less money being left to buy food for family meals. The combination of having less money added to the very expensive living standard in New Zealand turned this issue into an almost insurmountable one. The following participants explained:

“...Cost of food has gone up...” (HW4)

“..’oku fakae’a mai heni ‘etau ‘auhee mai kihe fonua ni,’ae anga ‘etau react kihe new environment...’oku tau ‘ohovale he fakatau e me’akai kae tuku ‘etau tō pe ‘etau me’akai, kuopau ke vahevahe pa’anga ki he me’akai lolotonga ia ‘oku mamafa” (HW 2)

“It shows here that we are the immigrants to this country by how we react to the new environment ... we are surprised to buy food and no longer that we grow them ourselves. So we share the money to use for food while it is expensive” (HW2)

“Ikai ngata ai ka koe cost of living ‘oku ne fu’u affect ‘aupito ‘ae food security, and even those people that who can afford to have the money are still affected” (HW 7)

‘Not only does that but the cost of living really affect food security and even those people who we think can afford are still affected” (HW 7)

Less family income may be not be an issue in the mind of some Tongans when they compare their lives over in New Zealand with their lives back in Tonga. They feel that the amount of money in their pockets will always be the same if they know how to budget and use it wisely.

Sub-theme 2: Budget Management

Budgeting was identified by the participants as one of the key barriers to being able to access and afford enough nutritious food for the Tongan families. One of the main reasons for this because food was not recognised as a priority or fixed budget item to

the family due to the fact that other living expenses such as housing, transport and *kavenga* were more of a priority. Lack of ability to budget, combined with a limited family income profoundly affected their ability to plan for food, their food shopping behaviour and even their ability to prepare for what they cooked.

Some participants shared their successful stories of how they had learnt from their experience of *mo'ui fakapotopoto* (sustainable livelihood) in Tonga and how they were able to put this into practice in the new environment of Aotearoa-New Zealand. They compared their lifestyle in New Zealand with the living standard in Tonga. In Tonga they had barely enough cash in hand, yet people still survived and were also supported by food grown in plantations as well as seafood, and through the utilisation of other resources available on the island such as feeding you own pigs and chicken.

“..manatu na’a tau tupu hake pe ‘i Tonga, pea koe \$100 koe fu’u me’a lahi ‘aupito pea lava lelei pe ‘o tauhi’aki e famili he uike” (TM2.)

“... remember we all grew up in Tonga, \$100 was a lot of money and it was enough to use for the family needs”(TM2).

“koe lahi ange ko’e ‘ae pa’anga ‘oku ma’u koe lahi ange ia e me’a noa’ia ‘oku ou fakatau he taimi ‘oku ou ‘alu ai ‘o shopping,...but when I walk into the shops with less money, I know exactly what I need to buy”(HW5.)

“the more money I have, the more unnecessary things I buy when I go shopping,... but when I walk into the shop with less money I know exactly what I need to buy” (HW 5).

The concept of *mo'ui fakapotopoto* was the key driving force to help with the issue of not having enough money. The participants talked about the many techniques they used to stretch their food dollars to buy food for their families. Two participants contributed stories on how to draw up a budget by shopping only for the food that they were going to prepare for the family meal. In order to do this they had to stick to the shopping list and not to buy any other discount goods to be stored in the cupboard. For example, some people just bought the ‘weekly specials’ and prepared the family meal with the same type of food every day until it ran out.

“....budget is about food preparation. How much to prepare??... What you have or plan for the family?”(HW4)

“.. kapau ‘e ma’ama’a e moa he fale koloa ko ia pea ‘e fakatau mai aipe fu’u moa ‘e 4, pea ‘e haka hokohoko ‘aibe ia he uike ko ia kakato, pea ‘osi ko ia ‘ikai ha toe vitamin kehe ‘e ma’u ‘e he family.”. (HW6)

“.. if a whole chicken is on sale in the shop, then you buy four chickens. Then the family will constantly eat chicken that week, and no other vitamin or food source gained by the family..” (HW6)

Another participant looked at planning their time wisely in order to have enough time to look carefully at what to buy for the family and in that way, money was saved to buy healthy food.

“Kapau ‘e vahevahe pe ‘ehe mātu’a honau taimi ke malava pe aipe taimi ke fai fakalelei ai e shopping pea ‘e lava pe ke ai e pa’anga fe’unga toe kihe me’akai.” (HW 6)

“If the parents managed their time well, then they will have time to do the shopping properly, as a result enough money will be saved for food shopping.” (HW6)

Some participants recommended minimising the buying of takeaway food which would save a lot of money to buy healthy food. There was no obvious difference in cost between home-cooked meals or takeaways, but the former were always better than the latter in terms of nutritional value.

“ koe shopping tete kumi ‘e ma’ama’ange pe ia pea save moe pa’anga, he koe takeaway ‘oku ma’ama’a ka ‘oku kai’i pe he fo’i ‘aho taha koia... ‘ikai foki mo’ui lelei ki hoto family....” (TM5).

“...when you do shopping that is cheaper and saves money, because takeaways are cheaper in a way but you just eat it all in one day.... Not even healthy for the family either...” (TM5).

“...ko hono ola ‘e toe fakamoleange ha’o suka, toto ma’olunga ‘amui” (HW5)

“...the outcome will be more expensive when you get diabetes, high blood pressure later in life” (HW5)

Participants suggested ways to shop ‘smarter’ including shopping in discount food stores and purchasing low-price food items regardless of the quality of the food. This reinforces the information gained about the purchasing behaviours of the participants but added additional information in that it appeared many Tongan people always buy such discount items as are found in the many *fresh and cheaper fruits and vegetables shops and flea markets in South Auckland* to save money.

Budgeting was perceived by one Tongan mother as a western concept because Tongans were not brought up to stress about planning their money to pay for all living necessities like people do in New Zealand. People lived in Tonga first and foremost on their free inherited land and food gathered from their own plantations to go in hand with their

own livestock (pigs, cows) or totally depending on the catch from the sea. She explained this as follows:

“...when we come to shop, we buy lots of things, not like palangi’s as they budget their money...am doing it in a Tongan way, no budget (laughing). That’s the way I was brought up. I believe in a flexible way of life as how I lived with my family, as long as we are happy..”
(TM 4)

For this reason, some Tongan families struggle to cope with the process of the budgeting of their income to pay for everything in order to survive in this new environment and this becomes a barrier. Two Tongan mothers shared their experiences on how their lives had changed after using budget advisors in the local community.

“...We managed our bills well when we were both working and when I stopped because I was pregnant, than all these bills piled up, as we down to one income. Budget advisors helped us, because our bills were way over our head and for them stepping in and everything settled down. You know they make sure that we’re going to do what they plan because we are seeking help. So they split down the payment into small payments that we afforded each week. Obviously we couldn’t do it on our own. They managed the paying off of our bills... now we are alright ...I recommend budget advisors to all Tongans...”
(TM7)

Making the decision to use a budget advisor is very difficult for Tongans, because of their pride. It is embarrassing if other members of the community find out that budget advice has been sought. But one Tongan mother shared her thoughts as follows:

“Well for the Tongans we would like to keep your pride, I would rather seek help from a Budget advisor than seeing my kids suffer. To me my family is more important than being fakama (shameful)” (TM7)

At the same time, three health workers pointed out the reason why Tongans are not very good at budgeting because the way they were raised in Tonga, where money was not the main driver of family living resources. Tongans did not pay money on rent or mortgages and all the other things that are part of life in New Zealand. HW6 contributed:

“Ko ‘etau mo’ui ‘i Tonag na’e ‘ikai ke fakalele ‘ehe pa’anga ‘a’etau nofo he na’e ai pe hotau ‘api na’a tau nofo ta’etotongi ai, ala ma’u pe moe me’akai ta’etotongi pea koe pa’anga ‘oku ma’u vahevahe pe ia he totongi uiha and bills, moe me’a lahi koe kavenga. ‘o ‘ikai hange ia ko’etau nofo he fonua ‘oku fakalele pe ‘ehe pa’anga me’a kotoa.. pea koe me’a ia ‘oku tau vale ai he budget”

“Our lives in Tonga were not really driven by money, because we have our own house that we can live in for free, and we can get free food. The money was just for electricity bills, and mainly for family and church obligations., and not like how we live in this country where everything is driven by money.... and that's why we don't really know how to budget.”

Sub-theme 3: Long hours of employment

While income is determined by many factors, working more and longer hours to gain more income has been the practice of Tongans who in the main are working at low hourly rates of pay. It is also the norm that extended family members contribute to family income.

In three of the seven Tongan families, both parents were either working the same shift or alternative shifts. In the other four families only one parent, the father, was in paid employment and the mother was at home. All families had at least two children under the age of five.

The four “at home” mothers explained that they stopped working to look after their young children. Thus, fathers are willing to take any opportunity to work in order to earn more than 40 hours’ pay to support the family and provide money for groceries. Three families definitely used the Family Support payments received from the government, while for two families income came from both Family Support payments and the fathers’ wages.

One Tongan mother explained that her husband had normally been working sixty to seventy hours per week since she had stopped working to looking after their six children. While long working hours supported family income, two Tongan Health workers added an interesting point on how they educate Tongan people to change their mindset about this pattern. She explained:

“...’aia ‘oku ‘ikai ‘aa hake ia ‘o fakakaukau ke kai toast, ‘osi fakakaukau pe ia ko’ene ‘aa ‘o kai ha fu’u haka he koe taimi hoata pe koe efiafi ia.” (HW5)

“Not even thinking to wake up and eat toast because it’s breakfast but rather wake up for lunch or dinner.” (HW5)

“’Oku fa’a oli’ia au he feinga ke fakamatala ki he kakai ke fakakauaku’i ma’u pe koe kai pongipongi koe fuofua me’atokoni ia ke kai he pongipongi he taimi pe ‘oku ke ‘a hake ai... “oku ke fa’a kai pongipongi ‘i ho’o tuku mai mei he ngaue he pongipongi. ‘Ikai... If you wake up at 2pm then that should be your breakfast time.” (HW5)

“...I found it funny when I have to explain to the people to think of breakfast as their first meal when you wake up regardless the time of the day. Do you normally eat when you come back from work in the morning?...No.... If you wake up at 2pm than that's should be your breakfast time.” (HW5)

The irregular pattern of eating within Tongan families contributed to food security issue, where people tend to eat the same kind of food at all meals. Long hours of employment provided the income to the Tongan families which are the central core of living in the “land of honey” yet at the same time it also contributed to their health issue.

The last technique Tongans used to contribute to less income is that more families were accessing various other sources of food supplied, such as those by the food bank, other family members and gambling in the hopes of obtaining more money for food.

Sub-theme 4: Help seeking – alternative activities...

As a consequence of not having enough money to buy food for the family, some Tongan families are seeking help in a variety of ways to satisfy their needs. These were through social and family functions, including using food banks, increasing “hopeful” gambling, increasing the use of food vouchers from WINZ or food charities, and getting support from other extended family members.

Several of the participants described and expressed their stories of how the behaviour of Tongan families has changed when there is not enough money. People no longer feel embarrassed to ask for food from organisations Tongans previously never used to approach organisations, such as the Salvation Army. Most health workers had observed Tongans accessing food banks more frequently:

“...’oku ou fakatokanga’i ‘ae fa’a kole mai ‘ae kakai pe teu lava ke ma’uange hanau food parcel ‘o hange koe Salvation Army. Koe parcel request is increase. ‘Oku hā mahino mai heni ‘oku ai e palopalema, he koe fa’ahinga kakai kitautolu ‘oku tau maa he kole ha me’a mei ha kakai kehe. Kuo mole e fo’i’ulungaanga ia ko ‘eni he taimi ‘oku tau desperate ai. So there is an issue out there but no one take a really good look at it” (HW 6).

“...I’ve noticed that people are oftenly asked for food parcel like the Salvation Army. The requesting for parcel is increasing now. That really shows that there is a problem, because we are Tongan that we are shameful to ask food from stranger. That part of our culture has diminished because we are so desperate. So there is an issue out there but no one take a really look at it” (HW 6).

Despite the fact that, according to TM2, some Tongans in the community were wasting money on gambling causing some family issues, other participants (HW5, HW6) explained that some Tongans had only \$20 left over for food, after paying all household bills. So they took up gambling hoping to gain more money to buy enough food for the family weekly shopping.

“Koe me’a ia oku ou fanongo ai he community ha taha ne pehe, ‘Oku ‘ikai ‘uhinga ia ‘oku lahi e pa’anga ke vainga’aki.... “Na’a ku lele atu kihe misini ‘o fakatupu mai kii seniti o lava ai pe kavenga na’e fiema’u kiai. Pea’au ai pe kihe \$5 pe \$20, koeuhi pe koe fusimo’omo. Pea koe ‘amanki (hope) ‘e ma’u mai ai ha me’a ke fafanga’aki e family. Pea ‘au atu kuo mole ‘o toe ha \$10 pea koe ha pe me’a ma’ama’a taha e ala fakatau mai’aki ke fafanga ‘aki e family koloa pe makona” (HW6).

“That’s what I’ve heard from the people in the community..it doesn’t mean that I’ve got lots of money for gambling.. I went to the machine (gambling) and won more money for an obligation that I needed money for. An even up to \$20 or \$5 that I still take with me to play, because of the short of supply for the family. I was hoping to earn more to get something to feed my family. Sometimes I lost and only left with \$10 and whatever is cheaper enough for \$10 to buy food for my family, as long as they have enough”(HW6).

In addition, three Tongan mothers explained how they had to share their food shopping with others, i.e. with cousins or people from the same church denomination. This was due to people not having enough money to feed their own families. At the same time, this is evidence of increasing levels of poverty in this community.

Summary of income

Some of the participants shared that their family income was insufficient, while others believed that they had enough income, but that there was not much money left after spending on bills and other commitments. Therefore, budget advisors or any support subsystems specifically for Tongans would help solve these problems. One way Tongans tried to solve the problem of not having enough income was to work more than forty hours per week. Tongans in South Auckland appear to be increasingly using other means to solve the issue of food security, such as applying for food parcels or seeking help from family members and friends.

Theme 3: Acculturation

Acculturation is how behaviour changes in a new or different cultural context. Acculturation has emerged from the study findings as one of the determinants that were associated with food insecurity in the Tongan population in New Zealand. Food security has been defined - particularly in the multicultural context of New Zealand- as getting culturally appropriate food for every need. As a result of the insufficient income available to most Tongan families, the 'acculturation theme' summarises the effect of migration on dietary acculturation, cultural food preparation customs, cultural beliefs, attitudes and values, food preparation, and the impact of using Tongan language in relation to food security. Figure 6 shows an overview of the various issues associated with food security:



Figure 6: Schema of issues associated with acculturation and food security.

Sub-theme 1: Dietary acculturation

When Tongans migrated to New Zealand they were exposed to different foods and ways of food preparation and the food habits of the dominant New Zealand society were adopted. However, that does not mean that all Tongans liked the new ways and forgot about the traditional Tongan foods. Migrant Tongan families can be broadly categorised into two main groups; low- and high-dietary acculturated families. Both the health workers and mothers discussed how low-acculturated Tongan parents frequently consumed traditional Tongan foods such as taro, yams, kumara as the main *me'akai*

together with the *kiki* of pork, corned beef and seafood. The more highly acculturated group, especially those with New Zealand born children, were thought to have a greater tendency to eat bread with whatever *kiki* was available in the household and also a greater tendency to consume processed foods high in sugar and fats.

Most participants considered that low-acculturated Tongans still continue with their traditional pattern of eating in spite of numerous barriers. For instance, in Tonga, foods for weekdays are anything that can be afforded to feed the family while the best foods are saved and prepared for Sunday lunch. The favourite food for Sunday lunch is usually *lu sipi* (taro leaves with mutton cooked in coconut cream) cooked in an *umu* (earthoven) with any available *me'akai*. The participants, who were all Tongan immigrants, expressed how difficult it was to disengage from the traditional food appetites, based on their own lived experiences. HW3 explained this well in relation to her role as a health worker.

“One thing I’ve noticed, ko hotau ‘ua kai kihe me’a na’a tau tupu hake mo ia ‘i Tonga, ‘oku fu’u faingata’a hono liliu... neongo ‘ete ngaue he health ka ‘oku ai pe fo’i taimi ia ‘oku ‘ikai lava ke tuku ‘ae fiema’u, hange koe u’a kihe lūsipi. He’ikai tetau nonga kitautolu he ho’ata Sapate kae ‘oleva ketau kai ha fu’u lusipi.”(HW3)

“One thing I’ve noticed is how we crave for food that we were brought up with in Tonga and it is very hard to change ...Even though I work in health but there are times that I can’t stop craving for lūsipi. We won’t be satisfied on Sunday lunch unless we eat lūsipi.”(HW3)

Three Tongan mothers who had recently migrated to New Zealand also discussed that a major barrier in making new changes within the family diet was the appetite and food preferences of their husband and children. The family eating patterns were strongly affiliated with the lifestyle back in Tonga. For example:

“‘Oku mau fa’a ma’u mā lelei wheatbread mo ta’etotongi mei he fefine he siasi ‘oku ngāue he falemā. Pea ‘oku ou feinga ke liliu ‘ae fānau kenau kai e fa’ahinga mā mo’ui lelei ko’eni, ka ‘oku faingata’a because they are getting used to eat white bread in Tonga. (TM6)

“We often receive wheatbread for free from a lady at church who works at the bakery. I’ve tried to change my children to eat this type of healthy bread,,but they are so used to eating white bread in Tonga.”(TM 6)

“Ko hoku husband ‘oku ‘ita ia he fa’a kuki me’akai ‘aki e veggies, pe koe kuki ha me’a ‘oku ‘ikai ‘asi ai ha me’i ngako hange koe puaka, sipi.” (TM1)

“My husband is angry when I cook our food with vegetables, or cook food without a little bit of fat like pork and mutton.” (TM1)

“...taimi ‘oku ou fa’a ngaahi salati vesitapolo ‘aki e letisi, kiukamapa, temata ka ‘oku talamai ‘e hoku hoa ke tuku hono fa’a ai e me’akai ‘ae kosi.” (TM3)

“...I often make vegetable salad with lettuce, cucumber and tomatoes but my husband tells me to stop making goat’s food.” (TM3)

It was also discussed in depth by the some participants that Tongans in the South Auckland area have easier access to lots of Pacific Island imported foods from either the Pacific or the Asian countries than those in other areas in New Zealand. So Tongans in this area have easy access to culturally appropriate food. At the same time, the participants recognised the negative impacts of migration associated with accessing too many Pacific Island foods in New Zealand in terms on food preparation (which will be discussed in the next section) and the costing of food.

“Kapau tete fakatau ha tangai ‘ufi ‘oku \$100, fakafehoanaki ia mo ha tangai patepa \$7. ‘Oku mahino mai ‘ai ‘ae mamafa ‘etau me’akai Tonga ‘oku ma’u he fonua ni.” (HW1)

“If I buy one sack of yam which is \$100, and compare that with one sack of \$7potatoe. It is so obvious that our Tongan foods are expensive in this country”. (HW1)

On the other hand, most Tongan mothers described the friction between low- and high acculturation in relation to their New Zealand born children’s dietary patterns, which parents having to buy separate food such as bread, noodles, eggs, spaghetti, chicken and other processed food for the latter. Most mothers picked up their children’s lunches from the local dairies and bakeries which are much cheaper than the school tuck shops. TM 3 shared that her children’s lunch menu consisted of sandwiches, fruit and drink, yoghurts, biscuits and snacks. But she also said that her children usually ate bread, noodles and other snacks for afternoon tea when they got back home from school or before dinner.

Sub-theme 2: Cultural food preparation

The *talanoa* provided information about what was considered to be Tongan traditional food preparation which was originally based on foods gathered from the land and the sea. As previously explained, Tongan traditional meals usually consist of *me’akai*, literally meaning *food* (i.e root crops such as ‘ufi (yams), *talo* (taro), *manioke* (cassava),

but it can also refer to *siaine* (bananas) or *mei* (breadfruit)). *Me'akai* is always cooked and consumed together with a *kiki* (meat, including poultry and sea food). Green leaves and other vegetables are also included in cooking the *kiki*. In the home country of Tonga, the preparation of family meals involved in lots of labour-intensive work commencing from food production till food consumption. Normally, men participate in the growing of food on the plantation or in gathering seafood by fishing while they are also partly involved in the cooking process when doing *'umu* (earth-oven cooking) or *haka* (using boilers), whereas women's duties involve cooking the food produced by the men: either root crops, meat or sea food. Children are also trained early on to help the parents at every stage of food production and cooking; boys assist the father with the planting and harvesting of root crops in the plantation or go fishing while girls help their mothers with cooking and household cleaning. As the participants below explained:

"Koe'uhi na'e 'ave 'eku toko tolu tangata ki Tonga 'o raised hake ai talu hono fā'ele'i, pea 'oku nau anga pe kinautolu he fa'ahinga kai fakatonga. Kuopau keu fai e haka moe kiki, hange koe haka manioke, siaine, kumala pea moha kiki hange koe supo sipi, pea 'oku mau kai fakataha kinautolu ai." (TM1)

"Because my three older boys were raised in Tonga since birth, and they got used to the Tongan pattern of eating. I have to cook haka (boiled rootcrops) and meat. For example, boiled cassava, banana, kumara and a kiki like mutton soup." (TM1).

"Oku kei 'omi pe 'ehe Tonga ia 'ae fo'i founa ngaahi me'akai na'a tau tupu hake mo ia 'i Tonga 'o kei apply he fonua ni. Koe koloa ke 'ai ha fu'u haka pea mo ha kiki pe 'e taha ke kai ai e famili tokolahi he 'aho ko ia." (HW7).

"Tongans are still bringing their way of cooking that they were brought up with in Tonga and still apply in this country. As long as there is a haka and kiki of one kind to feed the big family for that day." (HW7)

"I Tonga na'e femou'ekina pe kakai tangata he 'alu ki 'uta to ma'ala moe fafanga e fanga monumanu kae nofo pe 'a fefine ki falehange ki he lalanga pea mo hono cook e me'akai kuo 'omi mei 'uta." (HW3)

"Back in Tonga, men were busied going to the plantation and also taking care of animals, while women were weaving and cooking family meals. These foods were brought from the plantation." (HW3)

Food preparation in the Tongan culture is actually a shared responsibility between males and females within the family and extended out to the community. For community catering occasions such as weddings, funerals and birthdays all individuals in the community know the context of how they should contribute to the preparation of food for such events. Tongan food preparation practices demonstrate the collective way

of doing things rather than individualism. Tongans value food not just to nourish the body but sharing food is linked with *nofo* 'a *kainga* (kinship) and the *fonua* (land). HW5 expressed it like this:

"We are not individualistic, ko'etau ngaahi me'a kotoa pe 'oku fai ia as a collective way of life, as a family together pea 'oku mahu'inga foki ia in terms of our culture and the support we get from our family."

"We are not individualistic, all things we do as in a collective way of life, as a family together. That is very important in terms of our culture and the support we get from our family."

In New Zealand

People's lifestyle patterns have changed first of all from the hard labour involved in growing and preparing the food to be put on the table, to an easy luxurious method of cooking in New Zealand. At the same time, traditional ingredients for cooking are rich in fat and carbohydrates. For example, coconut cream is available in a processed tin can rather than fresh coconut cream scraped out of the coconut. For that same reason, people tend to add high-fat rather than light coconut cream when cooking *lu sipi* for Sunday lunch. All food ingredients are easy accessible and also rich in fat compared to those in the home country of Tonga.

"... 'oku kau heni he liliu lahi he liliu 'ae me'akai 'oku ma'u he fonua ni (NZ)... 'oku 'ikai toe fai ha oo ki 'uta 'o 'omai e me'akai, koe 'alu pehe atu pe kihe falekoloa 'o fakatau mai." (HW2).

"..... the change in food is a big change for us in this country (NZ)... we are no longer go to the bush allotment to get food but just buy it from the shop." (HW2)

"... for example, 'oku mai feinga ke liliu hono ngaahi e fanga ki'i lu sipi mei hono ngāue'aki e puha niu kara which is very rich in coconut fat 'ae puha niu 'oku sai'ia e tokolahi hotau kakai kae tuku e kapa niu 'oku very dilute" (HW6)

"...for example, we are trying to change the recipe for lū sipi, from using Kara coconut cream which is rich in cream where most of our people used into more diluted coconut cream. (HW6).

As stated at the beginning of this Chapter (see Table 4:2), five Tongan mothers prepared the food for the household while in the two other families Tongan fathers had taken over the mother's responsibilities in this respect. The older children also helped out with the cooking if parents were busy at work, study or other obligations. Therefore, there was a shift in food preparation pattern when migrating to New Zealand, as the new

environment required a shift to a mixed cooking responsibility according to whichever family member was available to cook for the family.

Moreover, HW6 worked with elderly Tongans in her professional capacity and she said that they seemed to eat the same kind of food for all meals and that it was affecting their health.

“ Ko e kakai Tonga kau vaivai foki seemed to eat the same kind of food for breakfast, lunch and dinner hange koe kai haka moe kiki he houa ‘e tolu lalahi e ‘aho– it’s affecting their health, pea ‘oku faingata ‘a kenau tali hono introduce atu ha me ‘akai fooou”.(HW6)

“The elderly Tongans seemed to like eating the same kind of food for breakfast, lunch and dinner such as eating haka and kiki at the three main meals of the day- it’s affecting their health, and it is difficult for them to accept the new changes” (HW6).

Sub-theme 3: Cultural beliefs, attitude and values

Tongan cultural beliefs and values are very much connected with food, the environment and the land. According to most of the participants, the feelings of belonging to family, church, community and the whole nation defines your values and identity. Where you belonged explained your social context and living standard and determined how you interacted with the people at different levels of social status. TM4 was happy to share her feelings:

“...with food, that’s where we linked kihe fonua moe kekekele na’a tau tupu ai. ‘Oku ne fakamatala’i ko hai kita mo hoto mahu’inga ‘Oku ou tala atu kapau teu nofo tokotaha ha feitu’u I am gonna be very lonely and lived mo’ui depress pea ‘e lead up ia kihe health problems”

“...with food, that’s where we linked to the land and soil where we grew up. That bonding explains your values and identity. I’m telling you that if I stay alone in a place, I’m going to be very lonely and living in a depressed life which leads on to health problems.”

The notion of *tauhi va* (maintaining relationships) was critically discussed by the participants to explain why Tongan families were involved heavily in church and family obligations. Tongan values including love, respect and spiritual values are often demonstrated through the sharing of food, money and other material goods. The amount of food or money donated to the church and to a lesser extent family functions signified the degree of commitment and values of biblical faith. This is because Christianity has been integrated into generations of the everyday lives of all Tongans and other Pacific peoples.

The participants shared how they considered their strong sense of spiritual values and beliefs to be a crucial factor that enabled them to participate in church and families obligations. Participants expressed it as follows:

“...ka fai ha lukuluku ‘ae siasi ‘oku ‘ikai pe tete’ilo pe koe fe famili ko ia ‘oku struggling because ko honau lelei taha pe ‘oku ngaahi ‘aki e fu’u me ‘akai faka’ofo’ofa mo mamafa kuo ‘omi hange koe ngaahi lū pulu masima ia ki he lukuluku, ka ‘oku ‘ikai lava ke ngaahi ha lū pehe ‘i ‘api he ‘oku mamafa pulu masima ia.” (HW3)

“... if there is food contributions taken to church, you can’t tell which family that are struggling because they are bringing the best and most expensive food. For example, they are cooking lū povimasia for church but can’t make those at home because povimasiva is quite expensive.”(HW3)

“ka ai ha uike ‘oku hoko mai ai ha kavenga fakasiasi pe famili pea he ‘ikai fu’u kakato fefe ai e shopping ‘ae famili pe koe me ‘akai ‘ae fanau he oku vahevahe pa’anga ke ‘ai ‘aki e lukuluku ‘ae siasi he kuopau ke fakakakato e fatongia ko ia”. (TM1)

“If there is church or family contribution in a particular week, then our shopping for food for the family and children cannot be accomplished well, because the money are sharing towards that obligation, which should be done”(TM1)

TM4 expressed her beliefs in contribution to church donations by comparing how she felt about attending a *palangi* (European) compared to a Tongan church.

“...ko hono faikehekehe ‘oku ‘iai pe fa’ahinga ongo kehe ia ‘i he’eku foki kihe siasi Tonga mei he siasi palangi, ‘a ‘eku ongo’i māfana, sense of belonging, and that’s where our roots are..”. (TM4)

“...the difference is, that I have a special feeling when I’m attending the Tongan church compared to the palangi church. I feel the spirit, the sense of belonging, and that’s where our roots are..” (TM4)

Along with their spiritual beliefs, five other participants (TM3, TM5, HW6, HW7, TM6) shared their concept of *tauhi-va*.

“ko ‘ete mā pe he tauhi e vā moe kakai ‘oku ‘uhinga ai ‘ete fa’a contribute kihe ngaahi me’a ‘ae siasi pe koe extended family” (TM5).

“The reason why I contributed to church and family obligations because I felt ashamed to keep the relationship with people” (TM5)

“Kiate au koe anga e sio kihe mo’ui it is our responsibility if we are part of it or not, pea ‘oku te feel proud to be part of it..koia koe fatongia pe ‘oku ‘ilo kiai e tokotaha kotoa ke fai, ka kiate au ke ‘ilo pe ‘ehe tokotaha kotoa how to vahevahe and provide for you family in the future”. (TM2)

“To me as I look at life, it is our responsibility if we are part of it or not, but you feel proud to be part of it. Everyone knows to their duty,

but to me everyone should know how to share and provide for your family in the future.” (TM2)

All health workers provided life stories comparing how they grew up in Tonga to their new lifestyles adopted in New Zealand. They remembered how their parents used to invest for “a rainy day” by specifically growing root crops in the plantation and keeping pigs and other livestock so that there were always food provisions available for everyday and for any *kavenga* (obligations). In doing so, Tongan families were not so stressed out when it came to those special occasions such as birthdays and weddings because they had invested and planned for it. In comparison with life in New Zealand, back home in Tonga people have easy access to food and all other necessities in life. For example:

“Kapau tetau fakahoa atu ‘etau mo’ui heni moe mo’ui he island, na’e ‘iai pe mea’ ia na’e teu ki he fakafe and the everyday food...hange koe puaka na’e ‘osi ai pe puaka ia na’e fafanga tuku ki he fakafe he ta’u, na’e ‘iai pe ma’ala pea tuku ai pe ngaahi fu’u ‘ufi ki he fakaafe. But in here, ‘oku ‘ikai pe ‘iai ha fo’i pa’anga ia e fakamavahe’i ki he fua kavenga he ‘oku fetongi ‘ehe pa’anga ‘ae puaka moe ‘ufi” (HW).

“If we compared our life over here and back in the island, there were always things prepared for church and everyday food. For instance, a pig was set aside and well-fed for the church feast of the year, and special yams in the plantation were well looked after for the same reason. But here, we don’t save money specifically for these obligations, because money has replaced pigs and yams” (HW4).

On the other hand, *fua kavenga* (obligations) could be a constraint to many Tongans if they were committed to too many *fatongia* as it was limited by their available resources in terms of money and time to commit to their families. This was seen as a negative impact of *tauhi va*, by indirectly contributing to a situation where Tongan families in New Zealand cannot be provided with enough nutritious food.

“‘Oku hoko ‘etau fua kevanga he fonua koe palopalema ki he ‘etau nofo ‘ae famili he koe kakai ‘oku nau ‘ai ke toe lahi ange kavenga pea koe uike kotoa pe ‘oku ‘i ai pe kavenga ia ke fua ki he siasi pe koe me’a fakafamili ‘o lahiange ia he pa’anga fakauike” (HW3)

“Fulfilling our obligation in this country is a problem to our family’s life, because people just exaggerate our donations to give more than we should. Every week, there is always kavenga whether in church or extended family, and it exceeds our weekly income.” (HW3)

“Na’a tau fua pe kavenga ‘i Tonga ‘o fakatatau ki he me’a na’a tau ma’u, ka ‘i heni kuo toe lahi ange me’a fakapa’anga pea moe taimi ke fakakakato kihe me’a ‘ae family, siasi moe ngaahi me’a kehe” (HW2)

“We gave in donations to the kavenga back in Tonga but according to what we had, but over here there are lots of obligations to family, church and other things.”(HW2)

Sub-theme 4: Language

Latu (2009) stated that “uses of language in a culture are important to understanding the society”. Other researchers suggest that language explains the differences in the extent of acculturation for new immigrants. For the first generation from Tonga, the Tongan language was the dominant spoken language, yet there was a need to acquire the English language to be able to take part in everyday conversation.

Although language was not directly asked about as part of the semi-structured interviews, most participants discussed how they had ‘juggled’ both languages in order to effectively communicate with their children.

One interesting point that was raised by HW4 was about how the Tongan language could be used to mean something totally different from the literal translation and that there could be misinterpretation of the intended meaning. The following statement may serve as an example:

“Kapau ‘e ‘eke atu ki ha Tonga, “Na’a ke kai?” Pea tali mai “ikai na’a ku kai pe au fo’i ‘apele”. So ‘oku ‘ikai ke mahino ia ki ai koe fo’i ‘apele is food. Lots of people refer food to something na’e prepare hange kapau na’e fai ha haka... most of our people don’t think that fruits and veggies are food. Pea koe me’a ‘e taha kapau ‘oku ‘ikai ha kai lelei he taimi ‘oku hamu ai e haka.” (HW4)

“If you asked a Tongan, “Have you eaten?” he might replied: “No I’ve just eaten an apple”. There is no understanding that apples are food. Lots of people define food as something that was prepared like steamed food.. Most of our people don’t think that fruits and vegies are foods.... Another point is that eating haka without meat is not good food.” (HW4)

HW4 also pointed out how people may be misled by the information delivered by some of the health workers. For example, when they translate nutritional information through Tongan radio programmes, the use of scientific jargon means the message is not able to be understood or applied to “their lived experience”. Health promotors need to deliver the message in a proper and easy way so people can understand the information provided.

“I am sad to hear those polokalama letio ‘oku fa’a fakmatala’i ai ‘ehe kau Tongan Nutritionist or healthworker ‘a hono translate e NZ nutritional guideline ‘o ‘ikai tonu..... na’a ku fai polokalama he pō ‘e

taha, I explained about fibre content of the food 'oku fakamākona ange ia hange ko 'eni kapau tetau kai ha haka laise fakafehoanaki ia mo ha haka talo”(HW4)

“I’m sad to hear those radio programmes where Tongan nutritionists and health workers have translated NZ nutritional guidelines using inappropriate Tongan language.... I was on radio programme one night and I explained about fibre in food which was more fulfilling than other food content. For example, comparing rice to boiled taro.” (HW4).

Three Tongan mothers admitted that they had no idea how to read the labels of food products, because not only were these in English but the actual instructions were not comprehensible. For example”

“ ‘Oku ‘ikai teu fu’u ‘ilo hono lau e ngaahi tohi fkinohino me’akai koe’uhi ‘oku fakpālangi” (TM2)

“I don’t really know how to read labels of food products because they are in English.” (TM2)

‘Ikai teu fu’u poto au hono ‘ilo e lau e fakahinohino leipolo e me’akai’ (TM1)

“Don’t really know how to read the instructions on food labels.” (TM1)

Summary of Acculturation

The changes in trying to adjust to a new country like New Zealand were explored by the researcher in her *talanoa* sessions with Tongan mothers and health workers. The adjustment to the new environment and culture in New Zealand was influenced by food availability and access, differences in methods of food preparation and cooking, and differences in beliefs, attitudes and values. The ability to communicate effectively including lack of English skills and ways of expressing ideas were reported by the participants as the main ‘culture-related’ factors associated with food security for Tongans in New Zealand.

4.4 Summary

To summarise, most participants shared their lived experiences of food security by describing the interrelationships between knowledge, income, and acculturation. From the record of the conversations these three main themes were determined by the researcher to be at the forefront of what was encountered through the daily lives of Tongan women and health workers in South Auckland. For Tongan mothers and health workers food security was interwoven with the Tongan traditional custom of ‘sharing’ (*mo’ui fevahevahe’aki*) and its underlying protocols as the main determinants of food security. The Tongan concepts and traditional ways of understanding the importance of sharing was discovered to be the key theme of food security for Tongans in South Auckland. How this shaped and informed this body of work will be clarified and expanded on in the next chapter.

The following chapter will discuss the ‘concept of sharing’ from a Tongan perception as the main underpinning of perceptions of food security for Tongans in New Zealand. The participants’ beliefs and values of the concept of sharing will be explored in relation to the three sub-themes from this chapter.

CHAPTER FIVE: FRAMEWORK FOR INTERPRETATION IN A TONGAN CONTEXT

5.1 Introduction

The evidence presented in Chapter Four and the three emerging themes were all linked to an underpinning cultural concept that informed the researcher's subjective interpretations. This chapter has been included to describe the path the researcher followed and the development of a model or analogy to describe Tongan ways of being in relation to the notion of sharing and food security. The first section of this chapter will introduce the Tongan tradition, embedded in everyday culture and actions that may be expressed as the concept of sharing or *vaevae manava*. How sharing and *vaevae manave* are associated with food security will be explained. Much of the information which increased the researcher's understanding about *vaevae manava* was gained in discussion of my findings with other Tongan and Pacific students and teaching colleagues. The second part of this chapter focuses on the stories shared by the participants to support this notion of sharing or *vaevae manava*.

5.2 Tongan cultural framework

An appropriate Tongan cultural framework was applied by the researcher to inform the design and execution of this research. The preparation and ongoing development for this research included conversations with family, friends and church, while also being part of the conversations with participants. Tongan socio-cultural values, beliefs and practices were considered and applied as part of the logical structure of the design of the research. Finau and Finau (2007) emphasised that "...indigenous Pacific cultures must be viewed in New Zealand in the context of their cultural histories and Pacificans be given the rights and opportunities to study, learn and practice elements of their culture..." (p.86). It was therefore essential to incorporate Tongan beliefs and ways of looking at the world at all levels of the research process. The researcher decided to visualise her experience and understanding of the research journey that she was to undertake with a proverb that epitomised Tongan ways of life.

The proverb '*vaevae manava*' was used to articulate and examine Tongan theoretical perspectives that are associated with food security for Tongans in New Zealand. *Vaevae*

manava therefore can be used to describe the theoretical framework (design), and way the data was analysed and interpreted using pictures, as below.

Concept of *vaevae manava*

Vaevae or *vahevahe* means sharing. *Manava* refers to food rations in the sea. The concept of *vaevae manava* derives from the Tongan proverb “*Pikipiki hama kae vaevae manava*” translated literally as “*link the outriggers of our canoes so that we can share our provisions with one another*”. *Pikipiki* means “to join or or link together” whereas *hama* refers to the outrigger of the canoe. So, *Pikipiki hama kae vaevae manava* is the act of bringing together, joining or linking the *hama* of the canoes in order to enable the sharing or distribution of the *manava* (food). The *hama* plays a vital role in the process of *vaevae manava* by creating a balance in the canoes which gives the kind of united stability that are needed for the *vaevae manava* to be carried out successfully, especially if the canoes are in open seas or if the sea is rough.

Tongan language and world view

The analogy drawn used both the Tongan language and a well recognised proverb *vaevae manava*, a word of the sea, which originated from how Tongan navigators as the early settlers of Tonga used ‘*popao*’, the outrigger canoes for fishing and harvesting of shellfish. The basic structure of a *popao* (shown in Appendix 3) has a *katea* or the hull as the main body. This is where fishermen can sit and store their fishing gear and the catch. Connected to the *katea* are the smaller *hama* or the ‘outriggers’ which play a major role in balancing the entire canoe structure.

When Tongan navigators, at sea for a number of days, catch fish, they normally come together in the open sea and share these as their main food supplemented with coconut. To share the catch, the outrigger of one canoe (with two to four fishermen in each canoe) is connected with the outrigger of another canoe in pairs, and pairs of canoes either form a circle or a line as shown in figure 5.1. When the hulls are lying closely together they can share their food. *Vaevae* or *vahevahe* literally means ‘sharing’ where *manava* literally means ‘food in the sea’. Three Tongan words: *fevahevahe’aki*, *fetokoni’aki* and *femolimoli’i* were used by Churchwood (1959) in his Tongan dictionary to define the meaning of sharing. The number of words used to describe the sharing concept is an indication of the importance of sharing as part of everyday life

compared the given that there are no words in the Tongan language to describe food security.

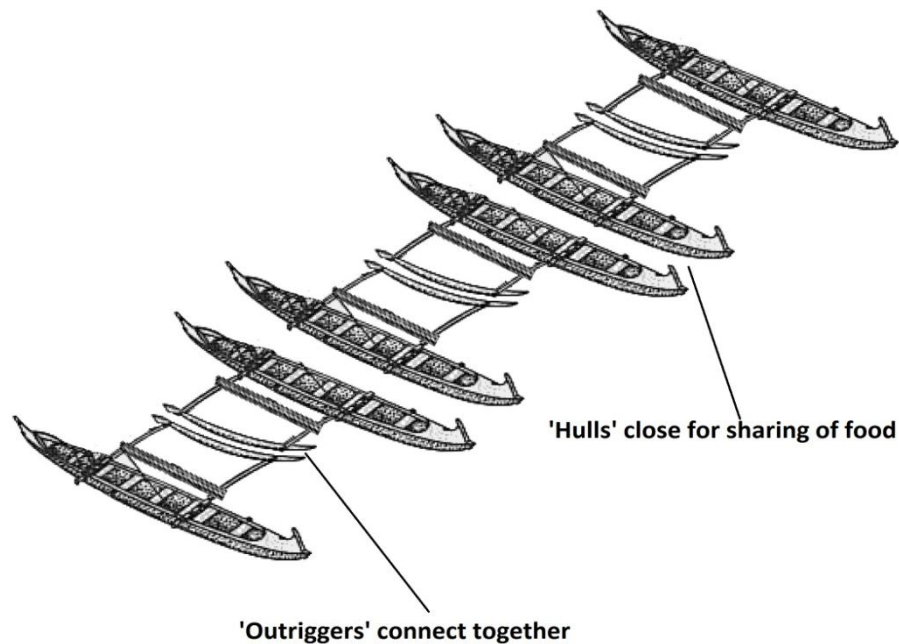


Figure 7: Structure of the outrigger canoe sharing food in the sea

Manava as Food

In terms of sharing foods among the fisherman in the sea, the structure of the canoe symbolised the composition of a Tongan family. The *katea* of the canoe represents the father as the main food provider for the family, while *hama* is seen as the mother signifying the main connection of food for the family. The outrigger also symbolises 'balance', symbolizing that mothers maintain the balance or equilibrium in the family. For the canoe to stay balanced out in the sea in a rough day it is necessary for the fishermen (fathers) at the hulls to hold on to the outriggers to balance the canoes and to bring the food home.

In the home country of Tonga, the father provides food for the family, while the mother is responsible for the preparation and cooking of the food. The sharing responsibility of the process of producing food for the family signifies the concept of sharing of food among members of Tongan society. The sharing of food within the immediate neighbourhood and every Sunday luh with the whole village clearly defines the Tongan cultural practices and beliefs in a collective community. Morton Lee (1996) defined sharing of food as 'the strong ties of Tongan to sociability, emotion and the well being

and health” (p.86). Whereas, King et al (2010) defined the connection of food to Tongan culture in “the sense of physical, emotional and spiritual satisfaction associated with holistic well being” (p.15)

Manava as fonua

The word *manava* is also related to the environment as the placenta of the mother that nourishes foetal development for the first nine months of life. Placenta or the remains of the womb after the baby is born are returned to the *fonua* (physical land) through burial. The *pito* (umbilical cord) that connects baby to the *fonua* undergoes the same burial process. If the baby dies then the body will return to the *fonua* to be buried. Thus the *fonua* is a ‘*placenta*’ for foetus and a *fonua* for the land. Prescott (2009) defined that “*fonua* is not only the source of food and shelter, but also determines the identity and the sense of belonging for each Tongan individual” (p.95). The concept of *manava* as a *fonua* explains the interrelationship between food and the environment of an individual Tongan within the Tongan community.

When the baby is born, the mother will still take the responsibility to either breast or bottle-feed the baby. However if the baby does not have enough nutritious food then the baby is described in Tongan as *fasi manava*, which literally means suffering from food insecurity.

The underpinning concepts of sharing in a Tongan cultural context does not just involve talking about food or wealth in the hand of an individual Tongan but the connection between people in the whole community. Sharing concepts can be identified as a product of *tauhi va* (maintaining relationships), as the security of Tongan life in a kinship based community.

Tauhi va

Tauhi va is defined by Tu’itahi (2005) as ‘the maintenance of relationships’. *Tauhi va* is also defined as “nurturing and taking care of relationships between the self and others” (Taumoevalau, 2001, p.2). In 2009, *va* was explained by Mahina (1999) as the mutual respect in socio-political arrangements that nurture the relationships between people, places, and social environments. Ka’ili (2008) contributed to *va* as it provides context and symbolises various things in life. In the Tongan culture, the context or positioning of oneself in relation to surrounding is very important in order to convey such obligations of *tauhi va* in a proper cultural practices. The causes of all things with the

Tongan way of life such as sharing of resources are created by how you feel obliged to maintain or nurture your relationship with everyone in the community.

The next section will extract comments from the *talanoa* sessions with the participants about how they lived with their practice the concept of *vaevae manava* at daily basis.

5.3 Shared experiences of participants

In Chapter four, some participants shared how they still contributed to the church and extended families regardless of how much income and knowledge they had. It revealed that Tongan mothers shared their inadequate family income yet they still maintained considerable donations to church and extended family. TM1 explained that:

“Ka ai ha uike ‘oku ta mai ai ‘eku ongomatu’a mei Tonga koe fiema’u seniti pea kuopau ke ‘ave ia..koe mahu’inga ia ‘etau mo’ui ke ‘ofa ki hotau famili”

“If there is a week that my parents ring up from Tonga for some money, I must try to send it ... the important thing in our lives is to love our family”.

The notion of sharing demonstrated by this comment is based on the love of one’s parents and the non-negotiable obligation to put them first.

At the same time, health workers contributed how they did not normally practise what they advised their clients. HW3 expressed how knowledge does not always go in hand with the Tongan way of life:

“Neongo ‘oku lau e kakai ni’ihi pehē ‘oku mole pa’anga fua fatongia kihe siasi moe famili, ka ‘oku ‘ikai keu tui pehē, he koe mo’ui fetokoni’aki ia. Ko’ete vahevahe atu pa’anga, ka ‘oku toki ‘asi hono lelei he ‘aho ko’e ‘oku hoko ai ha’ate me’a hangē koe putu pe mali. ‘Oku ha’u e kakai ‘o tokoni mai hange pe koia na’ate fai kiate kinautolu” (HW5).

“Eventhough some people said that “it’s a waste of money contributing to church and families”, but I don’t believe that, because tha’st reciprocal way of life. You share your money, but the outcome will show on a day that you have something going on with your family such as a funeral or a wedding. People will come and help you out just like how you did to them.”(HW5).

This could also been seen as a form of reciprocity within the cultural context.

CHAPTER SIX: DISCUSSION

“‘Oku mau fakamālō atu ‘Otua ho’o ‘omi e me’atokoni moe me’ainu ma’a homau ki’i famili he ‘aho ni, ‘o lava ke fakakakato ai homau ngaahi fatongia ki he fāmili, kāinga, pea moe fonua. ‘Emeni” (Koe lotu fakafāmili efiafi ia ‘a’eku kui fefine ko Petiola Lenati)

“We thank you Lord for your provision of foods and drinks for our family today that enable us to accomplish our obligations to family, community and the country. Amen” (My late grandmother, Petiola Lenati’s family evening prayer)

6.1 Introduction

In this thesis food security was initially defined as “the ability of an *individual, household, communities, and the whole nation* to obtain appropriate nutritious food for life”. Unique insights into perceptions and concepts of food security as viewed by Tongan mothers and Tongan health workers living in the South Auckland area in 2010 are reported in this body of work. This chapter explores how the major emerging themes of knowledge, income and acculturation overlap rather than occur in isolation. This illustrates how all-encompassing the concept of *sharing* (*vaevae manava*) is within the Tongan way of seeing the world. In such a context, Tongan immigrants in the “foreign” milieu of New Zealand are still closely linked and unified by *nofo ‘a kainga* (kin-based relationships).

It was not until the final stages of the writing process that the exact focus for this thesis, its argument, strengths and limitations became clear. The interrelationships of the emerging themes discussed in Chapters four and five are expressed in three main areas:

- 1) Impacts of sharing on food security;
- 2) Other factors relating to food security; and
- 3) *Fakapotopoto he tauhi vā* (wisely maintaining harmony and well being of society)

The following main areas will be discussed in relation to the current literature and statistics;

- Perceptions of food security
- Improving food security

and have been addressed in the context of the information and insights provided. Strengths and limitations of the study have been identified and initiatives that may improve food security for Tongan people in New Zealand have been discussed.

The predominant overall finding for this study which are based on the participants' shared perceptions can be stated as follows:

Food security is a problem for Tongans but it is not seen as a priority because of the fundamental Tongan cultural concept of “sharing” (vaevae manava) and the paramount importance of maintaining relationships (tauhi vā) with family, friends, the community and the land.

6.2 The impact of sharing

Since this was an investigation carried out by a Tongan researcher in *talanoa* with Tongan respondents, it is essential to theorise the impact of sharing in relation to food security in the Tongan culture.

The participants from the study suggested that Tongans understood the meaning of food security in a much broader concept of wellbeing than the accepted global definition. According to WHO (2011), food security was defined as “when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life”. The global concept of food security focuses on the physical and economic accessing of and having enough nutritious food, whereas the Tongan view is not just about physical nutrients but it goes beyond the horizon where it based on the ability to complete your ‘reciprocal roles and responsibility in cultural traditions and customs’ (Kalavite, 2010; Prescott, 2009). In the same context, the participants expressed their ideas differently through examining the two words making up the concept of ‘food security’ using both English and Tongan translations. The significance and importance of using Tongan-specific terms and expressions and respecting the holistic worldview of Tongan society were highlighted as essential for cultural competency in mental health as described in the report of Enosi, Sauali’i-Sauni and Samu (2005). The participants shared with the researcher that to them, in English, the first sense of the word ‘secure’ appeared to underline the ‘safety of the food’ instead of the body. When the Tongan word ‘*fakalato*’ was used as a translation for ‘security’, some participants then interpreted this as meaning that food was satisfying the general needs of the body. This concept reflected

the long hours involved in food preparation and consumption until satisfaction. When information cannot easily be connected with the surrounding world, then issues are created by misinterpretation and therefore misunderstanding. Singhal (2010) explained that the process of acculturation “involves impact on the language, beliefs and behaviour of different cultures” (p.1).

The inconsistency in the perceptions and interpretations of the participants signifies the importance of considering both the physical context and the ways of understanding of people (Capstick, Norris, Sopoaga, & Tobata, 2009) when defining food security and health care needs. Rush (2009) agreed that it is difficult to determine the meaning of food security unless the context and the people are considered. For Tongans, “the concepts and values about food are closely linked to kin-based relationships, wider social relationships and notions of wellbeing” (King et al., 2010, p. 15).

In addition, having ‘enough’ food is not a new concept for Tongans, because they always prepare more than enough when it comes to any social-cultural or religious occasions such as weddings, birthdays and funerals or even when just hosting a visitor at the home. It is vital for Pacific people to prepare plenty of food for family and visitors (Rush, 2009). The notion of sharing applies in the traditional practices and values of preparing more than enough food for people who are eating and still have more left over to take home. This Tongan manner of hospitality serves as evidence of wealth and prosperity and for Tongans the emphasis is on food quantity rather than quality.

Throughout the process of the collection of data and review of the literature the overarching concept of sharing based on the exchanging of goods and time not money was evident. For instance, in the analogy described in Chapter four the fisherman shared his fish as a *kiki* and the farmer distributed his yam as a *me’akai* for the *kiki*. At the same time the notion of reciprocity was fulfilled, the fisherman and the farmer were feeling happy because they have appropriately completed their duties of *tauhi* vā. Prescott (2009) described the same concept refers to the Tongan world of business, as:

“Giving the first and usually the best of the produce to the sisters’ family is found in Fiji (Sahlins, 1970) and in Tonga (Morton, 1966). *Polopolo* in Tonga refers to the first and finest part of the harvest and is traditionally gifted in honour of the sisters of the father’s side of the family” (p.21).

This could be exemplified by the Tongan saying that '*you are what you do*' compared to '*you are what you eat*' from the Western point of view. How you keep true to your family, community and *fonua* relationships through your roles is what was stated by the Tongan participants as being "*in the eye of the Tongan*". Manu'atu (2000) explained that the major mindset needed to establish warm relationships was to share and learn from one another as a group. Translated to this context, it is that you are not eating for yourself only but eating for the community. Worsley (2002) suggested that beliefs and knowledge are what influences our experiences within our social group, and especially our role models: in Tongan society these role models are our parents and all other members of the extended family.

The notion of sharing, which extended out to the relationship with the physical environment, was also explained by the participants in the previous chapter. This was supported by the constant reference made by participants to their family, community and *fonua*. Some of the health workers used a kumara plantation project that they were involved with to illustrate the cultural need to have a plantation. In time of harvesting, the growers were happy to share following Tongan protocols. In New Zealand where there is an apparent shortage of land, unfavourable weather conditions as well as financial expenses this is difficult to implement, but some Tongans still attempted to do this. The collective ways of life of the Tongans need to be aligned with food production, preparation, distribution and consumption as in the Tongan context (King et al., 2010)

The participants also discussed their experiences with sharing in terms of donating money to church or sharing money with other members of the extended family, either in New Zealand or their home county of Tonga (Cowley et al., 2004). Participants were well aware of not having enough money to feed the immediate family, yet they were still sharing part of their family budget. Vete (1995), cited in Cowley et al., (2004) said that Tongan families sometimes sacrifice their household facilities because they have a task to complete with their obligations to family in the island. Tongan cultural values and beliefs are still strongly practised and valued in the new context of New Zealand.

Another impact of sharing was shared by the participants about the generational and cultural disagreements between Tongans who were New Zealand born and were high acculturated compared with low-acculturated elderly people born in Tonga. It is very important to understand the determinants of the patterns and the route of acculturation over time, as a recommendation tools for healthcare policy interventions targeting a

vulnerable and marginalised population (Schluter, Tautolo el, & Paterson, 2011). The younger New Zealand-born generations have been more exposed to individualistic and money-driven contexts compared to elderly Tongan immigrants whom are from collective and cultural-based context (King et al., 2010). This was illustrated by one of the Tongan mothers who implied that everything in this country was all about money.

Acculturation issues were perceived as negative by some participants, including both mothers and health workers. They saw the minority cultural group as dominated by the majority cultural group as also noted by others as stated in Chapter 4. However, for others it was a reciprocating process that was seen as strength i.e. if the minority group adapts to the cultural beliefs, behaviours and language of the majority group, the majority group is also affected by the original beliefs, behaviour and language of the minority group albeit to a lesser extent.

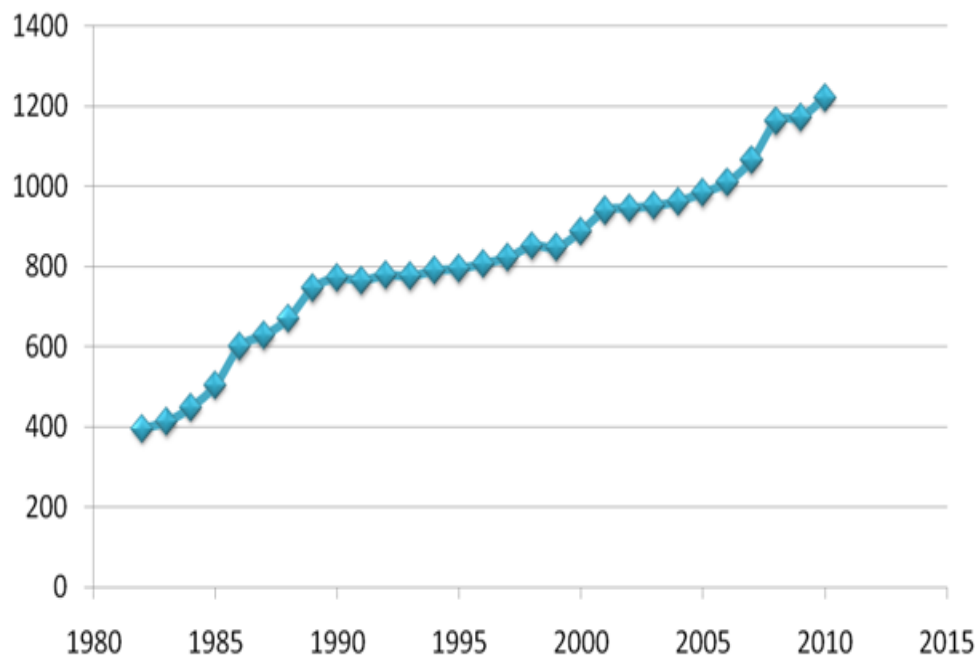
Despite the overwhelming importance of the socio-cultural meanings of food security, physical and socio-economic factors also contribute to food insecurity issues for Tongans in South Auckland.

6.3 Other factors related to food insecurity

Socio-economic factors (Food pricing – accessibility of healthy food)

Most participants in the study suggested that family income and the cost of food were the main socio-economic factors that determined the food purchasing behaviour of the Tongan families.

The information presented in this thesis reflects the rapid rise of food prices in the world and in New Zealand over the last decade. According to Statistics New Zealand (2011), the food price index increased by 1.4% within a month, which was followed up from a 0.5% escalation in May 2011, and this has contributed to the three-fold increase in the food price index since the early 1980s (Statistics New Zealand) (Figure 8).



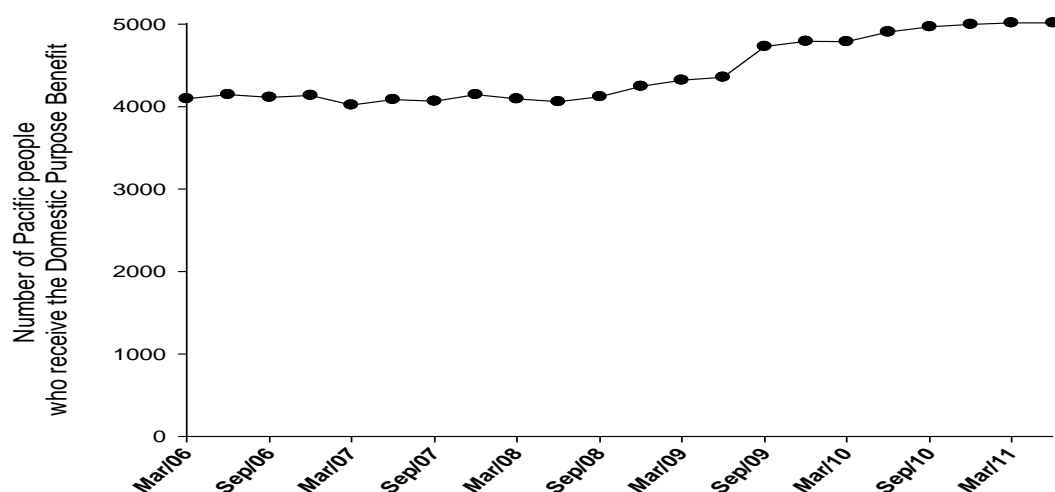
(Sourced from Statistics New Zealand, June 2011)

Figure 8: The New Zealand food price index.

Fruits and vegetables were found to be associated with the highest cost with a price increase of 1.6 percent in comparison with the other four food subgroups and this is partly because of the seasonal flooding disaster in Queensland, Australia. (Refer to Figure 2 Appendix). At the same time fuel prices are increasing faster now than in the last nine years (Statistics New Zealand, 2011). Considering the recent increases in prices of fuel and food, most Tongans and other Pacific communities with less income rate will not be able to afford the living standard of New Zealand.

The *Hidden Hunger* report (New Zealand Network Against Food Poverty, 1999) found that the actual food costs were much higher than most low-income households could afford after meeting their basic expenses, such as those for housing, power and transport. Child poverty is not even decreasing as 25% overall children are living in poverty (below 60% of the contemporary median household income after housing costs) and this affects close to 50% of Pacific children.

The Department of Social Development reviewed the number of Pacific people who were dependent on the Domestic Purposes Benefit, and found this to have dramatically increased to date (Department of Social Development, 2011) (Figure 6.2).



Sourced from Department of Social Development Infoshare, August 2011

Figure 9: Number of Pacific people receiving the domestic purposes benefit

The quality of affordable food available for Tongans is also a concern because participants suggested that the price of food was more important to them than the quality of the food. Tyrrell (2001) confirmed that “the type of food people buy influences the quality of their nutrient intake”. For example, a Tongan mother explained that she had to travel from Papatoetoe to Pukekohe to buy a box of lamb flaps because it was cheaper regardless of the distance. She declared that sometimes the lamp flaps got more fat parts than lean meat, but she bought it because it was cheaper. In 2009, Rush reported that “*when fat is removed from the meat then the more expensive option may be the best value for money*” (p.15). But how can this important message be made known to the Tongan mothers and other vulnerable groups in the community?

On the other hand, some participants proclaimed that another main driving force for food purchasing for Tongans was the preferred food taste, which is in line with the statement that ‘Tongans are attracted to fast food because it tastes good’. The link between energy dense food, sugar and fat, and obesity is well documented (Drewnowski & Specter, 2004b) and food taste is reported as the main the driver for consumption of specific foods ahead of health and variety in Americans. Some participants suggested that appetites sometimes overcome the price. For instance, no matter how much a food item costs, Tongans would still buy it as long as it tastes good.

The participating health workers reported various educational support programmes that are currently conducted in the community, which had been affirmed by the Tongan mothers as a factor for increasing their knowledge about food preparation and improving their cooking skills. However, most health workers pointed out that there was a need for more holistic educational support for Tongans. For instance, there could be an introductory educational class for new Tongan immigrants, conducted by a Tongan, on how to live a simple life in New Zealand. The recommendation is that this should be conducted by the Department of Immigration. Similarly, *Whanau ora* (Te Puni Kōkiri, 1992) types of holistic approaches to health were recommended by most participants. This refers to an intervention programme that is designed to meet the family needs. If an intervention to enhance food security were to be targeted at Tongans, then a holistic approach would be needed in order for it to be achievable.

Physical factors

Access to healthy food

Similarly to some of the PIF findings that explained by Paterson et al (1998) and research by King et al (2010) this study identified that Tongans in the South Auckland area were over-accessing unhealthy but affordable food. This study finding revealed that some families tend to buy more fast foods and takeaways than cooking at home, due to them working long hours and different shifts, and the large size of their families. Living in an obesogenic environment such as South Auckland enhances food insecurity. For example, George Street in the town centre of Old Papatoetoe, has more than ten fast food outlets and takeaways. The obesogenic environment of New Zealand showed that school students are exposed to high fast food outlets in the immediate surroundings of schools (Maher, Wilson, & Signal, 2005). The Tongan community is classified as one of the low socio-economic societies in New Zealand and yet they are compressed within an environment that encourages them to purchase cheaper and unhealthy food.

This study also revealed that Tongan perceptions in relation to healthy food are mainly associated with the eating of fruit and vegetables and traditional Tongan food. This revealed that there is also a lack of knowledge about the meanings of healthy food among Tongans. Motulalo (2011) reported that “Tonga produced more than enough for its people, but only starch-laden staples”. In the Western view, Tongan traditional meals

mainly consist of carbohydrates compared to other food content, i.e. the focus seems to be on calories rather than a variety of foods and nutrients. This is because Tongans have totally relied on food from plantations as the main source of *me'akai*, getting *kiki* from the animals kept by them or from the sea (King et al., 2010). The participants shared that even though Tongan foods in South Auckland are more expensive they were still buying those foods. Evidence has been provided in this thesis that the quality of food, portion sizes and cooking skills are also contributing to food security issues for Tongan. The socio-cultural, physical and economic determinants of food security have been explored by the participants, but how can both sides of this coin be combined into one. The next section will explain how.

6.4 Fakapotopoto he tauhi va (Wisely maintaining harmony and well being of society)

In general, participants in the study felt that knowledge and understanding were the most significant determinants of food security for Tongans in New Zealand. According to Browaeys (2004), knowledge is “the capacity to know, the way of understanding and of perceiving, and is a system to explain the connections between the thoughts and the outside world”. Thaman (1999) explained that knowledge (*'ilo*) can be defined in the Tongan context in both ways, either as a noun or a verb, thus referring both “to the process of knowing and to the knowledge itself”. Thaman (2000) also discussed that knowledge (*'ilo*) comes from learning (*ako*) and that its product is wisdom (*poto*).

The principle of *tauhi-va* (maintaining relationships) as discussed in Chapter Five is a ‘backbone’ determinant of food security issues for Tongans in New Zealand. Since Christianity was introduced to Tonga, the ideology of *tauhi-va* became important, as a person’s first responsibility was to God, then to other human beings and lastly to the physical environment. As stated at the beginning of Chapter one and confirmed in discussion with participants, the spirit of my grandfather’s dinner prayer demonstrates that Tongans hold tightly onto their strong Christian faith, which is manifested in many ways including the desire to bless the food before consumption, the preparation of traditional food for Sunday lunch as the best food of the week, and the need for contributions of food to church feasts and traditional occasions. The purpose of blessing of the food is to ask God to strengthen our bodies in order to accomplish our obligations to everyone in the community. This adds to the evidence presented by King et al (2010)

that food items are “considered sources of physical, emotional and spiritual satisfaction” (p.15).

Participants expressed in many ways throughout the *talanoa* how highly they value their cultural practices and also the opportunities available in New Zealand, the land of their dreams. Lanumata et al (2008) concluded in her report: “Pacific people in New Zealand are defined as transnational migrants because they still maintain connections with their nation and culture of origin, while simultaneously becoming connected with their destination country” (p.17). Church and village based communities share very strong practices of *tauhi-va*. The well-being and health of a Tongan person was described by Taufe’ulungaki (2005)

‘as not just referring to an individual but also to communities, the environment in which they live, and the relationships that binds them together means as ‘fonua’ in Tongan, ‘vanua’ in Fiji and ‘whenua’ in Maori” (p.3).

Mahina (1999) also suggests that the Tongan context is based on the connectedness between the land (*fonua*) and the people (*kakai*).

Since *tauhi va* is a key factor in food security for Tongans, this study revealed that Tongans need to *fakapotopoto* (wise way of doing things) in how to live a simple life in New Zealand. In another word to adjust the art of *tauhi va* according to the dual context they are exposed to in order to live successfully. Tu’itahi (2005) defined *fakapotopoto* as the “Tongan art and science of wise leadership and prudent management” (p.61). The study participants identified that one major cause of lack of money available for food for Tongan families was due to not knowing how to *fakapotopoto* in the new context of New Zealand.

The nature of sharing, *fakapotopoto* and *tauhi va* are all bound together by the concept of *vaevae manava* as described in Chapter five. For Tongans to fit into the new context of New Zealand, the *tauhi-va* needs to be practised in a *fakapotopoto* way so that principles and values are not changed but the way it is done adapts. . The notion of *vaevae manave* is based on a sharing process of what you have in your hands, no matter whether it is big or small - including food in this perspective. The present study supported the findings of Tu’itahi (2005) and other researchers in providing evidence of the successful stories of some Tongan families residing in New Zealand and using the concept of *fakapotopoto* to survive in a new environment.

When *vaevae manava* is considered a wise way to maintain harmony in society, how can the physical and socio-economic New Zealand context support these Tongan cultural practices and values in aiming to enhance food security? If Tongans practise their *tauhi va* in a wise manner, maybe the government of New Zealand can stand hand in hand with the people of the community in order to address this health issue. Maxwell and Smith (1992) defined food security as a complex observable fact. This researcher feels that the Tongan meanings of food security need to be added as extended values and beliefs to be considered in the worldview in order to be able to improve food security issues for Tongans.

6.5 Strengths and limitations of this research

Strengths

The major strength of this qualitative research was the ability to explore context-dependent meanings of the complex issue of food security. The meaning of the word ‘food security’ was translated according to the participants’ point of view from within a Tongan context.

The study also discovered different interpretations arising from the use of different lenses to examine the Tongan community issue of food security. Using the lens of the *talanoa* was a culturally appropriate method to extract details from the stories of the participants adding to the construct validity of the study. The Tongan mothers and health workers shared how they see the world through their own lens and experiences.

This study also revealed the differences in the level of knowledge and understanding between the health workers and the Tongan mothers. This reflects the reality of people who make up a community such as the Tongan community in New Zealand.

The opportunity given to the participants to use bilingual English and Tongan language during *talanoa* sessions allowed them to express the richness of their ideas and opinions, since qualitative data is based on words and shared meanings between interviewer and participants. This qualitative research process offered the participants an opportunity to *talanoa* about their experiences on food security in their own words and the process was conducted in cycles between data collection and data analysis until there was consensus agreement formed and no new themes emerged.

Furthermore the face-to-face encounters in a safe environment, rather than an anonymous survey, ensured participants felt comfortable about sharing their experiences in a culturally appropriate Pacific way.

Using double communication with the participants confirmed the validity of the data when participants were also involved in ranking the emerging themes for the findings instead of a biased decision contributed solely by the researcher.

Limitations

1. **Small sampling size:** The main limitation of the study lay in the nature of the small sample of people which consisted mainly of women (with only two male respondents being involved) participating in the study.
2. **Study based only in South Auckland:** This study was only drawn from one specific geographical area. This means that the findings are not generalisable for all Pacific peoples or the whole population of New Zealand. So, the contextual themes of the study may generate a better understanding applied to a similar community in other areas.
3. **Bias interpretation:** Furthermore it is the interpretation of one researcher although this limitation was reduced because of the repeated conversations with participants and also the community as the research journey progressed.
4. **Short time period of the study:** This study could be referred as a ‘snapshot’ taken in the time period of 2010 to 2011. It could highlight the strength of its kind; however the issue of food security might increase even further and perceptions change because of the world crisis with rising unemployment rates, increasing poverty rates and so forth.

6.6 Recommendations

The main points and recommendations can be summarised as follows, adding more answers to the question of ‘what can be done to improve food security for Tongans?’

- The English and Tongan translation of the term ‘food security’ needs to be amended according to the Tongan context, in order to enhance the understanding of this concept by Tongan people.
- There is a need to extend the availability of an appropriate budget advisor for the community in times of need. It seems a large number of Tongans are definitely in need of budgetary advice, however they need good support and encouragement to utilise this support system.
- An area for further study might involve looking at how to improve the taste of food for Tongans in New Zealand, without compromising nutritional value and keeping cost realistic
- A similar study could be carried out in any area in New Zealand to explore the similarities and differences of food security in terms of:
 - New Zealand Tongan immigrants as compared to Tongans residing in Tonga to compare levels of food security
 - Comparing the Tongan and Niuean communities in New Zealand as being the most at-risk of Pacific ethnic groups.
 - The contributions of urban and rural Tongans to food security
 - The perceptions of working mothers and unemployed mothers with regard to food security.
 - Comparing Tongan and *palangi* (European) families facing food insecurity in New Zealand.
 - Further research on all determinants of food security for Tongans is needed in order to expand the literature in this area.

The core strength of the concept of sharing in the Tongan culture needs to be incorporated into intervention programmes to address food security issues for Tongans. For instance, supporting the Tongan community with free fruit and vegetable seedlings so they can plant fruit and vegetables in their own backyard gardens.

For policymakers

The national and local policymakers of the New Zealand health system have a vital role to play in making decisions to improve the health and well-being of the Tongan and Pacific population in New Zealand. This thesis has identified the following implications from the Tongan mothers and health workers perceptions in order to improve food insecurity in New Zealand:

- There is a great need for Tongan health workers to educate Tongans in the community. They need to be able to speak both the Tongan and English language to cater for the diversity of New Zealand.
- Any specific intervention programme needs to be aligned with specific Pacific communities, as the concept of ‘one size fits’ all does not fit in with all Pacific cultural concepts. Pacific nations are not homogenous.
- There is a need to review the current community educational support programmes to make sure that they are culturally appropriate to Pacific ethnic contexts. Those successful programmes need to extend out to other ethnic groups in other areas in New Zealand.
- Expand the environmental policies in a way that will support sharing concepts in the community. For example, change the policy for land use and fishing such as increasing the number of fish allowed to be caught per person.

6.7 CONCLUSION

The context and perceptions of the Tongan mothers and health workers were explored in this research and were mainly based on the cultural knowledge and experiences gained in Tonga, the Tongans' ongoing Christian faith, and their acquired learning experiences gained from within the new context of New Zealand and specifically the South Auckland community.

Therefore, food security for Tongans in South Auckland has been identified by this study by means of an underpinning concept of *vaevae manava*. The sharing nature of Tongan cultures offers the main strength or the major driver of change for enhancing food security for Tongans in New Zealand.

This work is the first in New Zealand for Tongans and the first in the world to explore the context and perceptions of Tongans in relation to food security. The first major insights arising from this thesis were that knowledge, income and acculturation are the cutting edge determinants of food security. These determinants repeatedly emerged from the *talanoa* with participants. However there is an underlying concept that needs to be brought to the knowledge of the policy makers and other health disciplines for the purpose of achieving solutions for this health issue, and that is sharing, *vaevae manava*.

Overall, this thesis has added new knowledge concerning food security issues for Tongan families in New Zealand by proving the above recommendations to policy makers so as to contribute to future improvement in food security issues for Tongans in New Zealand.

Where to from here?

This study has only embodied a small portion of the Tongan community or even the Pacific people in New Zealand, but could be a stepping stone towards further study with another ethnic group in the world for the purpose of improving food security issues and decreasing levels of obesity.

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APPENDICES

Appendix 1: PIF Study Journal Articles

01. Food security, selection, and health eating in a Pacific community in Auckland, New Zealand. Rush, E., Puniani, N., Snowling, N., & Paterson, J. (2007). Asia Pacific Journal of Clinical Nutrition, 16, (3)448-454.
02. Food frequency information relationships to body composition and apparent growth in the Pacific Island Family study at 4 years of age. Rush E, Obolonkin VV & Paterson J. New Zealand Medical Journal.
03. Pacific Islands Families Study: Maternal intimate partner violence and behavioural problems among preschool Pacific children living in New Zealand. Paterson, J., Carter, S., Cowley-Malcolm, E., Gao, W., & Iustini, L. (2008). *Journal of Child Psychology & Psychiatry* 49 (4), 395-404.
04. Pacific Islands Families Study: Intimate partner violence and unplanned pregnancy in the Pacific Islands Families Study. Gao, W., Paterson, J., Carter, S., Iustini, L. (2008). *International Journal of Gynecology and Obstetrics*. 100(2):109-115
05. Problem gambling related to intimate partner violence: findings from the Pacific Islands Families Study. Schluter P.J., Abbott M.W. and Bellringer M.E. (2008). *International Gambling Studies*, 8(1):49-61.
06. Application of the 2006 WHO growth standard from birth to 4 years to Pacific Island children. Rush, E., Paterson, J., Obolonkin, V., & Puniani, K. (2007). *International Journal of Obesity*, 32:567 - 572.
07. Maternal Mental Health and Child Behaviour Problems at 2 years findings from the Pacific Islands Families (PIF) Study. Gao, W., Paterson, J., Abbott, M., & Carter, S. & Iustini, L. (2007). *Australia and New Zealand Journal of Psychiatry*, 41(11): 885-95.
08. Maternal childhood parental abuse history and current intimate partner violence: data from the Pacific Islands Families Study. Paterson, J., Fairbairn-Dunlop, P., Cowley-Malcolm, E., Schluter, P. (2007). *Violence and Victims*, 22 (4) 474-488.
09. Pacific Islands Families Study: Factors associated with maternal smoking at 12 months. Erik- Peleti, S., Paterson, J., & Williams, M. (2007). *New Zealand Medical Journal*, Vol 120 (1256).
10. Pacific Islands Families Study: Factors associated with otitis media with effusion among two-year-old Pacific children. Paterson, J., Ahmed, Z., Wallace, J., Garrett, N & Silva, P. (2007). *International Journal of Pediatric Otorhinolaryngology*, 71, 1047-1054.

11. Pacific Islands Families Study: Factors associated with living in extended families one year on from the birth of a child. Poland, M., Paterson, J., Carter, S., Gao, W., Perese, L., Stillman, S. (2007). *Kotuitui*, 2 (1)
12. Prevalence and concordance of interpersonal violence reports from intimate partners: findings from the Pacific Islands Families Study. Schluter P.J., Paterson J. and Feehan M. (2007). *Journal of Epidemiology and Community Health*, 61(7):624-630.
13. Maternal self-report of oral health in 4-year old Pacific children from South Auckland, New Zealand: findings from the Pacific Islands Families Study. Schluter P.J., Durward C., Cartwright S., and Paterson J. (2007). *Journal of Public Health Dentistry*, 67(2):69-77
14. Infant care practices associated with SIDS: findings from the Pacific Islands Families study. Schluter, P., Paterson, J., & Percival, T. (2007). *Journal of Paediatrics and Child Health*, 43(5):388-393
15. Pacific Islands families Study: Behavioural problems among Pacific children living in New Zealand. Paterson, J. Carter, S., & Gao, W. Perese, L. (2007). *Journal of Child Psychology and Psychiatry*, 48 (5), 514-522.
16. Maternal gambling associated with families' food, shelter and safety needs: findings from the Pacific Islands Families Study. Schluter P., Bellringer M. and Abbott M. (2007). *Journal of Gambling Issues*, 19, 87-90.
17. Risk factors for preterm and small for gestational age babies. A cohort from the Pacific Islands Families Study (PIF). Gao, W., Paterson, J., Carter, S., & Percival, T. (2006). *Journal of Paediatrics & Child Health*, 42, 785-792.
18. Indices and perception of crowding in Pacific households domicile within Auckland: findings from the Pacific Islands Families Study. Schluter P.J., Carter S. and Kokaua J. (2007). *New Zealand Medical Journal*, 120, 1248.
19. Gambling among Pacific mothers living in NZ. Bellringer, M., Perese, L., Abbott, M., & Williams, M. (2006). *International Gambling Studies*, 6 (2), 217-235.
20. Exclusive and any breast-feeding rates of Pacific infants in Auckland: Data from the Pacific Islands Families First Two-Years of Life study. Schluter P.J., Carter S. and Percival T. (2006). *Public Health Nutrition*, 9(6):692-699
21. Factors associated with post natal depression among mothers of Pacific infants. Abbott, M., & Williams, M. (2006). *Australia and New Zealand Journal of Psychiatry*, 40 (3), 230-238.
22. Pacific Islands Families Study: The prevalence of chronic middle ear disease in two-year-old Pacific children living in New Zealand. Paterson, J., Ahmed, Z., Carter, S., Wallace, J., & Garrett, N. Silva, P. (2006). *International Journal of Pediatric Otorhinolaryngology*, 70, 1771-1778.

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28. Factors associated with antenatal care by mothers of Pacific infants living in New Zealand. Low, P., Paterson, J., Woudes, T., Carter, S., Williams, M., & Percival, T. (2005). *New Zealand Medical Journal* Vol 118, 1216.
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30. Maternal and Demographic factors associated with non-immunisation of Pacific infants living in New Zealand. Paterson, J., Percival, T., Butler, S., & Williams, M. (2004). *NZ Medical Journal*, 117, 119.
31. Traditional Gift giving among Pacific families in New Zealand. Cowley, E., Paterson, J., & Williams, M. (2004). *Journal of Family and Economic Issues*, 25 (3), 431-444.
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34. Problems with damp and cold housing among Pacific families in New Zealand. Butler S., Williams M., & Tukuitonga C. (2003). *The New Zealand Medical Journal*, 116, 494-502.
35. Infant feeding and feeding problems experienced by mothers in a birth cohort of Pacific infants in New Zealand. Butler S., Paterson J., Tukuitonga C. & Williams M. (2002). *Pacific Health Dialogue: Journal of Community Health and Clinical Medicine for the Pacific*, 9(1), 34-39.

36. Awareness of Sudden Infant Death risk factors among mothers of Pacific infants in New Zealand. Paterson J., Tukuitonga C., Butler S. & Williams M. (2002). The New Zealand Medical Journal, 115, 33-35.
37. PIF Technical Report 2002 Paterson J., Tukuitonga C., Abbott M., Feehan M., Silva P., Percival T., Butler S., Cowley E., Borrowes J., Williams M. & Giles L. (2002). Pacific Islands Families: First Two Years of Life Study. Technical Report 1. Auckland University of Technology. ISBN: 1-877314-00-5.
38. Intimate Partner violence among a cohort of Pacific women living in New Zealand. Paterson, J., Feehan, M., Butler, S., Williams, M., & Cowley, E. (2007). Journal of Interpersonal Violence, 22 (6), 698-721.
39. Immunisation of a cohort of Pacific children living in New Zealand over the first 2 years of life. Paterson, J., Schluter, P., Percival, T., Carter, S. (2006). Vaccine, 24, 4883-4889

Appendix 2: Reports on Pacific Health Counties Manukau DHB

01. The Determinants of Child and Youth Health in Counties Manukau
http://www.cmdhb.org.nz/about_cmdhb/planning/health-status/child-health/determinants-childyouthhealth.pdf
02. Executive Summary - The Health of Children and Young People in Counties Manukau
http://www.cmdhb.org.nz/about_cmdhb/planning/health-status/child-youth/cmdhb-childrenyoungpeople-execsummary.pdf
03. The Health of Children and Young People in Counties Manukau
http://www.cmdhb.org.nz/about_cmdhb/planning/health-status/child-youth/cmdhb-childrenyoungpeople-healthreport.pdf
04. The Determinants of Health for Children and Young People in Counties Manukau (2009)
http://www.cmdhb.org.nz/about_cmdhb/planning/health-status/child-youth/healthdeterminants-childyoungpeople.pdf
05. The Health of Children and Young People with Chronic Conditions and Disabilities in Counties Manukau
http://www.cmdhb.org.nz/about_cmdhb/planning/health-status/child-youth/cmdhb-childrenyoungpeople-healthreport2010.pdf

Appendix 3: Letter from AUTECH

MEMORANDUM

Auckland University of Technology Ethics

Committee (AUTECH)



To: Elaine Rush

From: **Madeline Banda** Executive Secretary, AUTECH

Date: 14 August 2009

Subject: Ethics Application Number 09/149 **Evidence based practice: relevance of the Pacific Island Families (PIF) study findings to food security for Tongan families.**

Dear Elaine

I am pleased to advise that the Auckland University of Technology Ethics Committee (AUTECH) approved your ethics application at their meeting on 10 August 2009, subject to the following conditions:

1. Provision of a researcher safety protocol;
2. Inclusion of the AUT logo on the questionnaires if they are being provided to participants;
3. Provision of a revised Information Sheet which:
 - a. uses simpler language that is more targeted at the mothers;
 - b. provides more detail about risks and discomforts and their management;
 - c. includes a simple definition of the term 'food security'; and
 - d. clearly identifies and introduces the researcher;
4. Provision of revised Tongan translations (please contact the Ethics Coordinator for alterations suggested by an AUTECH member).

This approval is for the initial Talanoa stage of the research only. Full documentation for the later stages needs to be submitted to AUTECH and approved before data collection for those stages commences.

I request that you provide the Ethics Coordinator with a written response to the points raised in these conditions at your earliest convenience, indicating either how you have satisfied these points or proposing an alternative approach. AUTECH also requires written evidence of any altered documents, such as Information Sheets, surveys etc. Once this response and its supporting written evidence has been received and confirmed as satisfying the Committee's points, you will be notified of the full approval of your ethics application.

When approval has been given subject to conditions, full approval is not effective until *all* the concerns expressed in the conditions have been met to the satisfaction of the Committee. Data collection may not commence until full approval has been confirmed. Should these conditions not be satisfactorily met within six months, your application may be closed and you will need to submit a new application should you wish to continue with this research project.

When communicating with us about this application, we ask that you use the application number and study title to enable us to provide you with prompt service. Should you have any further enquiries regarding this matter, you are welcome to contact Charles Grinter, Ethics Coordinator, by email at ethics@aut.ac.nz or by telephone on 921 9999 at extension 8860.

Yours sincerely

A handwritten signature in black ink, appearing to read 'M. Banda', with a stylized flourish at the end.

Madeline Banda
Executive Secretary
Auckland University of Technology Ethics Committee

Cc: Litiuingi Lose Ahio litiuingi.ahio@aut.ac.nz

Appendix 4: Participants Information sheet

Participant Information Sheet



For Tongan mothers

Date Information Sheet Produced: May 2009

Project Title”

Evidence Based Practice: Relevance of the Pacific Island Families (PIF) study findings to Food Security for Tongan families.

Food Security is about your ability to get, every day, enough nutritious food to maintain a healthy and active lifestyle for your family.

An Invitation

My name is Litiuingi Ahio, I am Tongan and I am studying for a Masters degree at AUT University. As part of this degree I am conducting a research project to look at ways of improving food security for Tongan families with young children.

If you are a Tongan mother with a family size of at least four children, two of whom are under five years old **I am inviting you** to take part in my study. Your involvement in this study is voluntary, and it is your choice as to whether or not you wish to participate. You can withdraw at any time that you wish to and you will not be disadvantaged in any way for declining.

What is the purpose of this research?

The purpose of this research is to discuss with you what was found out about food security for Tongan in the PIF study findings. Then I will ask you about your personal experience, understanding and suggestions that you may have for ways of getting food that would help Tongan families and communities get enough good quality food. **The benefits** of this research is that the new knowledge and understanding will be shared with the Tongan community and extend to the Pacific community in general. Your ideas will help produce recommendations to public and private policymakers to address obesity and improve the overall population health and reduce pacific disparities in New Zealand.

What will happen in this research?

I will visit you three times at either your home or another place that you will feel comfortable in. We will talanoa in Tongan or English, whichever you prefer. The talanoa will be tape-recorded and transcribed, however all information will be anonymised, so that nobody, aside from the researcher, will know who the speakers were. After the first visit I will put together the information from all the information from the ten mothers I am going to talanoa with. Then I will ask you more questions based on what has been said by you and others to make sure I have the best understanding of the food security issues.

Information from the talanoa with all mothers will be written up and presented in a thesis. You will receive a copy of the research findings if you choose to.

What are the discomforts and risks and how will they be alleviated?

There should be no discomforts or risks associated with your participation in these focus groups. If you feel uncomfortable at any time with the talanoa you can ask to have your comments erased from the tape. You are encouraged to talk with your church minister or other person that you trust and you may have a support person with you during the discussions.

How will my privacy be protected?

Any comments you make in this interview will remain confidential and other participants will be reminded that responses will remain confidential within the study.

What are the costs of participating in this research?

The interview will take approximately one hour each and there will be three interviews or other forms of communications if needed over a period of approximately 9 months to 16 months to be sure that the information that you provide is understood clearly by the researcher – Liti.

What opportunity do I have to consider this invitation?

You may like to think about this for a day or two before you make a decision.

If you choose not to take part this will not disadvantage you in any way. If you do agree to take part you are free to withdraw from the study at any time, without having to give a reason and this will not disadvantage you in any way. If you have any queries or concerns regarding your rights as a participant in this study you may wish to contact a Health and Disability Advocate, telephone 0800 555 050 for Northland to Franklin.

How do I agree to participate in this research?

Please complete the attached consent form.

Will I receive feedback on the results of this research?

If you would like to receive feedback on the results of this research please contact the researcher.

What do I do if I have concerns about this research?

Any concerns regarding the nature of this project should be notified in the first instance to the Project Supervisor, Professor Elaine Rush, Ph 921 9999 ext 8091 elaine.rush@aut.ac.nz

Concerns regarding the conduct of the research should be notified to the Executive Secretary, ATEC, Madeline Banda, madeline.banda@aut.ac.nz, 921 9999 ext 8044.

Whom do I contact for further information about this research?

Researcher Contact Details

Litiuingi Ahio

MPH Candidate

Email: litiuingi.ahio@aut.ac.nz

Phone: (09) 921 9999 extension 7556

Project Supervisor Contact Details:

Professor Elaine Rush,

Email: elaine.rush@aut.ac.nz

Email: elaine.rush@aut.ac.nz

Ph 921 9999 ext 8091

Approved by the Auckland University of Technology Ethics Committee on *type the date final ethics approval was*

granted, ATEC Reference number *type the reference number*.

Appendix 5: Participants Consent Form

Consent Form



Project title: *Evidence Based Practice: Relevance of the Pacific Island Families (PIF) Study findings to Food Security for Tongan families*

Project Supervisor: *Dr Elaine Rush, PhD Professor of Nutrition.*

Researcher: *Litiuingi Ahio*

- ☐ I have read and understood the information provided about this research project in the Information Sheet dated 07 September, 2009.
- ☐ I have had an opportunity to ask questions and to have them answered.
- ☐ I understand that notes will be taken during the Talanoa (interviews) and that they will also be audio-taped and transcribed.
- ☐ I understand that I may withdraw myself or any information that I have provided for this project at any time prior to completion of data collection, without being disadvantaged in any way.
- ☐ If I withdraw, I understand that all relevant information including tapes and transcripts, or parts thereof, will be destroyed.
- ☐ I agree to take part in this research.
- ☐ I wish to receive a copy of the report from the research (please tick one): Yes ☐ No ☐

Participant's signature:

.....

Participant's name:

.....

Participant's Contact Details (if appropriate):

.....

.....

Date:

Approved by the Auckland University of Technology Ethics Committee on the 07 September 2009 AUTEK Reference number 09/146

Note: The Participant should retain a copy of this form.

Appendix 6: Round1 Summary Findings

Questions	Health Workers Themes	Participants Comments
<i>Meanings of food security</i>	Access to food	
	Cost of food	
	Having enough food to feed the family everyday	
	Quality and quantity of food	
	Food composition	
	Family income or how much that family can afford to buy food	
	Tongan translation of food security.	
<i>Perception of PIF Findings</i>	Agree with PIF findings - lack of money	
	Not agree with PIF findings - people have enough money but not managed well.	
	Disseminating of findings	
<i>Lived experience of food security issues</i>	Lack of money	
	Lack of education	
	Financial priority (Food versus other expenses)	
	Cultural pressure	
	Poverty level increased	
	Attitude & Knowledge	
	Food parcels increased	
<i>Behavioural Changes in respond to food security issue</i>	Acculturation	
	Depression or anxiety about food situation	
	Gambling	
	Budgeting issues	
	Changed in Life's priority	
	Increased Seeking for Food Bank	
<i>Barriers to Food security</i>	Accessibility to food	
	Family budgeting issues	
	Cost of food	
	Church & family contribution	
	How health workers deliver the message?	
	Transportation	
	Eating habits	
	Fastfood outlets	
	Time constrain	
	Health workers contract basis	
	Language barriers	

	Acculturation	
	Lack of education	
	Long hours shift workers	
	Misuse of funding in the community	
	Attitude & knowledge	
	Decision makers at church and the community	
	Lack of cooking/shopping	
	Feasting at Church/ Family functions	
	Discount sale at Supermarket.	
	Smoking and drinking alcohol	
Supports to Food Security	Free community educational healthy training	
	Home and community Gardens	
	Community Budget Advisor	
	Gambling help line	
	Incentives programme in the community	
	Healthy brochures at the clinic	
	Preschoolers healthy eating & exercise programme	
	Healthy habits class for parents	
What more could be done?		
Personal	Ways to change personal appetite	
	Learn to prioritise life	
	Walk the talk about change to healthy	
Community	Increase education for Tongan people	
	Special programme for Pacific pregnant women	
Government	School curriculum with health study	
	Follow up evaluation on every delivered community programme	
	Fast food outlet policy	
	Programme conducting in the community	
	GP Referral	
	Free community health education and training	
	On-to-one training	
	School Healthy Programme	
	Train the trainer programme	
	Community and Home Gardens	

Appendix 7: Struture of the Outrigger Canoe.

