Increasing consumption of fresh fruit and vegetables: Talanoa epistemology to explore Fijian migrant youth ideas

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Respect, reciprocity and relationship are the core of Fijian culture and as such this is my way of giving back to my people. Giving respect for those that came before me I name my village ties. On my mother's paternal side, I am Tongan, from the village Nukunuku on Tongatapu. On my mother's maternal side, I am Fijian/Scottish, from the village of Navesau from Wainibuka, Fiji and the Isle of Skye in Scotland. On my father's paternal side, I am Fijian with ties to Tonga, the villages I align with are Rava in Savusavu and Vava'u in Tonga, respectively. On my father's maternal side of my family is from Viseisei in Vuda, Fiji.

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Abstract

Statement of the problem: Non-communicable diseases (NCDs) today can be explained mainly with reference to globalisation and a food system based on a commercial capitalist model rather than a health and wellbeing model, sedentary lives, and other factors such as stress and pollutants. Given this complex situation the response to NCDs needs to be multifaceted including health promotion and prevention associated with healthy foods and food systems. In Fiji, approximately 78% of all deaths and 40% of premature deaths before age 60 are due to NCDs and they are a leading cause of hospitalisation and death (Ministry of Health and Medical Services (Fiji) [MOHMS Fiji], 2016). Overall, efforts at reducing NCDs have been aimed at the reduction of single risk factors or micronutrients, such as reducing sugar and salt, and treatment, but there has been less focus on changing systems and multisectoral approaches towards better health. Although no difference was noted in ethnic background regarding the consumption of fruit, for the consumption of vegetables, it appears that 16% of Indo-Fijians compared to 32% of Indigenous Fijians or 39% of other ethnic groups in Fiji eat less than one serving of vegetables a day. Irrespective of ethnicity, the number of individuals eating the recommended dietary intake of vegetables is below 5% for the entire population.

Methods: Talanoa is a Pacific methodology that is growing in popularity. It is characterised in the Fijian context by the sense of community and sharing which promotes ideas regarding *veivukei* (lending a helping hand), *veilomani* (a sense of love and kindness to each other), *yalo vata* (from the same spirit), and *veinanumi* (thinking for others). Talanoa is a process involving two or more people whereby there is a storyteller and listeners. Talanoa interviews are used in Pacific research to share knowledge in a culturally appropriate and comfortable way for interviewees and researcher, with the interviewee as storyteller and the researcher as listener. Talanoa interviews were utilised for the purpose of this study. They served to provide an informal space, as it allows for a relaxed sense of discussion not afforded to traditionally formal processes; and the ability to talk with a peer, as the researcher and participants were young Pacifica, which under the right circumstances provides opportunities for more intimate sharing. For the purpose of this study, four talanoa interview sessions where held with five Fijian migrant youth who live in New Zealand and maintain their ties to family and friends by regular visits to Fiji. Participants were asked for their views on the eating of fruit and vegetables within the Fijian community and their suggested strategies for promoting fruit and vegetable eating in Fijian communities.

Findings: Young Fijians agreed that fruit and vegetables are necessary for health and a necessary part of the Fijian diet, suggesting that the benefits of eating fruit and vegetables are known. However, the participants state that

the food choices available dictate consumption. Perceived problems included the lack of accessibility of fruit and vegetables in general, higher status given to unhealthy options, limited access to traditional Pacific fruit and vegetables in New Zealand, and a lack of advertising and promotion of fruit and vegetables in Fiji and New Zealand. They proposed strategies to increase fruit and vegetable consumption, which were:

1. Decolonising the relationship with food would involve reinforcing traditional Fijian food and cooking methods, within a food systems approach that supports culture at its core.
2. Using youth as 'wave-makers' by utilising the school setting to teach traditional agricultural practices.
3. Creating 'trends' through modern marketing techniques which make messages regarding fruit and vegetable eating more relatable and relevant.
4. A more critical approach to food systems within the Pacific context.

Conclusion: Treatment of NCDs and a focus on individual responsibility is current practice when it comes to addressing NCDs in the Pacific. By considering the strategies suggested by youth as future-forward initiatives, prevention and a systematic approach is provided. Youth recognise the need for system wide change that is multisectoral and modern in application. At a higher-systems level recommendations that are applicable to Fiji and New Zealand include considerations to implement social networking forums led by youth acting as prosumers of health, and advocacy towards policies regarding the cultural application of socio-economic factors that contribute toward NCDs, dialogue regarding the fashions of food, and marketing and advertisement development for the promotion of fruit and vegetables. Fijian culture and protocols require interventions at differing levels. In Fiji, there is the potential to contribute to change by empowering communities. This reflects Fijian cultural values while at the same time allowing for a sense of modern cultural fluidity. However, this by itself will not be sufficient to change the food system. For that to occur there is need for wider and more systemic change involving all actors in society – including government and the private food sector.

An additional challenge which has come to prominence more recently is the recognition that food systems in the Pacific need to be sustainable in relation to planet as well as people. This provides a further level of complexity to addressing NCDs in a systems way.

Chapter 1 Introduction

1.1: Background to the problem

1.1.1 Global perspective on NCDs

Non-communicable diseases (NCDs), also referred to as chronic diseases, are often related to lifestyle; modifiable risk factors which contribute to these conditions are physical inactivity, unhealthy diet of processed and hyper processed foods, excessive alcohol consumption and tobacco use (World Health Organization [WHO], 2018a). The common diseases referred to are cardiovascular disease, chronic respiratory disease, diabetes and cancer (WHO, 2015). A precursor to most of these diseases is the onset of obesity and higher body fat percentages (Barnhill et al., 2018). According to Hossain, Kawar, and El Nahas, (2007), the combination of overconsumption of cheap energy-dense foods with a decrease in physical activity highlights the physiological factors influencing these diseases. On a global scale, NCDs are the leading cause of death and these trends are growing disproportionately in low- and middle-income countries (Lachat et al., 2013).

In the last 20 years, the rates of obesity have tripled in many developing countries as the adoption of globalised eating habits has become more pronounced, especially in South-east Asia, China, Middle East, and the Pacific Islands (Hossain et al., 2007). This resonates with Yach, Stuckler and Brownell (2006) who noted that seven of the 10 countries with the greatest number of diabetics are in the global South. The rate of rapid obesogenic environmental change is the biggest concern in developing nations (Yach et al., 2006). The ongoing effects of NCDs place large burdens on undeveloped and under-resourced health care systems, and consequently the economies of low- and middle- income countries suffer (Morgan et al., 2016). NCDs can no longer be explained through personal responsibility, or through preferences, genetics or will power; with globalisation, the food systems have potentially altered the incentive of human conditioning whereby unhealthy choices are now both economically smarter and more convenient choices (Pollock, 1993; Yach et al., 2006). Mannava, James and Annear (2015) argued that the response to NCDs needs to be not only multifaceted but must involve health promotion and prevention combined with medical responses of delivery and treatment.

1.1.2 Pacific regional perspective on NCDs

Pacific people have some of the highest NCD rates and high rate of prevalence for NCD risk factors in the world (WHO, 2018b). NCDs are a regional public health problem within the Pacific, accounting for 70-75% of all deaths across the region (Pacific Island Forum Secretariat [PIFS], 2014); in 10 Pacific Island countries 50-90%

of populations are overweight and a further 30-80% are obese; and the Pacific region has the highest prevalence rates of NCDs (WHO, 2010). Given the population size of these small island nations, the percentage experiencing NCDs is staggering. NCDs are complex diseases and, as such, need to be considered from a variety of perspectives.

In Fiji, NCDs account for an estimated 84% of all deaths, with cardiovascular disease and diabetes being the leading causes (WHO, 2018b). In Fiji, approximately 78% of all deaths and 40% of premature deaths before age 60 are due to NCDs and it is a leading cause of hospitalisation and death (MOHMS Fiji, 2016). According to the NCD roadmap (PIFS, 2014) there is a 65% prevalence rate amongst the adult population who are overweight and obese (BMI >25). Although these statistics are high, the reality is that Fiji lacks the systems and processes to truly capture this information. What is available reflects a trending increase among several chronic diseases (MOHMS Fiji, 2016). Data and tracking limitations mask the true nature of the economic impact of NCDs in Fiji. During the years 2006-2015 it was estimated that $84 billion USD in economic production was lost due to heart disease, stroke and diabetes in 23 low- and middle-income countries. This would account for 80% of chronic disease mortality (World Bank, 2012).

As a risk factor, increased fruit and vegetable consumption plays a key role, as well as in prevention, in NCDs. According to the Fiji STEPwise approach to surveillance (STEPs) survey (MOHMS Fiji, 2011), Fiji has a significantly low consumption of fresh fruit and vegetables with the majority of individuals eating an average of one serving a day of fruit and short of two servings of vegetables a day. Fijians of Indian heritage ate more fruit and vegetables per day compared to iTaukei, but there was little difference between age and gender. The quantity of individuals eating the recommended dietary intake of vegetables is approximately 15% for the entire population (MOHMS Fiji, 2011). WHO (2010) noted that a move away from traditional diets to the “glamour and flashiness of imported food” (p. 484) has led to deficiencies in micronutrients and compounded the effects of NCDs in developing nations. Traditional staples such as *cassava* (tapioca) and *dalo* (taro*)* have been replaced with introduced and processed alternatives such as bread and rice. These foods are calorie-rich but nutrient low and the appeal for these replacements seems to be stronger (WHO, 2010).

Currently, Fiji has identified issues pertaining to NCDs via the NCD Roadmap (PIFS, 2014). The Roadmap focuses on four strategies aimed to reduce the impact of health outcomes associated with NCD’s. These include a reduction in the consumption of unhealthy foods and drinks, tobacco control, improvements in decision making using high-quality evidence and improved efficiency and impact. This document highlights the need for nations to work across sectors to address NCDs. The roadmap highlights that the issue is not solely the responsibility of the healthcare sector and the current idea of it being so has not garnered effective results (Conn, Cammock, Ford

& Faesen Kloet, 2019). However, it does not say a great deal about the consumption of fruit and vegetables. Also, there has been the removal of existing taxes on fruit and vegetables not grown locally and a ban on the sale of mutton flaps, considered unhealthy (Hendriks et al., 2015). The government has made it mandatory to include labelling of products with trans-fatty acids and meats with a high fat content (Snowdon & Thow, 2013). Alongside this, the nation has developed a cookbook, *Khana Kakana*, aimed at promoting healthy eating but using traditional ingredients (MOHMS Fiji, 2014b. Overall, the efforts at reducing NCDs have been aimed at the reduction of risk factors but not at increasing positive recommendations towards better health. Hossain et al. (2007) suggested initiatives which combine public health through affordable, healthy food availability and education with community planning could relieve the issue, but this suggestion is not without a warning about the potential for objections from food manufacturers and individual choice or rights-orientated consumer groups.

By focusing on the issue of diet, specifically fresh fruit and vegetable consumption, it is the aim of this research to assist in NCD prevention and education. Yet there are complex determinants that need to be taken into consideration in addressing the consumption of fresh fruit and vegetables. These include the opportunities for local growing and availability of fresh produce combined with affordably priced and good quality fruit and vegetables. The availability of a positive environment for markets and trade, both locally and internationally, based on local patterns of eating and preferences shaped by culture, customs and the context of eating. This should include consideration of intergenerational eating patterns. The obesogenic nature of foods most readily available also has a key role to play, for example, fast food, and foods high in sugar and salt are a significant part of the problem. Trade and food supply contribute as another issue as Pacific Island nations develop and take steps towards globalisation. Also, there is a need to consider levels of public awareness of the benefits of fruit and vegetables and the social marketing of food. This study aims to focus on the role of Pacific youth in addressing this issue.

1.2. Study design

Given the complex determinants underpinning NCDs, this study focuses on the low consumption of fruit and vegetable eating within the Fijian community. Talanoa interviews were used to explore the views and strategies of migrant Fijian youth in relation to increasing the consumption of fruit and vegetables. Nabobo-Baba (2008) explained that talanoa interviewing in the Fijian context is a process involving two or more people

whereby there is a storyteller and listeners. Talanoa interviewing is a culturally appropriate way to request knowledge from those considered to be participants in the traditional sense (Nabobo-Baba, 2008). The talanoa utilised in this study resonates with an informal manner. As explained by Ferrelly and Nabobo-Baba (2012), those involved in conversations are enabled to talk openly, encouraging intimate sharing to take place and a sense of a culturally mindful and empathetic dialogue. Culturally appropriate research using talanoa as a method and epistemology places Pacific people, in this case, Fijians, at the centre of the study. This forms the foundation of exploration and analysis in a way that honours the significance placed on relationships (Otsuka, 2006).

This study engages with Fijian migrant youth living in New Zealand; discussing their perceptions around fruit and vegetable eating compared to growing up in Fiji. It considers how this differs in New Zealand. Given the different societies, youth developed ideas and strategies to increase fruit and vegetable eating. Youth were chosen as a demographic because this group accounts for a significant proportion of the total population in Fiji. The median age in Fiji is 27.5 years old and 69% of the population is under 40 years (Fijian Government, 2018). As such it is an important group for future health. Of the 14,445 Fijians living here in New Zealand in 2013, 58.8% were based in Auckland, 61% were born overseas and the median age was 26.3 years old (Statistics New Zealand, 2013). As part of the Pacific community in New Zealand there is also a link between negative health outcomes and fresh fruit and vegetable consumption for Fijians. This is as a result of food security which is highly compromised (Rush et al., 2007). Health statistics for Pacific Islanders in New Zealand resonate with those in Fiji. In New Zealand, diabetes has been steadily increasing over the time period of 2010-2018 (Ministry of Health (New Zealand) [MOH NZ], 2018). Body size remains high amongst the Pacific community with individuals on average being overweight. At the same time, fruit and vegetable consumption amongst Pacific islanders in NZ remains low with only a third of the population over the ten years from 2006-2016 meeting the guidelines of three servings of vegetables and two servings of fruit (MOH NZ, 2016). The strong links between Fijians residing in New Zealand and their extended families and cultural norms in Fiji means that there is scope to explore with them change back home, in Fiji, where fruit and vegetable consumption is a major issue (Snowdon & Thow, 2013).

The Fijian community has a chance to contribute to changing views and opinions here in New Zealand and back in Fiji. New Zealand as a Pacific state has the largest Pacific city in the South Pacific, Auckland. The most prominent Pacific communities residing in New Zealand include Samoan, Cook Islands, Tongan, Niuean, Tokelauan and Fijian (Statistics New Zealand, n.d.). Macpherson (2004) made the point that if the growth rate of the population continued to increase, then by 2051 the Pacific descent population in NZ would have grown by

181%. This would represent over 18% of the overall New Zealand population. For this reason, it is important to recognise the diversity and overcome popular tendency to group Pacific Islanders together in a shared history and united in culture, socioeconomics and demographic commonalities (Macpherson, 2004).

Epeli Hau'ofa (1993) described the space which interconnects the Pacific as "a sea of islands" (p.7): connected rather than divided by the great ocean. It is an indigenous worldview regarding Pacific people's occupancy of time, space and connections not only by genetics but by a shared yet varied history and cultures. According to Teaiwa and Mallon (2005), Pacific Island nations inhabit a space and place of a holistic nature, where there is generally a consensus that 'Pacific people' share similar values, some cultural traits, historical experiences, colonialism and a number of proximal levels of culture between the different groups. The foundations of the differing groups and ways of working are similar but do differ amongst different nations. Within the context of New Zealand, people from or with descent from Samoa, Cook Islands, Tonga, Fiji, Tokelau, Niue, and Tuvalu are grouped together as Pacific Islanders, but within this group distinctions are made by national groups, and within national groups distinctions are made by identifying clans or family lines (Teaiwa & Mallon, 2005). It is for this reason, along with others, that the focus of this study is with Fijian youth living in New Zealand.

1.4 Significance of the research

As a New Zealand-born Pacific Islander, I have been able to recognise the association between westernised food and a diet high in processed foods by living the reality which is reflected in negative health statistics in the New Zealand Pacific population. As a first-generation New Zealand Pacific Islander, I have several family members including my father living in Fiji. The similarities in health outcomes, irrespective of the economic, political, and social development of the two countries, made me question what else is causing the similarities seen in healthy eating and NCDs. Finding a solution or at least identifying factors which contribute, I believe, as a member of this community, minimises social injustice, and increases participation in and ownership of strategies. The findings of this research as a solution-based study could provide an opportunity for innovative and new NCD solutions for Pacific people, create change at the grass-roots level and influence public health practice and policy. By using talanoa to include the voice of youth as the next generation, it is hoped that this provides forward-thinking solutions to a complex problem and encourages policy makers to consider the youth voice when making decisions.

1.5 Research question

The aim of this thesis was to explore the views and strategies of migrant Fijian youth living in New Zealand regarding the consumption of fruit and vegetables. Therefore, the research questions were:

- What are the experiences (stories) of Fijian youth regarding fruit and vegetables?
- What are Fijian youth's strategies for increasing fruit and vegetable consumption?

1.6. Thesis structure

This thesis is an analysis of the issues surrounding fruit and vegetable eating and NCDs based on in depth consideration of the literature and a small innovative study with Fijian youth. It has been organised into the following chapters. Chapter 2 provides an insight into the Pacific food system and how it has guided the understanding of this research, considering different components of the food system and the influence they have on fruit and vegetable eating. Chapter 3 presents the methodology of talanoa interviews as used in the study. A critical analysis of the theoretical reasoning, the rationale for using talanoa and details of how the study was undertaken are given. In Chapter 4 the findings from the study are presented as the thoughts and opinions of participants regarding fruit and vegetables, perceived problems and their strategies to create change. Chapter 5 discusses the findings of the study and what these, in turn, mean for policy, change and potential projects going forward. Recommendations for a Pacific food system are made here along with remodelled ideas for change to how fruit and vegetables could minimise the effect of NCDs. Finally, in Chapter 6, the conclusions of the study are drawn together, along with a consideration of the contributions and limitations of the research.

Chapter 2: Review of Literature

2.1 Introduction

This chapter undertakes a rapid scoping review of literature surrounding the food system in the context of the Pacific. Rapid scoping reviews create understandings in relation to complex topics which do not easily lend themselves to a normative systematic review process. Doing this allows the production of information in a timely manner (Tricco et al., 2015). According to Mays, Roberts and Popay (2001) "scoping studies aim to map rapidly the key concepts underpinning a research area ... especially where an area is complex or has not been reviewed comprehensively before" (p.194). As summarised previously, the issues that influence fruit and vegetable eating are complex and highlight the fact that it is a 'wicked problem'**,** these being problems that present with high complexity, multisectoral and transdisciplinary, and at times work with undefined causal factors (Butcher, Ryan, O'Sullivan, Lo & Devine, 2018). The difficulty of which has been defined below.

> "part of the challenge of making a tangible difference is the dynamic nature of the issue. Changes to the political, economic and social environments have a flow-on effect on the pillars of food security and thus affect a range of sectors within a population." (p.1)
>
> (Butcher et al., 2018)

The literature review is a cross-section of three key areas, 'Fiji', 'food systems', and 'fruit and vegetables', taken together to gain a better understanding of the current food system. Due to the scarcity of literature surrounding Fiji alone, the search was widened to include the Pacific and, where necessary, the Pacific Rim. This review includes but is not limited to literature on the eating preferences and patterns of eating which are shaped by Pacific culture, customs and context of eating, both traditionally and now. The food environment considers environmental influences impacting food choices, the growing and availability of fresh fruit and vegetables, including affordability and quality of produce, and how the nature of food has changed with globalisation in the Pacific context. Finally, the review considers systems factors, the state of the economic environment surrounding markets and trade, including the local and international markets. This chapter uses the literature to guide the understanding of this research, to provide an insight into the Pacific food system and how it has created the environment for low fruit and vegetable consumption in the Pacific, along with factors that influence the current position of fruit and vegetable eating within Fiji and the greater Pacific region.

Historical studies and research have shown that fruit and vegetable eating is low within the Fijian population in Fiji (MOHMS Fiji, 2011; Morgan et al., 2016) and, in the context of New Zealand, many Pacific

islanders (40.9% of Pacific males, 48.9% Pacific females) do not eat the daily recommended intake of fruit and vegetables (MOH NZ, 2012). As a risk factor for many NCDs it has been noted that there has been a change in dietary patterns and a shift from a traditional to a globalised diet. The increased consumption of foods high in calories, fats, sugars and salts, and low in nutrients, has compounded the effects of NCDs, especially in countries which are developing (WHO, 2010). To gain a better picture of the issue and why it may be so, I have considered published studies, reports, and grey literature surrounding trade agreements, agriculture, diet-related health, and economics in the Pacific region. This is to understand why the increase in unhealthy foods is prevalent while the decrease in fruit and vegetable consumption is so. The analysis was undertaken and presented based on the methods of the rapid scoping method referred to above.

2.2 Cultural perspective on food

2.2.1 Culture, customs and context

A Pacific worldview is one which encompasses an indigenous belief system, built on the values which form culture. Konai Helu Thaman (2002) explained that the environment is significant in Pacific life due to its spatial representation. For many, there are links between culture and the environment; geographically, it is a representation of who you are. More so than your name, where you are from distinguishes and unites people (Thaman, 2002). Within kaupapa Māori, rivers, oceans and mountains represent living beings of ancestral lineage (Teaiwa & Mallon, 2005) and Louis and Datta (2016) noted the concept of 'aina', which makes reference to food from the land, is also used to describe indigenous Hawaiian culture, and the land's ability to sustain life. Konai Helu Thaman (2002) likened the Pacific value of interdependence between people and the environment as intrinsic to both culture and sustainable development. It is this foundation that signifies the importance not only of relationships between people but also between people and their environments. This aligns with Ganry, Egal and Taylor's (2010) view that with the erosion of local cultures and indigenous knowledge so too has there been an increase in poor health and environmental degradation. This is the case in Hawaii with a shift away from subsistence farming, specifically displacement of indigenous people from lowlands traditionally used for farming now utilised for ports to supply industry-related agriculture (Louis & Datta, 2016).

Within Pacific communities, food is not only a source of energy, it is an obligation that necessitates life; food has a way of crossing boundaries and bringing people together. Food reinforces ties between people and their island homes, while it links them to a wider world. Food can globalise while it localises at the same time; it

crosses national boundaries (Pollock, 2009). Ancestrally, most Pacific economies were based on social networks and subsistence, which made the Pacific view of food and land very different from that of the colonists (WHO, 2003a). This is somewhat ironic as most Pacific countries are now dependent on developed countries. This dependency on other nations reflects the development of NCDs within Pacific nations.

According to the WHO (2003a), the isolation of the Pacific Islands allowed them the opportunity to develop a sense of communal well-being. To Pacific people this was based on continued linkage to land and networks which were important identity markers providing symbolic and economic value rather than a means to provide biological needs. This ideology of spatial connection meant that the communal wealth was more important than that of the individual, and this is seen in how weight was ancestrally distributed amongst clans. Traditionally, chiefs were the symbolic leaders of the clan and, as such, they were usually the largest (obese) people in Pacific communities (WHO, 2003a). Hendriks et al. (2015) reinforced this idea regarding body size as traditionally desirable, as it is an indicator of not only wealth, but of being cared for and respected, and the bigger body size was rare given the average diet of ancestral Pacific people consisted predominantly of staple root vegetables, with a small side portion of greens, seafood or coconut and Pacific peoples had less sedentary lives (WHO, 2003a). Modern globalisation has changed access to food, food preferences, and physical activity levels.

In ceremonial situations, food plays an integral role in cultural life for Pacific Islanders. Feasts were traditionally not all that common. They allow important times for socialising around food, with much thought and planning involved, such as deciding which families are to contribute what foods (WHO, 2003a). There is high value placed on starchy foods. Fish and beef (including canned corned beef) hold high status but traditionally pork was denied to lower classes within Polynesia (Pollock, 2009). All these items are expensive in urban settings, as are taro and the other iconic foods for the Pacific diaspora. Pollock (2009) stated that feasts can be an opportunity and/or challenge for families to show their identity through their contributions and the social expectations of giving which override any economic considerations. In these instances, families may take out a loan to meet their contributions and consequently extend themselves beyond their means. Culturally, the status given to feast foods remains, and to refuse a gift of food is to not recognise the effort and time involved, and the generosity of the host – it is a refusal of tradition (Pollock, 2009). It could simply be put that, for these social obligations of feasting for Pacific families the mantra that 'quantity is quality' rings true.

With colonial ties changing values amongst social groups, including the value of food, meat became a greater commodity and its consumption increased. According to Pollock (2009), these ideas were introduced by the first colonisers, missionaries and explorers. They became more ingrained habits post-WWII, with the use of

marketing rather than the influence of migrants to the Pacific. Early globalisation and the development of trade (exports and imports) to and from the Pacific have reflected the growing population and, consequently, its negative impact on health. A study conducted by Taylor in 1980 (as cited in WHO, 2003a) and compared to Wilkins' 10-year comparative study from 1952 and 1969 (as cited in WHO, 2003a) showed the change in diet of Fijians over this 30-year period. The results showed an increase in the consumption of animal fats, and a shift towards more cereal-based diets, more so in urban areas rather than rural. In the urban centres, traditional foods which are nutrient dense with minerals, vitamins and proteins, have been replaced with sugar, rice, fatty meat and bread, as they are more affordable and preferential (Wilkins 1952, 1969, as cited in WHO, 2003a; Taylor, 1980, as cited in WHO, 2003a). This has been a trend which is increasing and has influenced the modern development of NCDs. A study by Evans, Sinclair, Fusimalohi, Liava'a (2001), based in Tonga, made an interesting link in the increase of less healthy alternatives. Imported foods which were consumed more often and were considered high fat were generally less expensive than traditional alternatives by 15-50%. The same could be said for starches too. Evans et al (2001) noted that individuals were educationally aware of the negative effect of these products but that the convenience and economic rational meant they were popular. It was concluded that the health consequences of the imported foods were detrimental, but along with this the availability of these convenient imports was also constraining the development of domestic markets (Evans et al., 2001).

2.2.2 Modern food

Diet has rapidly changed to include a globalised diet of foreign foods. The majority of modern staples are not produced locally, and a higher amount is imported compared to the number of local alternatives consumed (WHO, 2003b). This highlights the fact that the epidemic surrounding obesity and NCDs is focused in urban centres (WHO, 2003b). According to Hendriks et al. (2015), who are supported by Snowdon and Thow (2013), the combination of globalisation, acculturation and urbanisation has created an environment which lends itself to unhealthy diets and a lack of physical activity. Hendriks et al. (2015) stated that what was a relatively healthy traditional diet centred around root crops, green leaves, fruit, coconuts and fish now centres around a high level of consumption of refined, processed alternatives including but not limited to sugar, flour, rice, unhealthy oils, canned fish and meats, and sugar-sweetened beverages; and this is especially so in the urban centres. This has given rise to a perceived generational difference in food consumption, with the younger generation having a declining preference in traditional food. Morgan et al. (2016) mentioned the conflict

participants in their study felt about providing fruit and vegetables (healthy food) versus food they know their children will eat, such as cereal "so that their stomach are full when they go out to school" (p.116).

A formerly homogeneous diet has rapidly changed to include a globalised diet of foreign and processed foods. This is compounded by the limited the availability of land for farming. In Fiji, it is commonplace for rural communities to grow the food they eat; roughly 35% of the rural communities do so. This is at odds with urban centres where only 5% of the food is grown for consumption (Morgan et al., 2016). With the lifestyle change, there has also been a shift from traditional cooking methods which utilised *lovos* (earth ovens) which are fat-free (WHO, 2003a). The use of oils in modern cooking methods has, as a result, altered the nutritional value of food to become less healthy. Mihrshahi et al. (2017) noted that even when healthy options like fruit, root vegetables and fish are selected, they were converted into high-fat, less healthy options due to the cooking preparation methods.

2.3. Environmental impact and food security

2.3.1 Food security and biodiversity

The biodiversity of food crops once provided sustainable food sources for Pacific nations. Campbell (2015) explained how the climates of islands dominated what crops would grow, taro would be grown on the wet or, typically, eastern sides of islands and yams were found on the leeward or drier sides. These traditional agricultural practices, along with the storage and preservation of crops, meant that during times of famine there was assured food security (Thaman, 1990). Randy Thaman (1990) also mentioned that bartering for goods and services between communities based on the needs of differing communities ensured a sense of cooperation. Traditional methods of cultivation favour a model which is sustainable within the production system, especially when foods are grown without chemicals and in rotation (Bammann, 2007). In a small island context, as is the case with many Pacific Island nations, Bammann (2007) argued that the focus should be placed on the farming system with a central focus on diversity of range. Underhill and Singh-Peterson (2017) noted the environmental impact of natural disasters on agricultural endeavours. High-intensity weather events tend to destroy plantations and economically disadvantaged those dependent on subsistence farming for income (Snowdon & Thow, 2013). Snowdon and Thow (2013) listed the combination of isolation, import and aid dependence, exposure to natural disasters, and low soil fertility as being the reason that many Pacific nations face high food insecurity. The

detrimental effects of fertilisers and intense agricultural practices has diminished the soil fertility, and herbicides and soil erosion are remnants of an eco-industrial heritage (Louis & Datta, 2016).

This raises questions regarding the diversity of the produce available. This is supported by Ganry et al. (2010) who identified that the availability and affordability of fruit and vegetables should be ensured in order to advocate higher consumption, not only as a means to better health but also for economic and environmental advantage, especially by means of the promotion of the biodiversity offered in Africa, Asia and the Pacific by traditional fruit and vegetables. Utilising the promotion of traditional fruit and vegetables would assist in environmental endeavours and those of the health sector.

2.3.2 Climate change

Climate change is one of the defining issues of our times. The effects can be felt on a global scale (United Nations [UN], 2019a). The UN (2019a) recognises that after a century and a half of industrialisation, large-scale agriculture, and deforestation, the quantities of greenhouse gases in the atmosphere are now at level which has not been seen in three million years. Along with this, Ramos (2016) discussed issues affecting Pacific islands nations specifically as "environmental migration, ocean acidification, coral bleaching, seawater intrusion and intensifying weather patterns" (p. 2). Climate change has led to shifting weather patterns that threaten food production, and rising sea levels that increase the risk of catastrophic flooding and the reduction of the amount of liveable land. This resonates with Louis and Datta (2016) who observed that climate change has affected rainfall, with considerable reduction which is only expected to accelerate over the next century.

Ramos (2016) stated that the South Pacific is the largest consumer of fish per capita in the world and, as such, Pacific communities are threatened by the effects of climate change such as rising sea levels, increased surface ocean temperatures, ocean acidification, coral bleaching, as well as changes in the location and abundance of fish. Rising sea levels bring the risk of saltwater intrusion which has the potential to threaten long-term food and water security. In the Pacific, many nations are low-lying, which means land crops and groundwater resources are particularly vulnerable to saltwater contamination or, alternatively, the over-exploitation of fresh groundwater resources (Ramos, 2016). Ramos (2016) also suggested that coral bleaching reduces the diversity of the marine ecosystem, thereby reducing fish stocks and food security.

In terms of climate change mitigation there have been a few things considered in the South Pacific. Campbell (2015) commented on the likelihood of climate change migration to reduce pressure on degrading resource bases and, through this migration, the chance to support home communities through remittances.

There has been a potential opportunity for this which has been discussed in New Zealand after several people have pleaded that the effects of climate change have meant living in their home countries is no longer sustainable. However, according to the Ministry of Foreign Affairs and Trade (New Zealand) [MFAT NZ] (2018), these pleas have not been successful yet, due to the reluctance of a larger number of Pacific people to be identified as anything other than their current nationalities. The New Zealand government has suggested there is a need to focus on collective solutions rather than the individual approach such a status would provide (MFAT NZ, 2018). Campbell (2015) combatted this by suggesting the opportunity for dual citizenship.

Another mitigating opportunity for climate change is the link made in Tonga to planting more fruit trees (Ganry et al., 2010). This could be a viable option especially in urban areas where migration is increasing and, as a result, the effects of food security are most felt (Campbell, 2015). Thaman (1995) considered the opportunity for such an avenue within the Pacific to increase sustainable development through a number of different facets, including socially, economically, ecologically, technologically, and nutritionally. The opportunity for such an endeavour is met by issues around council regulations, soil fertility, theft, and availability of land and guaranteed water supply (Thaman, 1995).

2.3.3 Affordability and access

The modern food environment combined and compounded by access to and the affordability of fresh fruit and vegetables has lent itself to the increasing prevalence of NCDs in the Pacific. It is an area for consideration to be given to prevention. Jones and Charlton (2015) looked at the development of 'food deserts' and the alternative, 'food swamps'. Chen and Gregg (2017) describe a food swamp as a geographic area where there is an overabundance of less healthy food and beverages but with access to healthier food. Food deserts, on the other hand, are areas with little or limited access to healthy foods and with a focus around neighbourhoods which are economically or socially disadvantaged, leading to a reliance on a higher percentage of fast-food or convenience stores. This results in unhealthy diets and therefore lower quality of health (Gregg & Chen, 2017)**.** In the case of Fiji, urban areas are food deserts and with urbanisation growing this will only compound the issue. In the context of New Zealand, almost 60% of Fijians diaspora inhabit urban areas (Statistics New Zealand, 2013). There is access to traditional wholesome foods through markets, stores or grocery outlets; however, the alternative provided by the ease of fast food stores, convenience stores and takeaways means that eating unhealthily is a more viable option amongst these economically disadvantaged communities. Hossain et al. (2007) acknowledged that there is a negative relationship with the food industry; in particular, rights-focused

consumer groups and their opponents collide when discussing the effects of food products versus the civil freedom of choice. Developing strategies to overcome such obstacles while at the same time making healthy food easier to access and reducing the incidence of NCDs in the Pacific is necessary (Hossain et al., 2007).

The issue of proliferation of food deserts is common across the Pacific, including in New Zealand. Lee-Kwan et al. (2015) found that in American Samoa fresh fruit and vegetables were generally more often found in grocery stores compared to convenience stores, but prices were comparable. Healthful items were generally more expensive than less healthier options (Lee-Kwan et al., 2015). In Tonga, issues surrounding access have been raised. Underhill and Singh-Peterson (2017) raised concerns regarding access to fruit where the domestic production of fruit has become homogeneous in Tonga. This has developed as commercial crops take priority and the focus is on pineapple, bananas, watermelon, citrus species and plantain. The commercial fruit industry is limited to fewer outlets which sell limited quantities of both domestic and imported produce, and the domestic fruit supply industry is dwindling due to aging domestic fruit trees which are not being replaced. Those fruit trees within the semi-commercial areas are not adequately maintained, reducing access further (Underhill & Singh-Peterson, 2017). The majority of purchasing for fruit and vegetables is mainly done from one of three central main markets in Tonga (two based on the main island of Tongatapu and third on the island of Vava'u) or alternatively along main arterial roads leading to the capital. This has been supported by findings from Louis and Datta (2016) who noted that 16-24% of the population purchased fruit and vegetables from farmers' markets in Hawaii, rather than alternative retailing channels.

There seems to be similar issues regarding food which resonates across the vast expanse of the Pacific Ocean. In Hawaii, local food does not come cheap and, largely, is only available to those with means, limiting those who are underserved and economically disadvantaged within the greater community (Louis & Datta, 2016). Similarly, Metcalf et al. (2008) mentioned that ethnic difference in fruit and vegetable consumption may be based on socio-economic status. Bammann (2007) identified a gap in access based on the supply chain. The supply chain has a part to play given the need for refrigeration to ensure produce can be stored and supplied (Bammann, 2007). This impacts on the variety, quality, waste and pricing of healthy food options available. Ganry et al. (2010) supported the need to strengthen the supply and production chain for fruit and vegetables in developing nations. Louis and Datta (2016) mentioned that the provision of major commodities across the supply chain is either severely stressed or broken. Specifically, cold storage, processing, and distribution facilities all need to be updated in order to meet requirements for food safety and efficiency and to get produce from farms to retailers. A prime example of a slight against the local fruit and vegetable industry within the Pacific can be seen in the

main economic sector for the region, tourism. Within the tourism sector, the importation of fresh produce at considerably higher and inflated prices is a common occurrence but hotels rarely buy from local suppliers (Bammann, 2007). According to Bammann (2007), this is due to irregular dependency on local crops and an unreliable supply chain in the local market.

Price points on produce rarely change as farmers may have preconceived expectations for their goods without the willingness to change unless the market is oversupplied. Snowdon and Thow (2013) found that staples and processed foods are more commonly imported. Due to the limited processing of foods within the Pacific region, there is a reliance on importation of such goods. Bammann (2007), suggested that farmers grow to sell specifically at markets rather than sending crops that are surplus to subsistence needs. This in turn highlights another issue of farmers being unable to meet domestic demand for products in Fiji, especially in the case of fresh vegetables. Snowdon and Thow (2013) argued that the increase in the local production of non-traditional crops has been influenced by export promotion and import subsidies, but as a result has led to competition for land regarding the production of traditional crops. It is unclear how much this affects local produce supply and, as a result, diet (Snowdon & Thow, 2013). In Tongan societal culture, Underhill and Singh-Peterson (2017) mention that history and status based on familial ties limit economic opportunities to rise in social rank via the accumulation of wealth. Communal importance limits the ability to achieve individual success as the proceeds of economic success must be shared with families, possibly limiting opportunities to access better quality food.

In Fiji, inconsistent access to high quality, low priced fresh fruit and vegetables is a significant barrier to intake (Morgan et al., 2016). In other parts of the Pacific such as Hawaii, both price and availability were the top two reasons that local food was not bought amongst all demographics (Louis & Datta, 2016). Morgan et al. (2016) suggested strategies that intertwine fruit and vegetables into meals and ready-to-eat snacks could help increase the intake amongst children. Wate et al. (2013) reinforced this standpoint, as the low intake of fruit and vegetables within the youth population generally worsens with age and they suggested age-specific strategies to compensate; adding to this picture, it was observed that Fijians of Indian heritage and females had a greater likelihood of low fruit and vegetable consumption. This is at odds with Mihrshahi et al.'s (2017) suggestion that fruit intake was not a general problem and, as a result, this allowed the study they were undertaking to focus on vegetable eating amongst youth. Theoretically, combining this knowledge would suggest not only a focus sub-group but also the importance and necessity of focusing on vegetable consumption.

2.4 System factors

2.4.1 Economics of fruit and vegetables

The cost and economic impact of NCDs in the Pacific Islands, particularly obesity and diabetes, amounted to approximately $2 million USD in 2004 but, to gain perspective, this is the equivalent of 60% of the Tongan healthcare budget (Hossain et al., 2007). As of 2013, US$88.4 billion had been spent in the Western Pacific region on diabetes-related expenses and this is expected to increase to US$98.4 billion by 2035 (Chan et al., 2013). This is coupled with the fact that, in many low- and middle-income countries in the Western Pacific region, the level of preventative care remains low. This is a factor which has been remarked upon by Yach et al. (2006), who suggested that not only have westernised lifestyles been adopted in developing nations but also a westernised approach to healthcare whereby the focus is on reactive, acute medicine rather than long-term cost-saving prevention approaches. Treatment of NCD-associated issues adds pressure to families, most of whom are unable to afford healthcare let alone the medication to treat or reduce the effects of further degradation of health. Within these developing nations the cost of healthcare would fall on individuals, which for many families would force the costs onto the most vulnerable, reinforcing and compounding the factor of socio-economic status as a determinant of ill health and widening inequalities (Yach et al., 2006). The economic loss is not only shouldered by the health sector and, as a result, over time can accrue to have a more costly effect than the conditions alone. Across society the economic burden is spread through decreased household income, lower returns on education, increased premature retirement, unemployment, and a higher dependency on welfare (Yach et al, 2006).

Given the issues surrounding fruit and vegetable consumption, which is a risk factor for NCDs and other contributing health problems, one possible solution has been proposed based on the agricultural history of Fiji. Thaman (1995) mentioned the benefits of growing fresh fruit and vegetables which provide subsistence farming to families who may otherwise have to choose between paying rent or buying food in Suva. This redirects the value of subsistence incomes for urban communities and cash incomes as higher priorities within rural areas. The true economic value in urban gardening provides insurance against rising food costs and the need to purchase other essential commodities. At the same time, it minimises the effects of poor diet due to nutrient deficiencies (Thaman, 1995). This form of prosumerism, whereby those who produce goods also consume what they make, has a positive effect on the agricultural industry during times of natural disasters. Alternatively, it provides greater input into the decision-making process (Kropp, 2018). As is commonplace in Pacific nations, natural

events limit the availability or accessibility of locally produced fresh fruit and vegetables, while also negatively impacting on the economic security of the nation and its inhabitants. Underhill and Singh-Peterson (2017) have noted that perennial crops tend to be viewed as high-risk commodities due to their vulnerabilities to high-intensity weather occurrences. This was the case in 2016 when Cyclone Winston tore through Fiji (Ramos, 2016). Cyclone Winston hit the nation's economy very hard, affecting agriculture, infrastructure, livestock and fisheries. Many Fijians, especially Fijian iTaukei women who rely on subsistence farming and fishing as their primary source of income, were affected as a result. Within city centres the available food resources were depleted due to the destruction of domestic agricultural crops (Ramos, 2016).

In the Pacific, between 2008 and 2014 the importation of fresh fruit increased from 170 tonnes to 513 tonnes (Underhill & Singh-Peterson, 2017). This dependency on imported fruit detracts from the 93 edible fruit species in Tonga (alone), 71% of which considered rare. Utilising, reinstating and promoting national varieties for consumption could save the Pacific money spent on imports. Consequently, here is an opportunity for the exporting of more exotic varieties of fruit which would support the rise of more plant-based diets in western societies as vegetarianism and veganism. In Tonga, the fruit industry has not been efficiently commercialised given the fact that, while there are 30 common fruit species grown for horticultural purposes, only four, as mentioned above, are grown commercially (Ganry et al., 2010). Ganry et al. (2010) noted that there is an underutilisation of native fruit and vegetables within the Pacific. It is highlighted that fruit and vegetables are a value-adding crops which, if developed properly, could aid in the fight against several health issues including mineral and vitamin deficiencies but also NCDs. There is a need to discourage speculation and poor-quality management while representing fruit and vegetables as a powerful economic force which can benefit all aspects of the production chain, particularly the producers and innovative entrepreneurs (Ganry et al., 2010). This is especially true given the suggestion from Willett et al. (2019), in the ground-breaking EAT Lancet Report, that in order to create environmental balance, a significant change needs to occur in relation to global diets. TheEAT-Lancet report, proposed that global diets need to meet the parameters for the sustainable development goals and Paris Agreement on Climate Change while at the same time considering the impact diet has on health (Willett et al., 2019). This diet would be plant based, to the point that fruit and vegetable consumption is doubled, and meat consumption is limited, and greater emphasis is placed on local production to avoid expensive movements of food around the globe. For the East Asia / Pacific area it was specific that red meat, starchy vegetables, eggs and fish would have to be reduced and plant-based alternatives (excluding starchy vegetables), poultry, and dairy would have to be increased. Given the grouping of the Pacific with East Asia this could compound the reality for

the Pacific, who have a significantly smaller population. Taking advantage of such recommendations could benefit the Pacific by commercialising traditional fruit and vegetables while at the same time ensuring the cultural integrity of Pacific agriculture is maintained. This is important, as Jaenicke (2011) raised concerns regarding the loss of traditional knowledge due to a lack of interest in society in traditional food systems, as mentioned by both Fijian and Samoan farmers.

2.4.2 Politics and trade

The political climate of the Pacific is one that is ever-changing. Fiji's historical and political situation has been consistently changing since gaining independence from Britain in the 1970s. Fiji has experienced a number of military coups d'état, notably in 1987, 2000 and 2006; for now, they are led by FijiFirst under a democratic regime (Department of Foreign Affairs and Trade (Australia) [DFAT Australia], 2019b). This is of importance given the effect it has had on its citizens, migration and diaspora around the world, the cultural connection to the homeland and the perceived importance of home countries where smaller Fijian communities exist. As of 2014, Fiji has been recognised as having an approved democratically elected government. As a result, the nation was reinstated as a full member to the Commonwealth international organisation (Commonwealth Secretariat, 2019a), as a former British colony. In terms of foreign relations for the country, there are links to the UN, PIFS and the World Trade Organisation (WTO). Several trade agreements and policies align with building export and import relations with countries in the Pacific and on the Pacific rim, along with the European Union (EU) (Ministry of Foreign Affairs (Fiji) [MFA Fiji], 2019). A number of these trade agreements include:

- Melanesian Spearhead Group Trade Agreement (MSG)
- Pacific Islands Countries Trade Agreement (PICTA)
- South Pacific Regional Trade & Economic Cooperation Agreement (SPARTECA)
- The Pacific Agreement on Closer Economic Relations (PACER)
- Interim Economic Partnership Agreement (IEPA)

These agreements are mainly within the Pacific and the countries that surround the Pacific. The exception is the IEPA which is between Fiji, Papua New Guinea and the EU. The use of agreements to reflect and strengthen economic ties is not new (Snowdon & Thow, 2013). Snowdon and Thow (2013) described the use of trade agreements to remove barriers which would otherwise limit trade. However, as is the case in the Pacific, small island nations generally have limited resources to ensure the proper development of negotiations. Maintaining a presence at the WTO can be a financial strain on small nations (Legge, Gleeson, Snowdon & Thow,

2011; Snowdon & Thow, 2013). An example of this was the ascension of Vanuatu into the WTO; Vanuatu's negotiating powers were considered very weak, which resulted in their agreement containing imposing terms compared to the agreements of larger countries (Plahe, Hawkes, & Ponnamperuma, 2013).

Snowdon, Moodies, Schultz, and Swinburn (2011) stated that "policies are made without the use of evidence and without regard to the potential health benefits" (p.602). This is supported by Keatinge, Schreinemachers, Beed and Hughes (2015) who argued that feeding the population but not meeting nourishment requirements at the same time reflects a self-defeating policy if whole societal health and well-being is to be promoted. A similar point was highlighted by Ganry et al. (2010) who suggested that traditional fruit and vegetables within the Pacific have the chance to reduce malnourishment issues as is the case, for example with Vitamin A deficiency in the Marshall Islands created by consuming the native *Pandanus* banana. Ten out of the 13 varieties were shown to have concentrations of the vitamin which would meet requirements (Ganry et al., 2010). This neglected opportunity is a chance to not only encourage better health by eating fruit and vegetables in general, but also aid in overcoming several other diseases and illnesses and, as mentioned further above, unlock economic opportunities. The link between the global food system, health and climate change is evident but the discretion of governments or ruling bodies to initiate change reflects their desire for immediate commercial gain over long-term global need.

It has been commonplace for countries such as New Zealand, Australia and the USA to export unhealthy and highly processed foods which are high-fat, low quality meat products, like turkey necks, lamb and mutton flaps, to the Pacific for consumption. In the countries of origin these products are considered not for human consumption. Recognised for the detrimental effect on health, Samoa banned the importation of such products only to have to lift the ban as part of their ascension into the WTO (Legge et al., 2011). This is another example of global society favouring economic contributions over health. Hendriks et al. (2015) called for policymakers to share resources by integrating health and economic priorities. This highlights an ironic situation whereby the same countries which provide medical treatment and support to the Pacific will not limit the export/import of the products that make people sick in the first place (Snowdon & Thow, 2013). With the limited resources these Pacific countries have, they are at the mercy of global organisations and the strategic trade tactics of bigger nations.

It is of grave importance that there are policies to support efforts to maintain good health and well-being within the Pacific. As indicated by Mannava, Abdullah, Jame, Dodd and Annear (2015), in order for this to happen there needs to be evidence available to support initiatives, in order to ensure effectiveness and success.

It is highlighted that low- and middle-income countries are not well equipped to address the rising issue of NCDs (Lachat et al., 2013; Mannava et al., 2015).

2.5 Concluding arguments

The landscape that influences the Pacific food system is broad and complex. The review of literature highlights the vast variety of different components in some aspects of this 'wicked problem'. The complexity of the issue, compounded by the incidence and prevalence of NCDs and climate change, means that change for social, economic, cultural, developmental, environmental and political reasons could not be more urgently needed.

By identifying the traditional eating patterns and customs of Pacific people a clearer representation of a baseline can be established. The defining historical context of colonialism and its modern counterpart, globalisation, have had a negative effect on Pacific communities. This is true for health but has also caused a similar downward trend in the environment, increased effects of climate change, issues surrounding accessibility and availability of fruit and vegetables which were otherwise staples of Pacific diets, an inability to adjust to westernised models of economics, and under-resourcing which means countries are unable to make informed, evidence-based decisions.

In a holistic view of health, as is outlined through this review, none of these components of the equation are separated; they are, as mentioned by Archer, Kelly and Birsch, in 1984 (and cited in Tukana, 2013) in a state of wholeness. The system must be defined as the synthesis rather than the summation of its parts and the process to achieve this is synergistic rather than additive (Archer et al., 1984, as cited in Tukana, 2013). This circular view of attaining optimal health in balance with all components lends itself to a Pacific worldview of development. The concept is not linear whereby time is broken up into pieces, each with an astronomic and/or monetary value, but symbolic of the past, present and future combined in the now by which what has been and what will be are linked into the future (Thaman, 2002). Recognising this highlights the need for an integrative approach to health which supports all facets of society especially those that have been mentioned in this chapter.

Chapter 3 Research Design

3.1 Overview

This chapter discusses the theoretical and methodological underpinnings that guided and informed this research, the methods used, and the field design, as well as the data analysis process. Talanoa provides a cultural epistemology when working with Pacific people to explore ideas in a safe space (Vaioleti, 2006). As a method, talanoa interviewing should ideally create a space where all those giving their opinions are on equal terms based on values of reciprocity and respect.

The study asked the following questions:

- What are the experiences (stories) of Fijian youth regarding fruit and vegetables?
- What are Fijian youth's strategies for increasing fruit and vegetable consumption?

3.2 Talanoa Epistemology

In the Pacific, the concept of health differs from a western model. A Pacific view is a holistic one; where in order to achieve whole well-being all components of physical, social, cultural and spiritual being must be maintained. In the last 20 years there have been several Pacific approaches to address health from a Pacific perspective. These include the development of the Samoan fonofale (Pulotu-Endemann, 2001), the Tongan kakala (Thaman, 1997), and the Cook Island tivaevae (Te Ava & Page, 2018) models of health. Commonality amongst these models is that health isn't only a matter of physical importance. If one area of an individual's personal or communal ties is faltering, then well-being is compromised. An example, according to the fonofale model would be that if there is an issue amongst the family unit then this would negatively impact an individual's overall well-being.

Talanoa as is defined by Halapua (2000) is the combination of the words *tala* which means to relate, tell, inform, to ask or apply, as well as command. *Noa* meaning nothing in particular, imaginary, any kind, ordinary or void. This break down of the formation of talanoa reflects *noa* as a representation of the space being occupied and the conditions which foster the *tala (Halapua, 2000). Talanoa* is the discussion whereby the researcher and participant are intermingled in the development of what is known and experienced (Vaioleti, 2006). According to Halapua (2000) and Vaioleti (2006), it allows the researcher to become part of the process and to allow those who are contributing their voices to see how they can contribute to research. It is also an opportunity to discuss an issue in a culturally and socially accepted way (Vaioleti, 2006). It requires a deep

interpersonal relationship and sharing between all parties involved (Morrison, Vaioleti, & Vermeulen, 2002 cited in Otsuka 2006, p. 3). The act of talanoa embraces the Pacific worldview of how we ought to live and work within a society, one which relates to all individuals as members of a collective (Halapua, 2000).

Nabobo-Baba (2008) discusses talanoa in the Fijian context. Talanoa historically was a process to develop and strengthen relationships within and amongst the *Vanua* (social hierarchy) (Naibobo-Baba, 2008). Here the formality of the situation dictates that it is guided by the rules of relationship, reciprocity and kinship. For Fijians, Otsuka (2006) highlights talanoa as promoting values regarding *veivukei* (lending a helping hand), *veilomani* (a sense of love and kindness to each other), *yalo vata* (from the same spirit), and *veinanumi* (thinking for others). Both Otsuka (2006) and Nabobo-Baba (2008) acknowledged the need for appropriate cultural practice when conducting talanoa research methods. This is based on the formality of the talanoa being conducted and the relationships of those involved.

The emphasis of talanoa research is that there is an understanding that it is a culturally and emotionally embedded in reciprocal exchange between researcher and participants. Halapua (2000) suggests talanoa can be a manner of storytelling or conversation without hiding inner feelings and experiences that echo in our hearts and minds; this can only be done effectively if the values of talanoa are upheld and the relationships between those involved has been nurtured as a means of developing trust.

3.3. Talanoa Methodology

In research, talanoa has developed recently as a methodology to aid in the further development of Pacific research with Pacific participants - that is, for Pacific by Pacific - and as such contributes to a decolonising agenda (Otsuka, 2006). Overall, it is a culturally appropriate form of methodology to use when working within a Pacific-influenced (for this study, Fijian) demographic and to facilitate a comfortable social setting. Vaioleti (2006) mentioned that talanoa is subjective, an oral and collaborative tradition that is not based around rigid, institutional or hegemonic control, while Farrelly and Nabobo-Baba (2012) stated that, by using empathy as the core element of talanoa, then from a broader perspective practitioners can decolonise indigenous research by creating an intersubjective rather than subjective form of empathy. Empathy in terms of talanoa is based on the relationship between participants and researcher. This relationship should foster an idea of shared importance and equality. In the Fijian/Pacific setting, relationships are of great importance, taking time and effort from both parties. The relationship between participant and researcher should be established before embarking on talanoa, it develops a sense of trust between parties. That is why the value of reciprocity between both parties is

important. During a successful talanoa both participants (to a greater degree) and researcher contribute to the talanoa. This adds to the understanding. Under the right circumstances this provides opportunities for more intimate sharing. Vaioleti (2006) referred to this as a mutual accountability based on the reciprocity and expectations shared between the researcher and the participant(s), generally with the shared information that is developed being passed back to those who participated.

As a methodology, talanoa can allow the contextualised interaction between Pacific people and researchers to create a more genuine or authentic idea of knowledge, resulting in solutions to Pacific issues (Vaioleti, 2006). As discussed by Vaioleti (2006), talanoa is a form of conversation, it is an exchange of thoughts or ideas that is conducted through face to face meetings. Talanoa methodology has been used in a number of Pacific Health Studies

3.3.1 Methods of Talanoa

Talanoa is the process of "frank expression without concealment in face-to-face dialogue" (Halapua, 2000, p. 1). Talanoa of a formal occurrence within Fijian communities and villages, cultural procedures need to be adhered to. This depends on the formality of the occasion and the researcher's relationship with the participants (Nabobo-Baba, 2008). Formal talanoa can be restricted to specific people, require the exchange of gifts, and/or the sharing of *yaqona (*kava). Informal talanoa sessions have less protocols having to be adhered too and allow the participants to voice opinions irrelevant of the social considerations or cultural stigma that might be commonly shared without the same degree of concern for retribution (Nabobo-Baba, 2008).

Talanoa can be conducted in several ways including using focus groups, interviews or informal conversational or other kinds of narrative sessions which are generally light-hearted and relaxed. Rather than structured interviews, talanoa narrative interviews are used to explore the knowledge the researcher is seeking (Nabobo-Baba, 2008). Farrelly and Nabobo-Baba (2012) suggested that talanoa interviews are considered like a 'private chat'. This manner of 'chat' provides a space which promotes a shared knowing whereby all involved can speak openly.

The study used interviews to carry out Talanoa because it created a setting which fostered an environment where the Fijian values of *veivukei* (lending a helping hand), *veilomani* (a sense of love and kindness to each other), *yalo vata* (from the same spirit), and *veinanumi* (thinking for others) were upheld. This provided an opportunity to extend the researcher and participants' sense of empathy and responsibility (Otsuka, 2006). This was done from the researcher's perspective by (1) accommodating those who were willing to give up their

time. Working best to ensure that talanoa session were flexible and held at a time and place that best suited participants. This was important especially in consideration of the concept of 'time' in the Fijian context (Otsuka, 2006). For instance, although a session maybe scheduled at a particular time, it is important to be flexible as Fijian participants may show up late, and to not take this as a sign of offence. (2) Providing or at least offering to provide beverages or food for participants, (3) informing them of my intentions for the research and the reasons why I considered it important for the Fijian community. (4) Keeping them regularly updated about the progress of the research. (5) Acknowledgment of where participants and researcher are from should be made. All these actions reflect the importance of nurturing and maintaining the relationship developed between the participant and researcher. In a formal setting the relationships of those partaking in the talanoa session decides how information is shared as well as the intricacies of protocols which maintain hierarchical and lineage relationships. However, as this was an informal opportunity to talanoa, there is less pressure regarding cultural procedures and protocols (Nabobo-Baba, 2008). By adhering to the values of talanoa and those specific to the Fijian culture this ensures the quality of the Talanoa is maintained. (Otsuka, 2006).

3.5 Data collection and analysis

This section discusses the participant recruitment methods and the sampling methods used in recruitment; the data collection methods and the development of the process during the data collection stages; and finally, the analysis processes that were undertaken in this study.

Recruitment of participants

This study recruited five migrant Fijian youth, three living in Auckland, New Zealand, and two living in Invercargill, New Zealand, to explore their thoughts and opinions about fruit and vegetable consumption. It was the original intention to recruit all participants from Auckland. However, given the lives of youth it proved too difficult to find participants from within Auckland. It was surmised that this was due to busy lifestyles, constraints on time, and pressures regarding balancing life, work and study commitments. The urban migrant youth population was chosen because fruit and vegetable consumption is typically lowest amongst the urban population (Hendriks et al., 2015; Snowdon & Thow, 2013; WHO, 2003b) and youth account for much of the population in Fiji and in New Zealand (Fijian Government, 2018; Statistics New Zealand, 2013). The study

explored their fruit and vegetable consumption experiences while growing up in Fiji and living in New Zealand, and what strategies could be adopted to increase fruit and vegetable consumption for Fijians in the future.

Therefore, for this study, the following recruitment criteria had to be met:

- Participants had to be born in Fiji
- Migrated to/and currently living in New Zealand
- Within the age range of 18-30
- Be willing to contribute and participate in Talanoa sessions

Sampling technique

The study utilised snowball sampling techniques. Snowballing or 'chain' sampling is a technique whereby participants are asked for reference to acquaintances who would meet the recruitment criteria (Robinson, 2014). Snowball sampling technique is a purposive non-probability approach (Deliens, Deforche, De Bourdeaudhuij, & Clarys, 2015). Robinson (2014) mentioned that snowballing is particularly useful when the population is unlikely to respond to the advertisement due to stigma or the sensitivity of the subject. It has been used in several other studies working with youth or hard to reach populations (Marsters & Tiatia-Seath, 2019; O'Connor et al, 2018; Conn et al, 2016; Mcgrath and Ka'ili, 2010). Snowball sampling fits within a Talanoa methodology as it reinforces the ideas of networks, promotes values associated with relationships, and highlighting the concept of both researcher and participants being of equal term.

The initial effort to recruit individuals to participate was made via the Auckland University of Technology campuses (North, Central and South) using posters which were displayed in public notice boards. Efforts to advertise on Fijian community notice boards and social media was also made. Prospective participants were asked to contact the researcher and communicate via details given on the posters. Ultimately, contacts within the Fijian Youth networks in Auckland were utilised. Two contacts within the researcher's own circle were asked to refer three people each who may have been interested in participating. More than three people each were referred. Six people expressed interest in wanting to participate, contact was made, and they were given information and consent sheets regarding the study. Of the six, four were still willing to meet to discuss the topic and met the inclusion criteria. Two dropped out due to time constraints and inability to commit to scheduled meeting as they worked shift work. Three of the four completed and returned the consent forms. Later, two Fijian-born New Zealand-dwelling youth expressed interest in the study and were given the information and

returned their consent form. This method lends itself more to Talanoa principles based on relationships and the idea amongst Fijians that sharing is central to their cultural identity (Otsuka, 2006).

Participant (pseudonym)	Age	Talanoa session
Maikeli	25	One
Leilani	30	One & Three
Marama	20	Two
Eva	27	Four
Apenasi	27	Four

Table 1: Details regarding participation in talanoa sessions.

3.5.1 Data collection

As mentioned previously, the data collection method used in this study were talanoa interviews. For the purpose of this study, the participants were informed of the Talanoa sessions prior to the first meeting taking place. All participants were fluent in English and preferred to carry out Talanoa in English, so all Talanoa discussions were carried out in the English language. Given this, there were instances when Fijian words or phrases were included which the main researcher translated during analyses. The researcher asked questions to

direct conversation or probe subjects in relation to NCDs and fruit and vegetable eating. During the meeting they were asked for their preferences about ways to portray their ideas and how they would feel they could best do this. Participants felt discussion alone was enough to do so. Those giving their opinions were happy to talk and 'bounce' ideas off each other. These discussions were recorded and transcribed for later thematic analyses.

Within Talanoa methodology, relationship and therefore comfortability of particpants is paramount and so talanoa sessions were structured according to comfortablity and convenience of particpants. This meant that some youth prefferred one on one talanoa sessions and others were comfortable in pairs. This meant that there was four talanoa sessions carried out, two one on one, and two in pairs. For those in pairs one was a couple and the other pair had not meet before but acknowledged that they were sharing their ideas in this way. The rapport between both pairs was relaxed. The couple were more inclined to disagree with eachother outwardly whereas the other pairing were more subtle about how their realities differed. Therefore as the researcher it was improtant that I observed both verbal and non-verbal cues in the talanoa sessions (Farelly & Nabobo-Baba, 2014). All participants are migrants who have lived in New Zealand between 10 years to four months at the time of the talanoa sessions. All working professionals except one who is a university student.

Collection of all data was done over the course of four months, four talanoa interviews were conducted; two with two participants and two one-on-one talanoa session, one of which was with an individual from the first talanoa session. She wanted to consolidate the ideas and discussion she had shared. The first talanoa session took an hour and the remaining three taking approximately 15-20 minutes each. It was interesting to watch discussion develop and to observe how organically discussion differed between individuals but how different perspectives were supported or contributed to wider ideas. The questions set out below were used to establish a point of discussion during interviews and to understand participants' experiences better. The same guiding questions were used during the informal talanoa, more so when the spirit of the discussion was waning or to ensure there was a more rounded capturing of ideas. As is the case with talanoa, once the spirit of the chat had dwindled or previously mentioned topics were repeated, then that is recognition that the chat has come to an end. The guiding questions were:

- What are the issues around eating fruit and vegetables in Fiji? is there an issue? Are these issues different to those experienced in NZ? And if so, how?
- What are the challenges with eating enough fruit and vegetables in a day?

- What would you do to get people to eat healthier, if price wasn't a factor?
- Is there anything else you would like to mention or anything else you believe is valuable to increasing fruit and vegetable consumption amongst Fijians?

Talanoa interview process

Each participant was asked to meet at a time and place that suited them or, alternatively, at a central point when more than one participant was involved. Those who had agreed to participate were contacted for a chance to meet to discuss their ideas. Digital communication options were also provided to participants e.g. FaceTime, skype.

The participants felt that discussion orally was the best way to communicate ideas and therefore they opted out of any alternative methods.

Ethics

This study deals with the human subjects, utilises their opinions and thoughts through focus group discussions and interviews, and as such was required to meet the requirements set out by the Auckland University of Technology Ethics Committee (AUTEC). The study was granted ethical approval by AUTEC after meeting all ethical conditions. Ethical approval was granted on August 17, 2017, AUTEC reference number 17/227 (see Appendix A).

An information sheet and consent form were provided to potential candidates prior to them being involved in the research. These documents outlined the purpose, rationale, risks and perceived benefits of the research being conducted. They were provided with due time for participants/participants to consider their involvement to be part of the research. As their opinions and thoughts were to be captured it was outlined that data relating to them would not identify them in any way; pseudonyms would be used throughout all the data which was captured. When informing ethnic Fijians of the purpose of the research, Otsuka (2006) highlighted there is a need to do so orally. Due to cultural procedure and the value given to oral traditions, the details generally pertaining to an information sheet must be explained along with the details regarding ethical considerations and the need for consent forms (Otsuka, 2006).

All meetings and interviews were conducted within schedules that best suited the participants, in spaces that were public places to ensure safety or decided by the participants themselves.

Researcher's position

This study provides an insight into the thoughts and opinions of youth regarding the creation of change within the Fijian community in New Zealand and Fiji. Using talanoa to include the voice of youth as the next generation, it is hoped, will provide forward-thinking solutions to a complex problem and will encourage policy makers to consider the youth voice when applying integrated change across the system.

As a Pacific researcher I believe getting first-hand experience lends itself to my cultural philosophies and upbringing. It also provides opportunities for shared truth to be generated among Pacific people. As such, ideas to overcome issues faced by Pacific people are of great importance in creating change. Being of Fijian and Tongan descent and mixing an unspoken knowing of how things are into an academic way of synthesising knowledge, creates a great opportunity and challenge. This has allowed a new way of contextualising my education while at the same time solidifying my ambitions to create change in the modern world. As a young Pacific woman, I hope that working with Pacific youth to develop their voices will also lead to a network of forward-thinking health and community leaders.

3.5.2 Data analysis

Thematic analysis was used to carry out data analyses (Braun & Clarke, 2006). Thematic analysis are the means of recognising apparent themes from datasets. These themes as mentioned by Clarke, Braun, Terry & Hayfield (2019) reflect a shared meaning around a core concept or idea. The use of such themes allows a link to data which might seem otherwise different, applied in varying or multiple contexts. This is better suited to capturing ideas which are abstract or have underlining meaning while at the same time lending itself to capture more clear, explicit concepts (Clarke et al, 2019). Thematic analysis can be interpreted very broadly and used in a range of ways; therefore, it's flexibility lends itself to talanoa as it enables broader, Fijian concept of holistic wellbeing to be captured and interpreted.

Notes and audio from all talanoa interviews were transcribed, along with copies of the field notes. Audio and written files were listened to and re-read to generate sub-themes. Of these sub-themes they were grouped into over-arching themes. The listening of files allowed to gain a thorough understanding of the ideas; the transcription was also re-read to identify themes based on commonly occurring ideas from similar contexts. Finally, links between themes were made and reasoning was developed surrounding the themes and context they were presented in.

3.6 Conclusion

This chapter has summarised the methodological underpinnings of talanoa. The advantages to using talanoa in a Fijian-based study are that, as mentioned by Nabobo-Baba (2008), talanoa embodies Fijian protocols when sharing information and it also allows a space to approach research from a culturally sensitive perspective. This is guided by the special considerations given to relationships and the kinship between people in a Fijian context. It is a shared appreciation for ways of being, world views and knowledge (Nabobo-Baba, 2008). This chapter has also outlined the process of talanoa interviews and its use as a method. Data was transcribed from these talanoa interviews and analysed using thematic analysis. Ethically, information provided on the consent and information sheets was also orally related to participants to ensure cultural protocols were adhered too. The location and time of the meetings were predetermined to suit all parties, in public places to maximise safety and the convenience of the participants.

Chapter 4: Findings

4.1 Introduction

The data used to extract these findings was obtained using talanoa discussions with five New Zealand-based Fijian migrant youths. Their opinions and views were analysed using thematic analysis. Overall, participants acknowledged that there shift from traditional foods to highly processed and refined alternative; more so in urban areas than in rural areas. There was recognition that fruit and vegetables are important for good health. The participants suggested that education along with a change in mindset is pivotal in creating change but, in order to do so, a younger generation needs to be included in deciding solutions in order to deal with the problem now, in a future-forward approach. It was suggested that a means to make fruit and vegetables 'a trend' was needed to reach the greater population of Fijians. The central themes and sub-themes of those discussions are presented below.

Prior to and at the beginning of the talanoa sessions, the trends in fruit and vegetable consumption were discussed and associated issues of NCDs in Fiji were explained. This was followed by an oral explanation of the aim of the study, the ethics and consent forms. This discussion is, in some instances, reflected in the answers and viewpoints of the participants.

4.2 Fruit and vegetable eating

In order to achieve the aim of the study to explore views regarding fruit and vegetable eating amongst migrant Fijian youth living in New Zealand, the experiences of these youths were explored. The research question below and mentioned in chapter 1 was asked in several ways to achieve this.

- What are the experiences of Fijian youth regarding fruit and vegetables?

The following theme of fruit and vegetables eating reflects the experiences that youth have had with fruit and vegetables, in this study.

The findings suggest that choice was a luxury not available while growing up in Fiji, that people ate what they were given. There was a perceived meal composition which influenced when and for what meals fruit and vegetables were consumed. The participants thought that this differed between the urban and rural setting based on their experiences of being raised in Fiji and from returning visits. Either way people ate based on what was available. In the urban setting there is a greater variety of foods available, so fruit and vegetables were

experienced to be eaten later in the day. In the rural setting where subsistence farming is a way of life, fruit and vegetables were eaten more frequently, as that was what was readily available. For Maikeli shared his experiences having grown up in rural Fiji during talanoa session one.

> *"somehow fruit has always been, I guess, part of my journey, part of my life and I love fruits. But here in New Zealand, but when I go back home now it's hard to go back to the old lifestyle of just having fruit for breakfast, fruit for lunch. And, um, yeah. Like if I'm here I say that fruit is still part of me, but it's totally different."*
>
> *(Talanoa session one with Maikeli)*

Only one participant, Marama, found that the biggest contributing factor to consuming fruit and vegetables was due to health. This was specific to wanting to consume fruit and vegetables in order to lose weight.

> *"If I want to lose weight, of course… yeah that's the main reason I'll do it [eat fruit and vegetables]."*
>
> *(Talanoa session two with Marama)*

Where participants were raised, they believed it impacted on the availability of fruit and vegetables consumed due to the agriculture. Nadi, in the west, is hotter and drier, limiting the availability of produce during certain seasons although fruit production is generally quite high. Suva in the south-east is milder, with a higher amount of rainfall and higher levels of humidity which are better suited to produce growth. This comparative was mentioned by Eva during talanoa session four.

> *"That's you, for me cause he grew up in Nadi, I grew up in Suva and in Suva it was the other way around, it was more vegetables than it was fruit, yeah."*
>
> *(Talanoa session four with Eva)*

The south-east of Fiji is specifically known for its commercial agriculture. The concept of fruit and vegetables being a way of life could link to regional availability. As specified by Maikeli comment's above, fruit specifically, in a rural setting was quite central to his diet. This deduction could be accredited to his village being in the geographical north of Fiji.

The participants were asked about the different issues surrounding fruit and vegetable consumption in Fiji and how this differed from living in New Zealand. Accessibility and price were noted as a big difference, in

having a wider variety to choose from in terms of fruit and vegetables that were readily available at a lower price. The emphasis on less traditional fruit and vegetables in New Zealand underlined participants' ideas of importance, the likes of tomatoes, carrots and spinach being easily accessible than what they were raised with. Leilani mentioned this importance given to certain varieties when discussing where her family would source fruit and vegetables from in Suva, Fiji.

> *"Yeah, we had like a little garden. but mostly we got it (fruit and vegetables) from the market… Roro, bele, eggplant, never ate tomato or carrots. Because they're like the important (expensive) ones"*
>
> *(Talanoa session one with Leilani)*

When back in Fiji full opportunity is given to consume fruit that is more expensive or less accessible in New Zealand due to taste and preference. The comparison regarding having the choice of what to eat in New Zealand is evident especially as for most participants they felt there was greater choice and availability in New Zealand. The importance of fruit and vegetables has changed considerably, specifically in the context on migrant youth returning to Fiji. Maikeli did mention that family in the urban setting would offer traditional vegetables dishes.

> *"yeah. So, it's funny whenever I go to Suva, I live with family right, but when I go there, they think that I don't eat vegetables here. So they cook rourou and say, "you know, when you go back you're not gonna eat this... from my personal observations, my family, they love their meats, they love corned beef and what".*
>
> *(Talanoa session one with Maikeli)*

It was the observation that families in Fiji believed such foods were not available in New Zealand. Having traditional food served was viewed as a novelty rather than standard meal. Processed, convenient food was preferred by family members and was considered more affordable than fresh fruit and vegetables. Supermarkets were considered more expensive for fruit and vegetables, but the main urban marketplace was expensive, too. Apenasi had experienced a difference between towns regarding the cost of produce, mentioning it during talanoa session four.

> *"You pay for like you know how you have a bundle of are cucumbers oh sorry a plate of cucumber. Well you pay $1 for it in Nausori but if you go to Suva you pay $5"*
>
> *(Talanoa session four with Apenasi)*

Participants believed it was cheaper to grow your own (if space allowed) or buy fruit or vegetables from peri-urban or even rural areas in Fiji. Outside of Suva, fruit and vegetables were associated with lower prices.

4.2 Perceived problems

The aim of the study was to identify strategies to assist in the consumption of fruit and vegetables, as low consumption is a risk factor contributing to NCDs in Fiji and amongst Fijian people. In order to do so, an understanding of any perceived issues, from the participants' perspective was considered. The following guiding questions were asked in one form or another to establish this understanding:

- What are the issues around eating fruit and vegetables in Fiji? is there an issue? Are these issues different to those experienced in NZ? And if so, how?
- What are the challenges with eating enough fruit and vegetables in a day?

The following core themes of accessibility, the higher status of unhealthy food, and quality were common perceived problems. The sub-theme of better quality of fruit and vegetables was explored too.

Access/Affordability

A perceived problem across all initial discussions was the cost of food and living in Fiji. As a common factor, the basic commodities were more expensive to purchase in Fiji. This experience was shared by Leilani.

> *"Like chicken, meat, canned food, even noodles, butter, like whatever standard items are way more expensive. So hopefully, and fish is still the same price. Like crab now is like a hundred dollars for crab, like five mud crabs."*
>
> *(Talanoa session one with Leilani)*

Although the Suva markets were more expensive, it was believed that the markets of smaller towns and/or road-side stalls were more affordable, but costs in general had risen. Across Fiji there are several vendors who provide stalls along main highways as these are more accessible for those who are unable to travel to city markets to sell their fruit and vegetables. The overall cost of fruit and vegetables, participants believed, had increased since Cyclone Winston (2016) and while prices had remained high, most participants had assumed that vendors had become comfortable charging more, irrelevant of changes in supply. The expense of fruit and vegetables was believed to be compounded by the individual need to earn money in Fiji. The minimum wage in Fiji is set at $2.68 an hour (Ministry of Employment, Productivity and Industrial Relations (Fiji), 2017).

Eva: Yeah it is per hour it's so low how was someone that earns that much meant to pay $5 for 3 cucumbers. … Yeah, so there's a lot of poverty in back home the squatter settlements have doubled in the past few years and their huge because people can't afford to rent because renting in the Urban areas is so expensive and it's just going up.

Apenasi: Yeah, so basically, they raised the cost of living and not the minimum pay wage.
(Talanoa session four with Eva and Apenasi)

Highlighted by Eva and Apenasi from talanoa session four, who believed the increase in the cost of living along with the stagnation of the minimum wage were contributing factors for why less healthier food options are preferred.

Higher status of unhealthy foods

Food is more than pure nourishment in Pacific culture. It is a sign of status (Pollock, 2009): the perceived quality of food is a sign of respect, and the types of food that are provided reflect the amount of *loloma* (love) for those being fed. The concept of food having a perceived reverence amongst the family back in Fiji became apparent. The value of food was considered the opposite from New Zealand. In New Zealand, traditional Fijian foods such as staple roots, leafy greens, and fish were considered expensive, healthy and of higher value amongst participants. While in Fiji, a wealthy person's food is what constitutes junk-foods, takeaways and foods regarded as unhealthy in New Zealand. This irony was expressed as a colonising of the mindset whereby being able to have meat or westernised foods has higher status associated with it than that of traditional foods. This colonised perspective was also more apparent amongst the younger generation who wanted to be 'cool', giving youth a sense of status, a way of conforming to modern lifestyles and wanting to live a certain way.

"(...) cause there is like heaps of takeaways in Fiji, of course. Like McDonalds and stuff. And I don't know, people I feel like people are trying to be all mainstream and stuff ... no, like fancy and all. That's what I think, especially for youth but not for the older generation … you know more like they [youth] are more like posh and let's go out for take out."
(Talanoa session two with Marama)

Alternatively, this could be that food signifies a lifestyle deemed attractive to a younger generation.

Quality

There was a consensus regarding higher quality in Fiji compared to New Zealand. There is an understanding that most market vendors who provide fruit and vegetables in Fiji grow the produce themselves and therefore the quality of fruit and vegetables is higher. This is because consumers know the vendors who supply produce and know where fruit and vegetables come from in Fiji. There was criticism of imported fruit and vegetables in the New Zealand context. Questions were raised regarding how they were grown or transported and as a result the "tastiness" being compromised. These sentiments regarding quality were highlighted by Leilani, Maikeli and Apenasi. Leilani during talanoa session one questioned her own eating behaviours in New Zealand due to her preference for certain produce specifically from Fiji.

> *"That is true. Because I won't eat mangoes that's not from the islands. Like, at all. If I see that it's imported, I won't eat it. I'm sure they plant it too, same as coconuts, I won't drink coconuts or buy coconuts to cook with if it's not…"*
>
> *(Talanoa session one with Leilani)*

> *"I don't know about quality because I, I get fruit but I don't know where this comes from. So all these different, or different ways of ripening and all that… whereas at home [Fiji] I know its quality because we plant it and watch it grow."*
>
> *(Talanoa session one with Maikeli)*

> *"... market vendors don't actually have big massive farms, it's just like from their backyards, sort of thing… they only sell about 2% of their produce, everything else is exported."*
>
> *(Talanoa session four with Apenasi)*

At the same time, it was recognised that, while based in New Zealand, this factor could potentially be a restricting reason as to why fruit is not consumed as much as in Fiji, limiting the intake or health benefits received from meeting dietary needs for consumption.

Advertisement

Education and, by association, awareness campaigns were considered a good start for change. Current efforts were criticised in relation to whether they were efficient at encouraging people to eat more fruit and vegetables. Efforts to do so were considered rudimentary, discouraging and otherwise not well organised to achieve desired outcomes. Education was a good tool to create change, but it was felt that people would do what they wanted. Having worked in communications in Fiji, Eva had questioned the marketing tactics from the

Ministry of health and medical services in creating advertisements and interactions with the public regarding health.

> *"yeah, they try cause some of our clients and stuff that we used to work with from the ministry who are with health and nutrition they didn't do much at all. (...) And it was that used to send us powerpoints to turn it into an ad they actually wanted us to turn their powerpoint into a TV ad. yeah they don't have marketing people so their idea was just tell them all this and then, set."*
>
> *(Talanoa session four with Eva)*

4.4 Youth Ideas for change

As part of the aim of this study, Fijian youth were asked to identify strategies that they believed would be advantageous to increasing fruit and vegetable consumption amongst their peers. Combining their understanding of a perceived problem, they considered ways to encourage greater eating of produce. This section will consolidate those themes and sub-themes which Fijian migrant youth believe are important to fruit and vegetable eating.

For this to occur three areas needed to be developed further for change to become a reality. The core themes that became apparent during the talanoa sessions were a need to change the mindset around food; system factors which participants felt would encourage healthier eating; and, finally, the marketing and development of food and health advertisements in Fiji.

Cultural mindset

The mindset of how food was considered to differ between rural and urban settings, based predominantly on the way of life and less reliance, rurally, on imported or modern food. There were greater options in the urban setting. Imported and modern food was a negative contributor to health and in order to create change there had to be a change in how traditional food was viewed. This essentially means decolonising food and promoting traditional food and cooking methods as better for the health of people. Although this has been attempted, there was uncertainty about whether it was a 'trend'. In talanoa session one, Maikeli mentioned that decolonising food and lifestyles would be the first initial strategy to creating change.

> *"Yeah. Well I guess for me, if I were to do something, um, I don't know, it's probably hard, but to decolonise mind set and decolonise lifestyle. (...) Yes. So, you've got to show people, compare the two and see, I don't know if you can compare lives from back there and now. Um, and just find a way to connect with them through their heart. Like you can*

talk to them about speaking to the soul, find a way that will help them to understand our traditional ways of eating is better than the modern way."

(Talanoa session one with Maikeli)

The reality of doing this was discussed further and it was recognised that it would be a multifaceted approach whereby things are not only happening at a governmental level; what was also needed had to come from individuals who create a 'ripple effect' in their own communities or families. There was acknowledgment of the fact that initialising this change would look different depending on the setting in which it is hoped this change will be established. According to Tukana (2013) traditional Fijian protocols and systems within villages, are based on the concept that chiefs or elders hold much of the authority. If the chief requests things to be done a certain way, then this is carried through to the rest of the village (Tukana, 2013). Gender equality featured here because it was felt that although men had the authority to make decisions, it was women who were the doers who ensured outcomes were met. This experience was shared by Leilani and at the time was supported by Maikeli during the talanoa.

"They will talk but the women are the ones who enforce it. They will delegate, they will get stuff done. But it's the men that go to the meeting and put their hand up and try and say things. So I guess if you have a lot more gender equality it will help implement certain things I think."

(Talanoa session one with Leilani)

In urban settings, there was more discussion as there is a perceived 'grey' area whereby traditional systems are not always upheld. There was a need to build a ground swell or 'noise' for change to occur. This was summarised during talanoa session three with Leilani who highlighted that although change is hard, it is not impossible, but it does require a sensitive approach, depending on where the change needs to take place.

"There's numbers, oh power in numbers for commoners I guess you don't actually have to be a prime minister. They will listen to the majority of people. (...) if you protest or if creating enough noise or in the right kind of way that people realise that they have to act because it's the people who are talking about what they want and they are the ones getting affected or are dealing with all of that stuff. (...) But don't forget, as you were talking, I was thinking, all we have to do is, you just have to talk to the village elders which is one person. You talk to this one person, the boss, he says it, it's law, everyone will follow him. So we don't have to change like five people in one village, you just change the chief. You explain to them, talk, and then they say it's law and its law, and then everybody will take it straight away. They won't question his authority."

(Talanoa session three with Leilani)

As part of the decolonising of food, which is ingrained in Pacific culture, there was a debate about changing habits or adapting to the modern world while retaining the essence of Fijian culture. Food and the act of giving it highlights important cultural values such as reciprocity, relationships, and respect. Food culture in Fiji has evolved a lot differently to that of its Pacific neighbours. Renowned as the hub of the Pacific, Fiji has an ethnically diverse population. According to Naidu, Matadradra, Sahib, and Osborne (2013), iTaukei and Indo-Fijians make up 94% of the total population but ethnic minority groups include Chinese, European, Melanesian (from the Solomon Islands and Vanuatu), Rotuman, and a mixture of other Pacific ethnicities. In their view, Indo-Fijians, Chinese and Europeans are the predominant business owners. This mixture of people, eating habits and cultures has changed the food landscape of Fiji and, as a result, potentially limited people's ability or desire to change, but if the core values of why food is given or provided is maintained then there is potential for cultural adaptation. Reducing portion sizes, utilisation of traditional foods and cooking methods, and the development of traditional gardens in urban centres were recommended as a means of decolonising food. This is in reference to food culture and how it has changed or evolved throughout Fiji, Maikeli, explains this during talanoa session one and it was reinforced by Leilani during the third talanoa session.

> *"Me, because I work with young people and all these issues around identity crisis and suicide. When we talk about culture, in our generation, we think culture is concrete. Culture is actually fluid, it changes all the time aye? And that's the concept there that our elders need to understand. (...) Cultures may change over time, but the principles remain the same."*
>
> *(Talanoa session one with Maikeli)*

> *"Cause I was trying, I was like thinking what can't change, then I wrote some stuff and thought. Well actually they all can change, everything shifts in the world it's a matter of how we propose it to the elders and which elders we propose it to, who are more influential."*
>
> *(Talanoa session three with Leilani)*

Engaging youth leaders

Within Fijian society there are opportunities that participants considered as potential strategies to increase fruit and vegetable eating. A common factor was that, by using the schools as a setting for change, there would be a captive audience who have the potential to find interest in eating healthy and increasing fruit and vegetable consumption. This change would have to involve not only students from as early as preschool but teachers and the community alike. Ideas to develop strategies within schools included the incorporation of healthy eating programmes, such as 'garden to table', and the teaching of agriculture as a priority subject, or

urban gardening, so the students are aware of being self-sufficient. Such a programme would link into the decolonising of minds by promoting traditional agricultural techniques.

Students being role models, or people of status such as sports stars or celebrities who in turn mentor youth, can encourage youth to become '*wave makers'*. The explanation for this was that youth are potentially not set in their ways and are more adaptable to change then the previous generation so if we can teach or encourage healthy practices early on then there is the potential for this to be a lifestyle choice in the future.

> *"And I guess it's, it's a generational shift as well. Like, we're gonna change now and try and implement something to change a specific island. It takes years to absorb these new changes and what not. But if you're able to influence government and introduce, because they always say it's easier to bend a tree when it's young. So, if we start off with health promoting schools, um, encourage schools to implement in their curriculum, um, garden to table project, so those would be things that we could, um and start changing the mindset of children at the same time…"*
>
> *(Talanoa session one with Maikeli)*

It was identified that if students were being encouraged but not supported by those who hold the power, as is commonly felt, then endeavours to create change would not be sustainable. Labelling the younger generation as being ahead of its time, however participants felt once youth were old enough to have authority then energy would be spent on addressing historical systemic issues before change could happen. Maikeli identified that, from his own past experiences, he felt an older generation was not willing to listen to the younger generation because it was not a younger person's place to contribute.

But the reality of having youth being empowered needed to be supported at a governmental level whereby policy supported future work toward a similar goal. Too common is the concept that we can teach or tell students to be healthy but if they have no means at home to practice what is being taught, how can they implement these ideas. Eva and Apenasi explored this idea based around low wages affecting fruit and vegetable eating while contradicting health education during talanoa session four.

> *"… people know they're meant to eat healthy they teach that in schools but having the family being able to afford it to teach you that in life. So you have all the Bainis (Indian ladies) buying all the potatoes and rice to make the little bits of curry (…) because vegetables are actually expensive"*
>
> *(Talanoa session four with Eva and Apenasi)*

This is a very real situation especially following discussion regarding the increase in taxes and limits on the minimum wage, and other contributing socio-economic issues that impact on healthy eating.

Marketing of health messages

Criticism of campaigns within Fiji regarding how health messages were marketed was a common theme. A common suggestion to promote healthy behaviour was the concept of a 'shock factor' keeping it real and highlighting the harsh realities of unhealthy eating habits. The foundation for this idea was the use of the idea of action and consequence to relate unhealthy behaviour to the risks. This was perceived as the reality for many Fijian youth growing up whereby the consequences of their actions reinforced good behaviours. During the talanoa sessions, both Marama from session two and Leilani from session three said they thought messages had to be brutally honest regarding the consequences.

> *"telling them but what will happen if they don't. Yeah like legit be real."*
>
> *(Talanoa session two with Marama)*

> *"I actually I tell my nieces and nephews that when we go and buy chocolate ohh yeah well your toes will fall off. I'm really harsh with them and they're like what do you mean and I'm like well it's going to cause diabetes if you eat too much but you can have like one bar and you'll have nine toes so you know they're kind of ... aware that there is a consequence."*
>
> *(Talanoa session three with Leilani)*

A common, drastically honest way of doing this was through direct communication. This was thought to be better than advertisements, which were felt to remove personal interaction. There was more concern about how the message was being portrayed rather than what was being said. This is a way of cultural communication that links into the previous concerns about the older generation wanting youth to wait their turn and to avoid confrontation until they are considered old enough. This is compounded by the fact that 'youth' within Pacific culture is a flexible idea. Youth must do certain things or have gained a certain amount of experience to be considered an adult, rather than the view taken in the western world where age determines a person's readiness or ability to contribute. In the Pacific this is a form of protection. Leilani suggested that this could be the case with dealing with NCDs, as we hide from the reality of what the problem is to protect others during talanoa session three. That comes from a sense of acting for the communal good. Using marketing to highlight the reality and consequences of unhealthy eating means there is no denying what needs to be done.

*"Yeah, they're not just packing it in but I think the shock factor sometimes helps I guess in the islands we are brought up and protected up by our families from harsh realities but if they just shock us then … you know, like we get the hiding if we lie so we never lie cos we won't get the hiding cause we learn. (...) Yeah so if they're scared, scare the sh*t out of them. They can learn when they're older but by the time their mind is set it's ingrained in their mind and they can make a decision."*

(Talanoa session three with Leilani)

From a technical perspective there are potential opportunities to adapt messages to work a more modern way. Comments on communication efforts regarding health in Fiji had criticised the way in which information was passed onto the general population. Ideas were discussed to change this using digital media.

"I'm sure that I've seen commercials that played that are real boring and simple and slapstick but I think they have to make it more, like explore the platforms that they use like social media, Facebook and Instagram and little quick things because our attention span is short now. (...) You won't be able to change everyone but out of said like your family of six members if you manage to change five of the six then I think you're winning because the ripple effect they can try, try and change five or six other people themselves. People have to want to change that kind of thing, noise or likes quick little bitesize messages cartoons. I think cartoons are good at animation is the way to go with kids even with adults sometimes animation's better to watch then like an interview of someone saying this is what you should eat lol whatever (...) famous sports stars, actresses and actors, musicians, rappers (...) that might happen or help because I listen when famous people talk, when they have messages it seems like it makes sense."

(Talanoa session three with Leilani)

Making it a trend, making health 'cool' and doing so within a short time frame would ensure attention was not only caught but was focused. Utilising platforms such as Facebook and Instagram was suggested. The way the information was portrayed to grab the attention of the viewer, combined with the use of public figures to support the messages, would have positive impact. The use of social gaming to develop skills and teach people regarding fruit and vegetable eating or how to grow edible plants would be beneficial but needs to have access to equipment which allowed people to interact in such a way to ensure it was not another hurdle. It was acknowledged that some apps already exist, but they are not trending. The gap in understanding why and how to make them popular needs to be explored further. Technology was a way to consider approaching the discussion around culture and adaptation within a modern world and how to ensure cultural qualities are maintained and taught.

4.5 Chapter summary

This chapter reflects the findings of the study. The findings present a picture of the influences on fruit and vegetables eating in Fiji and NZ, the fact that fruit and vegetables are important for health, and that while growing up in Fiji consumption of fruit and vegetables was higher as there was a smaller selection of alternatives. This was interesting as participants find during visits to Fiji that this has changed; family members request food that is considered unhealthy or processed more frequently.

The difficulties surrounding eating fruit and vegetables were due to the increase in cost, the higher status associated with eating unhealthy foods, quality and where fruit and vegetables came from, and the promotion or awareness of healthy food compared to that of unhealthier options. Strategies that were discussed in order to increase fruit and vegetable eating indicate that the biggest change had to come with the mindset regarding food: the decolonisation of lifestyles and food by increasing the knowledge of traditional eating habits, and changing advertising and marketing to highlight the effects food has on the body while being sure to adapt the message so Fijian values can encourage healthy behaviour in a modern way. Just because something is new and different does not mean it lacks the principles that are traditionally important. Culture is fluid and therefore change does not mean culture has to be compromised. Finally, it was suggested that schools should be a setting for change by empowering youth as 'wave makers' to role model healthy behaviours and promote traditional agricultural techniques. Working with youth would encourage behaviour change to become ingrained habits in younger people and, as they are the future, they should be involved in how these messages are designed and delivered.

Chapter 5 Discussion

5.1. Introduction

This study set out to explore the views and strategies of migrant Fijian youth living in New Zealand regarding the consumption of fruit and vegetables. By doing this the study aimed to identify solutions to increasing fruit and vegetable eating from Fijian Youth perspectives leading to reduction in NCDs. Using the Talanoa methodology with five Fijian youth who now reside in New Zealand, the following questions were asked:

- What are the experiences of Fijian youth regarding fruit and vegetables?
- What are Fijian youth's strategies to increase fruit and vegetable consumption?

This chapter discusses how the findings addressed the research questions, utilising literature to elaborate on the findings regarding addressing NCDs through fruit and vegetable eating, globally and within the Pacific. A critical summary of the findings is used to consider the Pacific food system, socio-economic influences and the political factors which contribute to fruit and vegetable eating. Finally, the implications and recommendations for future work are discussed.

5.2 Summary and analysis of findings

5.2.1 Fruit and vegetable eating

All participants in the study mentioned that eating habits amongst Fijians had changed. When comparing fruit and vegetable consumption in New Zealand and Fiji, participants believed there was a greater variety of fruit and vegetables available in New Zealand. However, the mentality surrounding food and reasons for and against consuming fruit and vegetables were surprising. Geographical distribution and where people were raised (rural vs urban areas) contributes to determining the food they eat but it appears that different parts of Fiji potentially prefer fruit and vegetables, which could be due to weather giving the differing climates of the country. There was also a greater variety of options of general food items in the urban areas compared to the rural communities. This was supported by Sharma (2007), who found that fresh produce and fish are common in rural areas and in urban communities there is a greater reliance on bread, rice and tinned foods. Irrelevant of ethnicity, roti, dhal, biscuits, and dairy products are common across the Fiji Islands (Sharma, 2007).

There was an acceptance that fruit and vegetables were important for health in general and perceived to be good for everyone; on one occasion it was explicitly made known that fruit and vegetable eating was important for weight-loss and the participants main reason for eating more produce. This finding is new given

previous research done by Morgan et al. (2016) which pointed out that participants in the study did not mention the role of fruit and vegetables as a reason for weight-loss but noted that the move from traditional to modern diets was associated with the rise in the prevalence of NCDs. Waqa and Mavoa (2006) found that family and friends were significant influences on female students' perception of eating. They would precisely comment on either serving size or body size. There was a need to eat more when considered too small or less when bigger. A common finding for female students was that there was a pattern of missing breakfast and eating a diet low in fruit and vegetables during the school day (Waqa & Mavoa, 2006; Wate et al., 2013).

Compared to Fiji, migrants had found access in New Zealand to fruit and vegetable easy. There was agreement regarding there being a greater variety of fruit and vegetables to eat and cheaper prices in New Zealand for certain varieties. The premise of this could be put down to the greater population and therefore a greater surplus of food in New Zealand. Having a greater population could mean that New Zealand can produce, import or bargain for greater quantities of goods which would theoretically make the cost of many things more economical. However, what are considered local or abundant fruit and vegetables in Fiji, the findings mention are harder to obtain in New Zealand. As a result, there is criticism regarding the tastiness of traditional food items in New Zealand based on importation and how fruit and vegetables are ripened during transit. Comparing this relationship as a influencing factor to fruit and vegetable consumption would an interesting area for future development.

5.2.2 Perceived problems

There were several perceived problems which were discussed that restrict the ability of Fijians to eat fruit and vegetables. This included access compounded by the social determinants of health, the higher status associated with eating unhealthy food, the quality of fruit and vegetables being generally better in New Zealand, and the advertisement of health messages and the lack of promotion regarding fruit and vegetables for health.

Access

There was an indication that all participants believed that affordability was a significant issue regarding food in Fiji. There was concern that fruit and vegetables, especially in the urban centres, were a lot more expensive in the urban markets than at peri-urban, roadside stalls or rural markets. Potentially, this could also be linked to transportation for such commodities is not as well developed in Pacific nations (Underhill &

Singh-Peterson, 2017; Louis & Datta, 2016; Bammann, 2007) and therefore having the ability to sell from the roadside allows greater access to buyers who may be commuting.

Along with an increase in the price of fruit and vegetables there was a perceived increase in the cost of common household food items other than fruit and vegetables. This was not isolated to imported items but also included traditional protein sources such as mud crabs as mentioned in the findings. This relationship between price and availability could be a reason for the preference for unhealthy food. Compared to buying a selection of fruit and vegetables, the supposed economic choice of buying a full meal was viewed as being more affordable. Convenience was not mentioned as a contributing factor, but price was. The findings complement research done elsewhere (Krølner et al., 2011; Kuhnlein & Receveur, 1996; Morgan et al., 2016) which explored barriers to fruit and vegetable consumption. Morgan et al. (2016) found that price and access where amongst the greatest barriers limiting the intake of fruit and vegetables amongst Fijian adults.

Access based on the social determinants of health, specifically income and housing, is plausible when considering the increase in squatter settlements in urban areas and the low minimum wage for Fijians. This is set at a minimum of $2.68 FJD over a working week of five days of nine hours each or alternatively six days of eight hours each (Ministry of Employment, Productivity and Industrial Relations (Fiji), 2019), allowing an individual to earn a minimum of between $120.60 and $128.64 for a week's work. Socio-economic factors including housing have made living within the urban areas more expensive too, with the rise of squatter settlements. Squatter settlements have increased in urban and peri-urban areas. Bryant-Tokalau (2014) reported that Fiji's population is roughly 51% urban accounting for 420,000 people who live in urban areas, particularly in Suva. Around 230 'squatter' (informal) settlements exist, which account for approximately 100,000 people, accommodating 16% of Suva's population (Bryant-Tokalau, 2014). These two factors, along with an underdeveloped social system, means that access to necessary healthcare or awareness campaigns are not reliable and the rise in the prevalence of NCDs in the Pacific is ongoing.

Higher status of unhealthy food

This idea of the symbolism of food and the prestige that was associated with less traditional food led participants to question the healthiness of more modern diets. There was a sense of privilege given to certain foods, with meat being highly prized and valued as a status symbol. This was perceived to be a mentality associated with the older generation and those coming specifically from a rural perspective. A similar belief was upheld regarding processed foods or items that were store bought. For those amongst the younger generation

it was perceived to be about being mainstream, fitting in, and achieving a sense of conformity by purchasing or eating takeaways. The associated perception of certain foods having a 'cool factor' or added flavour/taste meant that takeaways were suggested to be the preference amongst younger people in Fiji. There was an appeal related to living a certain lifestyle, by proxy meeting a pre-set benchmark for social class and socio-economic superiority (Haden, 2009). Hill, Casswell, Maskill, Jones and Wyllie (1998) obtained similar findings from research in New Zealand which suggested that the eating and taste preferences of teenagers were influenced by friends and what they considered to be attractive food. Fruit or vegetables as snacks were a less assertive option and seen as a way to rebel against parental opinion (Hill et al., 1998).

Quality

The quality of fruit and vegetables in Fiji has not been compared to New Zealand before in the context of consumption. Quality was attributed to fruit and vegetables in Fiji being grown locally and therefore believed to be better and having a better taste. Participants believed that imported fruit in New Zealand was said to taste different due to importation and not ripening naturally. There have been studies which explored fruit and vegetable consumption among students in different countries but reasons influencing the differences were not considered (Utter et al., 2008). Utter et al. (2008) acknowledged that less than 40% of students in Fiji, irrelevant of gender, ate fruit twice or more per day compared to 60% in New Zealand, Tonga and Australia, while 52% of female and 61% of male students in Fiji ate two servings of vegetables compared to more than 75% of students in Australia. There was said to be no limiting factor to accessing fruit and vegetables in New Zealand and items otherwise expensive in Fiji were noticeably more affordable in New Zealand (Utter et al., 2008). This creates an opportunity for future research into the how quality of fruit and vegetables influences consumption amongst youth in similar demographics in different countries.

Advertisement

Health messages and the advertisement of unhealthy foods has been mentioned in previous studies (Hastings et al., 2003, Hill et al., 1998; 2003; O'Dea, 2003). Hastings et al. (2003) found evidence that food promotion influences children's food preferences and their purchase behaviour. Most food promotion occurred through TV promotions which commonly represent what are known as the big five: breakfast cereals, confectionery, savoury snacks, soft drinks and fast foods. Hastings et al. (2003) claimed that there is enough evidence available to conclude an effect exists, and social network media exposure, specifically television, was

associated with eating pathology amongst Fijians (Becker et al., 2011). In terms of the findings of the present study, there was more criticism regarding the efforts of the Fijian government to try to promote healthy eating campaigns. Given the details above there is cause to believe that, if done well, the promotion of healthy alternatives through social media applications could have a positive effect on health, especially as recent social media trends regarding healthy eating and physical exercise have become more popular, leading to big brand companies buying into smaller health-focused companies (Herrick, 2009).

5.2.3 Suggestions on strategies to increase fruit and vegetable eating

The participants conceded that the introduction of or preference for more modernised diets were related to the increase in negative health issues. The increase in urbanisation and development is threatening the health and well-being of many Fijians (Haden, 2009; Morgan et al., 2016). The findings reflect that traditional dietary practices of eating staple root crops, leafy greens and fish or protein alternatives are still are way of life in the rural setting of Fiji. This is reflected in participants' consideration of achieving change by addressing ideas surrounding cultural mindset, engaging youth leaders and the marketing of health messages.

There is research to support the strategies mentioned. A need to redevelop the value in traditional practices for the good of population health in the Pacific has been discussed (Haden, 2009; Pollock, 1995). A shift to readily available food, less diverse eating habits resulting in potential nutrient deprived options has been described by Pollock (1995) and Haden (2009) who believed this has added to the obesity epidemic; a consequential effect is lifestyle diseases (Hossain et al., 2007). Participants' ideas regarding healthy food seemed to recognise they were separate to traditional food though. Healthy food was described by participants *"as good for one's mind"* (Leilani during Talanoa session one), whereas traditional food was seen by participants as being beneficial to the soul. Whether this was meant as holistically good and benefitting the entirety of a person was not made clear but is a topic to be considered with further investigation.

Cultural mindset

Acculturation in the modern world is a difficult issue to manoeuvre around. The historical effects of colonisation and its modern counterpart, globalisation, have meant the encroaching influence on indigenous populations has never been greater. Participants suggested that, in order to ensure that healthy eating was practiced in Fiji, then having the masses lead the change was necessary. The concept of the healthy eating trend would encourage grassroots initiatives which would have to be balanced with political movements to support

the cause. This would mean that participation and committed agreeance from the bottom upwards and from the top downwards would solidify the change. The need for action meeting policy with a balance regarding culture was very important. It is of significance to note that such an approach would be specific to urban areas and, if intended for rural communities, Fijian traditional protocols and systems relating to the chiefs and hierarchical order would have to be observed. A process of creating change this way was implemented by Tukana (2013). Currently, there appear to be efforts from the Fijian government to do so at the governmental level with the launch of the *3 Food Groups: Fiji's Guide to Healthy Eating* (MOHMS Fiji, 2011) and the *Khana Kakana* cookbook (MOHMS Fiji, 2014b). At the grassroots levels there appears to be little to nothing which has been initiated by locals, and most projects are a part of subsidiaries of foreign aid groups (Ministry of Agriculture (Fiji) [MoA Fiji], 2014). Although well meaning, they may not always be culturally appropriate.

A further suggestion from participants was the need for gender equality. Utilising women within roles which allow them the ability to act and fulfil traditional practices as 'doers' but also encouraging gender equality, greater opportunities, and empowerment throughout Fijian society.

Engaging youth leaders

Youth as change agents or 'wave makers' is not a new concept and has been suggested when considering changes to healthcare or inequality issues which involve the changing of adolescent or youth behaviour (Conn et al., 2016; Finlay, 2010; Mandel & Qazilbash, 2005; Zeldin, Christens, & Powers, 2013). Youth change agents have the opportunity to contribute their ideas and, when paired up in youth-adult partnerships which encompass four core principles (authentic decision making, natural mentors, reciprocal activity, and community connectedness) (Zeldin et al., 2013), gain a sense of empowerment, networks, decision-making skills and leadership development (Finlay, 2010). There is agreeance that such an approach can encourage health-seeking behaviour through to adulthood while promoting community change, civic engagement and youth development (Conn et al., 2016; Finlay, 2010; Zeldin et al., 2013). Using schools as a medium to do this work could not only build capacity but, as mentioned by Morgan et al. (2016), may provide essential space within urban Fiji for the development of gardens and youth engagement given the lack of agricultural land in Suva.

Marketing of health messages

As previously mentioned, television has had an effect on the eating pathology of young people, negatively influencing eating habits in Fiji (Becker et al., 2011). However, although body satisfaction has been

considered in previous studies (Utter et al., 2008) there is no information regarding youth attitudes towards healthy body perspectives and what has encouraged positive attitudes towards eating. The WHO (2000) guidelines for the prevention and management of obesity do little to address the reasons why people consume less healthy food or alternatives to healthy options. There is little done to promote positive behaviour. The approach of identifying members of society into ambiguous categories removes the personal qualities and the value of relationship which is a central value of Fijian and Pacific culture (Tukana, 2013). For this reason, it is believed that participants wanted to ensure that face-to-face communication of health messages have a greater chance of working within the Fijian and/or Pacific context.

The pivotal issue regarding the marketing of what are considered unhealthy foods is the input and backlash from corporates. Public health reinforces the view that the food industry needs to assume a certain degree of responsibility and the burden of duty in assisting in addressing the obesity epidemic. However, the global food industry, as mentioned by Stuckler and Nestle (2012), is driven by a few multinational companies, referred to as 'Big Food', who have a large investment interest in developing nations. This is considered to be the reason for the shift from simpler traditional diets to global producers, known as a nutrition transition (Stuckler & Nestle, 2012). Based on lessons from 'Big Tobacco', public health efforts to regulate the food industry through taxes and regulations have been averted by food industry corporates. This is due to the influence that Big Food has on the political agenda (Moodie, 2017). The development of obesity prevention policy in Fiji has already been influenced by pressure from industry (Hendriks et al, 2017).

5.3 Implications and recommendations

As noted, a number of times, the nutritional transition from traditional diets to globalised eating habits has been linked to the increase in the number of lifestyle-induced diseases (Campbell, 2015; Hendriks et al., 2015; Morgan et al., 2016; Pollock, 2009; Snowdon & Thow, 2013). In the Pacific, the trending increase in body mass index has been observed since 1980. The Pacific has been leading the way, more so than any other region in the world (Finucane et al., 2011 as cited in Morgan et al., 2016). This is compounded by the fact that obesity is considered a precursor to many NCDs and within the Pacific the likes of diabetes were unknown 40 years ago (Underhill & Singh-Peterson, 2017). Historically, dependency on imported foods has been occurring since the 1970s at a time when most Pacific nations were still colonies. Newfound independence and access to global food markets has favoured imported food at the cost of Pacific people's health (Campbell, 2015). Most of

Fiji's economy is based on agriculture and exports, with tourism being the largest foreign exchange earner, followed by textiles and fisheries, mining and timber production (Commonwealth Secretariat, 2019b). However lucrative these industries have been, they are heavily affected when there are periods of severe natural disasters or political instability as is the case with Fiji and the coups (DFAT Australia, 2019b). With the country also having a heavy reliance on natural resources and being susceptible to natural disasters, Fiji's cash crop industry is put at risk. At the same time, this reduces local resilience when needing to meet national subsistence requirements (Campbell, 2015).

These factors, along with the wider social determinants affecting the Pacific food system have led to an endemic obesogenic landscape (Underhill & Singh-Peterson, 2017; Morgan et al, 2016; Hendriks et al, 2015). As such, it is important to consider the influences these contributing factors have when addressing the issue. A wider societal and critical solution is necessary. Bearing in mind the three components of the food system discussed in Chapter Two, namely the cultural perspective of food, environmental impact and food security, and system factors, in this section the discussion of the findings of this study considers how these components impact policy and lend themselves to recommendations for practice.

5.3.1 Cultural perspective on food

Culture, context and customs

The research in this study has highlighted youth opinion and ideas regarding the need to "decolonise mind set and decolonise lifestyle" in relationship to the traditional view of food and the more modern version of globalised eating habits. Traditional subsistence living was not merely eating to live, but during periods where subsistence provided a surplus to needs, food was then treated as a tool for trade and relationship development, as well as a way to ensure survival. The utilisation of cash crops to increase the wealth of a country flips this traditional model of living by assuming that the need for monetary gain outweighs the needs for subsistence. By all historical accounts, Pacific people during first or early contact were viewed as healthy, formidable beings. The difference in opinion regarding the accumulation of materialistic items was simply a difference regarding the view of wealth (WHO, 2003a). This was something that participants had discussed.

The cultural, contextual and customary relationship that Pacific Islanders have with food has been described and highlighted in Chapter Two. These affirm concepts of time and beliefs regarding the Pacific values of respect, reciprocity and relationships (Nabobo-Baba, 2008). A more westernised perspective of culture is based on a scientific, linear and generally financially driven version of time compared to the Pacific or Oceanic

view whereby time is circular, and the past, present and future are all encompassed in the 'now' (Hau'ofa, 1993). As explained by Thaman (2002), this is a concept where the living and the dead (the past) are joined in the presence that is the impending future. Instilling these in a communal sense of living, rather than the individualist lifestyle that modern life promotes, would be necessary in encouraging healthy cultural links to food. This would give a potentially more empathetic view of dealing with sustainable development in the Pacific, irrelevant of the topic. Issues arise, however, given the residual historical impacts of colonisation and its modern counterpart, globalisation, that have resulted in a loss of cultural awareness or, as is the case in some instances, a separation from culture necessary for an individual to achieve a westernised version of success (Thaman, 2002). By considering the importance of culture, context, and customs, there is the potential for an approach to the issue of fruit and vegetable eating which requires assessing the synergies in the sense of wholeness, a holistic Pacific worldview which is inclusive, values interpersonal relationships and the participation of the community, and champions the support of healthy food choices and the protection of the environment. Doing so can support westernised beliefs of logical and objective thinking where personal individuality and material gain is valued, just not at the expense of culture or the environment (Campbell, 2015).

The study provided insight into the combining of self as part of a community and this is the same sense of the cultural influence of food as is described as a strategy to change eating habits. By individually making change there is an opportunity to lead a healthier life. By starting with the self, change can be made and can be expected to influence other members of the family, producing a ripple effect whereby family members then influence extended family or, alternatively, friends.

5.3.2 Environmental impact and food security

Food security and biodiversity

The results of this study refer to the environmental contribution that consumption of fruit and vegetables in Fiji is based on geographical distribution. Participants found that those growing up in the north-west had a greater supply of fruit compared to those who grew up in the south-east, who felt they had greater access to more vegetables. This concept of the geographical influence on growing is described by Campbell (2015) as a climate regime for agricultural systems, whereby different varieties of fruit and vegetables were grown in specific climates to ensure optimal growing conditions. This was generally offset during times of natural disaster and extreme weather events, whereby agricultural affluence in terms of surpluses were put aside for periods of scarcity (Campbell, 2015). However, with urban migration, populations in urban centres are now

unable to be food self-sufficient, limiting traditional agricultural efforts due to reduced land available for growing (Snowdon & Thow, 2013). This increases food insecurity as the Pacific region and has meant urban centres are greatly dependent on imports or, in other instances, on foreign aid. This aligns with Ganry et al.'s (2010) view that with the erosion of local cultures and indigenous knowledge so too has there been an increase in poor health and environmental degradation

To curb food insecurity in urban areas, participants believed that agricultural education could provide practical life skills to not only incorporate westernised principles of education but to ensure youth leadership. R. R. Thaman (1995) labelled urban gardening as having a direct effect through social, economic, nutrition, technological, and ecological means to bring sustainable development to the Pacific. Involving youth in gardening activities encourages health promotion which has been linked to increasing fruit and vegetable consumption (van Lier et al., 2017). Van Lier et al. (2017) found that gardening may make a difference to health and nutrition behaviours by contributing to adolescents' health and well-being in a positive manner. Not only would such practices assist in providing food security, but they would support the findings of this study by addressing issues surrounding the empowerment of youth using traditional agricultural practices. Youth as prosumers as a means to decolonise the mindset regarding food by creating a trend associated with cultural identity.

Climate change

The findings of this study reveal that climate change had indirectly impacted on people's perceived access to and affordability of fruit and vegetables in Fiji. In the urban centres the discrepancies in pricing were believed to be because of natural disasters, Eva during talanoa session four explained that *"it started after Winston to be honest and all the crops, went. So, they increase the price of everything".* Campbell (2015) noted that both rural and urban communities in the Pacific face high levels of food insecurity as a result of disasters caused by weather extremes. This is expected to become more common as it is compounded by population growth and projections that climate change will increase the stress on the food supply, making the issue worse rather than better (McGregor, Bourke, Manley, Tubuna, & Deo, 2009). These stresses include changes in tropical cyclone frequency and/or magnitude, changing sea temperatures and ocean acidification which all indirectly influence both food security and food self-sufficiency. It is a cycle of cause and effect which impacts on livelihood and habitat security and changing disease vectors which may also affect habitat security (Campbell, 2015).

Sharma (2007) stated that the impact of Cyclone Ami in 2003 was estimated to have caused a loss of about F$66 million for the agricultural sector. This included damages to subsistence and commercial crops,

infrastructure and farmland (Sharma, 2007). The increased risk of flooding in river catchments also threatens food production, as was the case when severe flooding of the Wainibuka and Rewa Rivers in April 2004 caused damage to between 50% and 70% of crops (Barnett, 2011). Furthermore, Cox, Finau, Kant, Tarai, and Titifanue (2018) noted that, after Cyclone Winston in February 2016, many locally produced agricultural crops were at record high prices and were suggested to be likely to remain high for up to two years. The inflation of produce was compounded by the severe flooding which affected Fiji in December 2016, causing further damage to areas already struggling to rebuild after the February event (Cox et al., 2018). With extreme events come impacts on tourism due to infrastructure damage but also as the risk of disease increases, and as is now noted that a greater range of vector-borne diseases are present within the Pacific (Barnett, 2011). Although, the effects of climate change through the relationships between natural disasters and crop damage explains higher prices; it doesn't necessary explain the significant price difference between urban and semi-urban areas as highlighted in the findings. The reasonings for this could be explored more and potentially minimise barriers to fruit and vegetable consumption in Fiji.

Affordability and access

This study had a resounding theme regarding affordability of and access to fruit and vegetables or, in some cases, the economic advantage of less-healthy options. Within the urban centres the dependency on imported goods has been extensively researched and it appears that this dependence is now affecting households and the consumption of goods. The understanding that participants demonstrated regarding the reasons affecting cost and availability of fruit and vegetables within Fiji was clear. Participants felt that social determinants of health were negatively impacting on diet. An increase in housing and food costs, combined with a standstill in wages, meant that healthier foods which are considered expensive were substituted for less-healthy alternatives (REF).

The link between natural disasters, income and fruit and vegetable availability was the specific social determinant mentioned by participants. However, it was believed that the agricultural sector should have rebounded since Cyclone Winston, but the feeling was that vendors were benefitting from the higher prices and, irrelevant of supply, prices were unlikely to drop. As mentioned by Sharma (2007), it can be some time (up to two years) post-disaster for the agricultural sector to recover. However, there is also the political link in the supply of aid. Sharma (2007) explained this as a short-term relief measure undertaken by the National Disasters Management Office (NDMO), Fiji, through its network to supply food to affected areas. The government procures

food from overseas donor agencies such as the Red Cross, NGOs, and government-to-government assistance to supplement its supply. There are delays in food supply, and a lack of coordination among the various agencies involved in food distribution (Sharma, 2007). Food crises can last for a few weeks, depending upon the severity of a disaster. People start to grow food on the farmlands, but it takes a couple of months to restore these food supplies. In Fiji, there has been no attempt at designing appropriate disaster risk management programmes to minimise adverse effects in the long run (Sharma, 2007).

There is also a need to design appropriate disaster risk management programmes to minimize any adverse effects of natural disasters on the food supply (McGregor et al. 2009). A redevelopment of traditional practices, the preservation of food through fermentation and drying techniques could aid in providing Fijian communities with supplies during times of famine caused by such disasters. However, due to the reliance on aid there has been a loss of traditional knowledge around famine foods and production, storage and preserving methods (Campbell 2015). This has led to an increasing gap between food dependency and food security. This aligns with Ganry et al.'s (2010) view that with the erosion of local cultures and indigenous knowledge so too has there been an increase in poor health and environmental degradation. As mentioned by the participants, there is a need for a renaissance of Pacific culture, traditional food preparation and agricultural methods, systems, arts and practices to ensure a sustainable future.

Barnett (2011) and Campbell (2015) discussed the impact that further events and the rise of climate change will have on the effect of food supply. The acidification of land and loss of land due to rising sea levels limit the space available for agricultural purposes, both for self-sufficiency and commercial purposes. Marine and inland freshwater fisheries are also important sources providing income and food to many communities who harvest shellfish and shells, corals, crustaceans, marine plants, finfish, and other species, and weather events and climate change are putting Fiji and the wider region at risk (Barnett, 2011; Campbell, 2015). This is compounded by the global food crisis. McGregor et al. (2009) have noted the deterioration in Fiji's ability to manage a food crisis.

These findings highlight the findings of the research which reinforce the rejuvenation of the iTaukei values and traditions but in a way that allows a younger generation to adapt and advocate for change. This is supported by Nabobo-Baba (2008) who developed a framework whereby she proposed a way of working which reflects the philosophy of '*Vanua'.* The '*Vanua*' philosophy is all-encompassing - of land, people and their relationships, be this spiritually, culture, individual or clan values, or religion. It provides a sense of interconnectedness and highlights interdependence. Utilising such frameworks which considers the Fijian

context encourages the voices of youth in a way that honours tradition and adaptation: upholding central values of relationship, respect and kinship (Naibobo-Baba, 2008) which are core to being Fijian while simultaneously taking steps toward cultural fluidity that allows for sustainable change to address modern problems. This is necessary, as the issues within the food system both in Fiji and the Pacific region are not isolated from each other. This is irrelevant of production, environment, politics, economy, culture, or health.

5.3.3 System factors

Economics

This study both directly and indirectly makes links between economic input and associated outcomes in health. A resounding comment made by participants was that the cost of eating fruit and vegetables in Fiji has gone up. Bammann (2007) explained that prices change slowly because there is a lack of responsiveness in the supply and demand for staples. Besides fruit and vegetables in Fiji, it was felt that many of the basic household items which are commonplace had increased in price. Traditional harvested supplies of mud crab were perceived to be highly expensive now. This acknowledgement amongst participants that store-bought goods were costly and still being purchased reflected a reliance upon them. This could potentially negatively affect households, especially as they look to more cost-effective alternatives which provide little or no nutritional benefit. This is a reality that has been noted elsewhere (Wate et al., 2013).

Fiji's dependency on agriculture for exports has had a setback in recent years (Commonwealth Secretariat, 2019b). The main agricultural commodity, sugar cane, is declining in export volume, with the other top five agricultural exports significantly decreasing also, since Tropical Cyclone Winston (MoA Fiji, 2019). According to McGregor et al. (2009), the UN had given Fiji a 'plus' indicator on the food import capacity index (FICI). The FICI indicates vulnerability to food security. Fiji's placing has changed from a highly favourable situation several years ago. A high percentage of Fiji's population now falls into category one (those who are made substantially worse off) regarding the impact from the global food crisis. Their situation has been made substantially worse by the increasing global food price increases (McGregor et al., 2009). This is due to a combination of declining sugar export earnings and increasing external debt servicing. McGregor et al. (2009) noted that those most at risk include those living in urban and peri-urban communities, who make up almost half the population, and sugarcane farmers and labourer households, who make up a further 11% of the population. This same population is greatly affected by NCDs and a number of lifestyle-induced diseases. This reliance on a

global food system which promotes high-calorie, nutrient-poor imports has forced low- and middle-income countries to become worse off in health statistics (Moodie, 2017)

A means of liberation within peri-urban and urban areas, to increase fruit and vegetable consumption, is urban gardens. Urban gardens lend themselves to economic freedom amongst urban households, while also minimising the costs required for importation at a governmental and regional level, thereby putting self-sufficiency first, and commercialisation second (R. R. Thaman, 1995). This is especially valid given the trade deficit Fiji has been subjected to and the perspectives of policy makers as discussed by Hendriks et al. (2015). Currently, the degree of self-sufficiency could mean the domestic market is not able to meet national requirements for fresh food and meat within Fiji due to the poorly organised agricultural sector (Hendriks et al., 2015). A viable opportunity to address this could be through urban gardening but there needs to be discussion between councils and communities to ensure maintenance is organised, theft is minimised or controlled, and regulations are in place to allow and to encourage urban gardens (R. R. Thaman, 1995). Schools, as suggested in the findings, provide a possible alternative to the governmental regulations which limit the practices of urban gardens.

The MoA Fiji (2014) has already taken steps to address the issue of economics, using the agriculture sector policy agenda set to address five strategic areas for the rehabilitation of the economy through agriculture. The objectives of this agenda include: a) building modern agriculture in Fiji via a better equipped and organised process chain system, which includes the marketing for crops, livestock, and aquaculture products; b) developing integrated production, processing, energy, and transport infrastructure support systems for agriculture; c) improving the delivery of agriculture support services; d) enhancing the capability of fund generation by securing investment through foreign investment, private-public partnership, and other innovative arrangements; and, finally, e) improving project implementation and policy formulation capability within the MoA and its partner institutions (MoA Fiji, 2014). However, the link between agriculture and the economy has been addressed with what appears to be little consideration for the impact of health. Agro-forestry plans reflect the intermittent planting of non-traditional staples and while there is opportunity for a minimisation of waste through better processing procedures and infrastructure, the degree to which this is considered for the domestic market is questionable (MOA Fiji, 2014). Although there is greater opportunity for income for households through job creation, will this address health issues or give way to convenient eating habits which push the country into greater health risks? The opportunities seem greater for economic development in the rural areas where the majority of agriculture takes place, but will urban areas benefit in the same manner, especially when agriculture

is a major exporter for the country? The reality is highlighted by the fact that the tourism industry is reluctant to source produce locally in Fiji (Bammann, 2007).

Given the perspective of participants regarding strategies for change, incorporating a decolonising method by incorporates aspects of cultural agricultural practices, youth in Fiji could develop ideas around addressing this as prosumers and using modern technological methods not only as a form of marketing but to also meet deliverable objectives set out by the MoA such as enhancing support services and fund capability through innovative arrangements. Using the strategies could create opportunities to solve the questions posed above. Figure 1 below presents a summary of the main strategies referred to by participants for creating change.

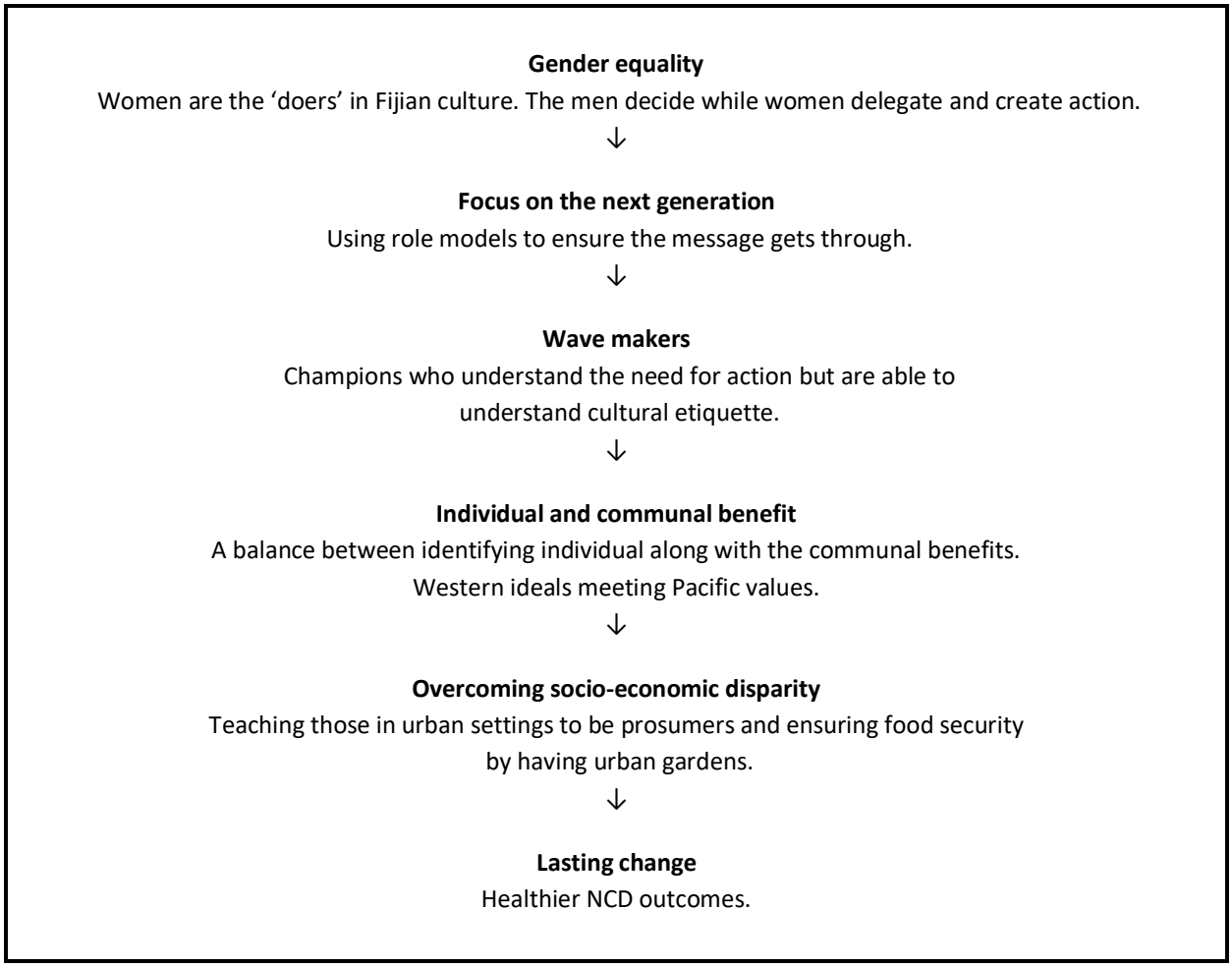

Figure 1: Main strategies to increase lasting change

Politics/trade

The historical political situation of Fiji has generally left it at odds with more powerful neighbours, especially when these same nations are Fiji's biggest agricultural trading partners, Australia and New Zealand

(MoA Fiji, 2019). During political unrest, this can cause economic instability. There has in the last decade been contention regarding the ethics of food trade between the more powerful Pacific rim nations and that of their Pacific counterparts. Underhill and Singh-Peterson (2017) have stated that, when considered in isolation, trade policies inadvertently compound the risk factors of NCDs in the Pacific. The most common of trade items are the lamb flaps and turkey necks considered otherwise not fit for human consumption by the western nations. These are used as pet food in their respective countries (Snowdon & Thow, 2013). These actions almost seem ironic given the amount of aid that is given to Pacific countries in order to control and treat the effects of NCDs. Snowdon and Thow (2013) have described the continued efforts of bigger political parties making efforts to sanction Pacific nations at the WTO for trying to ban the importation of high-fat animal products. This is combined with the further reduction in food security caused by more developed countries as they try to gain access to Pacific fishery supplies. Participants raised this issue during discussion around the political alliances between Fiji and more powerful developed countries, which leave Fijian nationals at a disadvantage. Legge et al. (2011) noted that although trade liberalisation theoretically leads to economic development for developing countries, the benefits are not always equally shared and, although cheap imports are obtained, there is little enhancement on exports. It leaves one questioning how, with global powers such as the WTO and WHO unable to agree on the importance of health and economics with respect to each other, are smaller nations without the weight of financial backing and proper healthcare systems expected to find a solution. Compound this with the power of the global corporate food industry, and the outcomes are clear in the health statistics of these developing nations.

The concept of foreign aid or funding to assist in addressing Pacific issues is not new. The likes of Australia and New Zealand have long-standing relationships in the Pacific (DFAT Australia, 2019a; MFAT NZ, 2019). With such funding has come the testing ground for innovative solutions to both malnutrition and NCDs amongst Pacific nations. The use of serious games to interact with or educate people has linked traditional knowledge and food systems to improved health outcomes. By using such knowledge there is a space to create a resurgence of traditional practices which encourage healthier habits and potential fruit and vegetable businesses using youth and technology as the catalyst. These programs are established due to political alliances. 'Beyond the Stars' by Story 1st, Technology 2nd (2019) is a pilot programme funded by the Australian Department of Foreign Affairs and Trade, which is a self-proclaimed "storytelling-based technology experience that empowers children in Fiji to rediscover nutritional values and healthy eating habits through an explorative journey into their culture" (p. 1). This innovative and collaborative way of working within communities to develop a tool for

educational and health purposes has led to some promising findings. These included the fact the participating children had an 11% average increase in their ability to identify healthy foods and a 10% increase in their ability to identify unhealthy foods, while 14% of children were more likely to express dietary preferences for healthy foods and of these children 37-58% less likely to express dietary preferences for unhealthy foods. From the perspective of adults who were involved, 7 out of 9 (78%) teachers and 19 out of 43 (44%) parents observed a positive change in children's eating habits, as a result of participation in the pilot. All teachers and parents valued the use of multiplatform media storytelling and innovative technologies. This led to 6 out of 9 (67%) teachers suggesting this approach was more effective than traditional methods and 38 out of 43 (88.3%) of parents interviewed noting that either themselves or their families had experienced an attitude and/or behavioural change surrounding healthy eating (Story 1st, Technology 2nd, 2019). The use of traditional knowledge and modern methods to create new ways of teaching and learning frames culture in a modern and relevant way. The fact that this pilot has been sure to work with local storytellers and creatives to ensure the cultural appropriacy of the project is of great importance. There is cynicism, though, regarding the future development and continued interaction and development of the work that was started. The need for on-going and sustainable follow-through and upkeep is important to ensure these communities do not experience change fatigue or a sense of abandonment whereby the cultural integrity of the relationship that has been initiated is destroyed. There is also as mentioned by participants the need to make such apps a trend, potentially using social media to draw a following. The advantage of doing so would not only increase marketing avenues but would make such games household names.

These ideas link in with marketing and awareness to promote fruit and vegetable eating in the Pacific. Participants had first-hand experience whereby government agencies had recommended using key statistical findings as the foundation for public marketing. It has been suggested that such techniques do not reach the public effectively and alternatively, that they leave communities unsure about intentions. Leslie (2002, as cited in Capstick, Norris, Sopoaga, & Tobata, 2009) commented that this style of health promotion, one that relays direct versions of biomedical information, via government sources, and instructs people to change their behaviours, has been criticised. The effect of not interpreting or relating and idea to the target audience has meant that these messages are met with defiance, whereby people will create their own interpretation or purposively decide to omit or choose what they see as relevant (Leslie, 2002, as cited in Capstick et al., 2009). This reinforces the need to have marketing strategies which not only fit the target population but are delivered in a way which claims the general public's attention and motivates them to create change themselves.

According to Snowdon et al. (2011), there are several low-cost preventative measures which could be implemented that, when compared to treatment, are more beneficial. However, it is suggested that, in order to make this a reality, different ministries need to acknowledge that they too are responsible for bearing the cost, and this financial burden should not fall solely onto the Ministry of Health (Snowdon et al., 2011). Given the value of shared responsibility being of great importance amongst Pacific cultures, there appears to be little consideration for the cultural implications of political international decisions. The discussion amongst participants regarding how wealth is measured needs to be addressed. Is it a biproduct of health, a traditional state of wholeness, or is it about economic success – which leaves one asking whether a more modern perspective for national success should be considered. The UN (2019b) has encouraged the work done in Bhutan. Bhutan has decided to replace the use gross domestic product (GDP) as a measure of national success and have established its own index, based on happiness, called gross national happiness (GNH). The GNH is a development plan based on a more meaningful purpose and sustainable development. As a result, income poverty and multidimensional poverty have decreased, and education and health outcomes have been positively affected. The country has also created benefits in the economy while being carbon neutral. Instead of focusing on the economy, economic success is more a biproduct of national happiness (UN, 2019b), leading to positive outcomes towards the sustainable development goals.

5.4 Summary

The purpose of this study was to gain an understanding of fruit and vegetable consumption amongst migrant Fijian youth living in NZ by considering different attitudes toward food among Fijian youth, the contributing factors to fruit and vegetable consumption, and the strategies believed to increase fruit and vegetable consumption within a Pacific food system. This study found that fruit and vegetables have significance to Fijian youth but, in the modern world, the desire to meet trends or eat unhealthy food is viewed in higher regard than the relevance of fruit and vegetables to health, although this was mentioned as having an association with weight-loss. There are currently several perceived barriers which limit the consumption of fruit and vegetables. These are access, which is compromised by social determinants and affordability. There is an acknowledgement that unhealthy foods have a high status given to them, and the advertisement of fruit and vegetables in Fiji promotes a lack of awareness of fruit and vegetables or has little relevance to the health benefits of consuming fruit and vegetables amongst youth. When synthesising strategies to increase produce eating, the

central theme was the decolonisation of the mindset, especially regarding tradition foods; culture was pivotal to all strategies in ensuring the success of other strategies, such as the promotion of youth 'wave makers' being encouraged as role models in schools. Schools would provide the setting to teach traditional agricultural practices, create urban gardens and encourage healthier eating practices. Finally, a rejuvenation of marketing for health messages was needed to ensure the greater population received relevant information.

The implications and contemplation of the Pacific food system regarding fruit and vegetable eating were discussed, along with the perpetuation of the issue regarding NCDs in Fiji and the wider Pacific region. The development of innovative ideas to combat NCDs in the Pacific is becoming a reality. It is hoped that modern methods which hold cultural integrity at the core and address the global food system, while making those accountable for the global NCD trends answerable for their actions, will see a change in the risk factors which could prevent NCDs in the future.

Chapter 6 Conclusion

6.1 Contribution of the study

The findings of this study suggest that youth have a voice and opinions regarding their health and the factors that influence it. It is important to note the sense of prosumerism associated with youth promoted health; this develops a form of self-empowerment (Conn et al., 2016; Zeldin et al., 2013). By gaining a sense of empowerment, connecting networks, developing decision-making skills and encouraging leadership development, there is an opportunity for youth to inspire health-seeking behaviours (Finlay, 2010). As adults of tomorrow, there is a chance for them to promote community change, civic engagement and youth development at the same time (Conn et al., 2016; Finlay, 2010; Zeldin et al., 2013).

As far as is known, this study is the first to discuss critical thoughts and ideas with Fijian youth on contributing to health reform in Fiji. They have voiced their ideas regarding perceived problems and their ideas for increasing fruit and vegetable eating as it relates to NCDs. These strategies provide a youthful perspective on issues and consequences affecting their future. These strategies are not necessarily new but the methods which are suggested reflect the trends and realities of those recommending them. Therefore, they can create a wider impact as the reality within Fiji is not unique to that country. Fiji has a population where the majority is young, with the median age being 27.5 years and with 69% of the population being under 40 (Fijian Government, 2018). But this can be said for a number of other low- and middle-income countries as well as for their Pacific counterparts. These suggestions are potentially applicable there too.

An unexpected finding of the study is the cultural mindset of participants regarding food and its role in increasing fruit and vegetable eating. The decolonisation of thinking regarding food can be used to minimise the consumption of less healthy alternatives. Given the complexity of the issue, this research provides an insight into how to address the Pacific food system which includes the role of health and culture as contributing factors. The reality is that agribusiness and the global food system appear to side-line the political influence they have in relation to health and risk factors of NCDs in the Pacific (Moodie, 2017). It is questioned if this is an oversight based on the input of multinational global corporations who seek to profit based on the negative health outcomes of its consumers or if this is merely a matter of ignorance. That latter is assumed to be hopeful naivety.

6.2 Limitations of the study

The study is one of a very few studies to consider youth ideas and perspectives to create change associated with vegetable and fruit eating within the Fijian context and provides a foundation to develop such research further. As youth represent much of the Fijian population, the cultural relevance of youth requires more research and the study was limited in the number of Talanoa sessions it was able to carry out. Having said that, the data presented provides a quality and depth which highlights the primary basis of youth as wave makers or change agents in Fiji.

The study met with difficulties when trying to establish the extent of the issue, as the literature surrounding the topic within Fiji was very limited. The generalisation of the data for the Pacific region provided greater insight. Given the remoteness of the country and the limited resources of the nation and its people, the true extent of the issue is not fully understood. The research that is available focuses mainly on the quantifiable, however the extent of the civilian opinion or input into social determinants from the perspective of those residing in Fiji requires further research. It is expected that, given the renewal of the national NCD strategic plan in Fiji at the end of 2019, there is potential to develop alternatives to addressing an issue which appears to be rising instead of decreasing.

Methodological limitations were experienced. Using talanoa means that there isn't a rigid framework to set a precedence. As a researcher using talanoa there is a need for flexibility. This shift is specifically based on participants having power in determining the direction in which the talanoa will take, and as researchers being flexible to that. A further limitation therefore is the lack of time taken to thoroughly develop one relationship with a participant compared to others. This is important to mention as the value of relationship and building a rapport or trust with participants is what strengthens the discussion during talanoa. This in turns ensure the integrity of the ideas being mentioned.

6.3 Recommendations for future

Given that most studies still consider the biomedical approach to addressing NCDs in the region, there is a need for research which focuses on system changes. The stress on the Fijian healthcare system and the political blanketing of wider societal issues need to be addressed. Specifically, for those who live and work within the system, and the economic driver which is the food industry who influence negative heath statistics. This study

considers the contribution of the consumer in an empowered way. The strategies for change mentioned in the findings offer recommendations for future implementation.

6.3.1 Consideration of implementing social networking forums led by youth

Creating a space for youth to openly be a part of the solution creates a sense of ownership regarding an issue and fosters a sense of leadership and mentoring in preparation for the future (Cath et al., 2016). Youth have a breadth of ideas to offer and are more inclined to influence peers regarding trends or mindsets when it comes to perception of different topics, and this includes that of fruit and vegetable eating in Fiji. Those within the sector or those who are unfamiliar with social marketing based on what is trending or active in popular culture, would benefit from engaging with youth as an avenue to explore such ideas regarding healthier eating practices. Research which works with a greater number of youths would allow for greater general conclusions to be established while fostering empowerment. The likes of social media applications and serious games in achieving this, based on the ideas of youth, need to be considered further (Cath et al., 2016; Finlay, 2010).

6.3.2 Policies regarding the cultural dimensions of socio-economic factors

Further studies should take into consideration the cultural dimensions of socio-economic factors and the link between the two. Given the limited accessibility of fruit and vegetables in Fiji there is the potential to rejuvenate traditional knowledge regarding fruit and vegetables, preparation methods and a combination of both traditional and modernised cooking methods. There have been attempts to do this in popular culture, generally in international travel, cooking and tourism shows, which reinforces the ideas surrounding the reliance on foreign parties. However, the effects or the impact of such a programme on the population is unknown. Given the remoteness of many Pacific communities there could be challenges in assuring such an approach is measured. The majority of NCDs and their complications are focused around urban centres (Hendriks et al., 2015; Snowdon & Thow, 2013; WHO, 2003b) which have greater access to trends and popular culture. Applying efforts in a culturally applicable ways by utilising the talents of Pacific people within creative industries as initiators of interventions would provide role models which participants in this study identified.

6.3.3 Cultural Mindset toward food

This study recommends further research into the culture surrounding food, its value and how to adapt these principles in mainstream society. Culture as a vehicle for understanding the foundation for health choices could provide an avenue to address the preference for unhealthier food outside of socio-economic factors. By shifting the perceived higher status symbolism of unhealthy foods and highlighting the traditional importance or cultural significance of fruit and vegetables, there is an opportunity to apply positive views, or at least to encourage healthy eating. For this to occur, cultural appropriateness needs to be acknowledged (Nabobo-Baba, 2008; Otsuka, 2006). Doing so at a community level rather than on an individual basis encourages Fijian cultural ideals around collective reciprocity and the importance of relationships. As acknowledged by Tukana (2013) a complete integrated and appropriate model for health care needs to understand and abide by basic levels of Fijian organisation – village, district, province, and confederacy in conjunction with the following three system - ecosystems, religion and government. Therefore, what has been referred to as community change in the Fijian context during this study would theoretically be applied in a similar way - societal change through all permeated and integrated levels and systems – cultural fluidity which allows Fijian cultural values to become the foundation to develop change.

6.4 Final thoughts

Youth as part of Fijian society are generally overlooked when contributions to important issues are sought. Maikeli during talanoa session one summarised this as those *"who must wait their turn"*. A forward-thinking, innovative, cross-sector, integrative approach is needed, and youth are the catalysts to make that happen. Never has a generation been so connected or better informed and able to do so, with ideas for change outside of health, and with the potential to influence innovative ideas for public health via other sectors. NCDs, as a global health issue, are only getting worse and this could not be truer than in the Pacific. This study is therefore a call to policymakers and those able and willing to implement change within the food system in Fiji to utilise youth idea in creating such change. The participant have understood this, they identified the cultural, social, and economic barriers that restrict them in achieving good fruit and vegetable consumption, and they have been able to consider factors and ideas - including the use of youth as wave-makers, the reinvestment in education through traditional agricultural practices, and the use of technology - to advertise and reinvigorate healthy eating messages. Given the rapid development of modernisation and the growing disadvantages of NCDs

outcomes in the Pacific, encouraging youth to not only want to create change but see it through benefits nations now and into the future.

Besides the requirements necessary to meet a qualification, this research and study is first and foremost a gift to my *kai* (people). As a New Zealand-born Pacific Islander paying homage to my Pacific Island ties is essential. This study is an act of service and is applied by returning the opportunities my grandparents and parents provided me with. My maternal grandparents and my father came to New Zealand to create opportunities for themselves, their extended families and for the next generation. Using that opportunity to the best of my ability and to make them proud is me saying, thank you. However, that is only a small part of it; returning that service in a way that socially impacts the Islands and the people that raised my ancestors is culturally important. If I have the chance to make a difference and create change, I should do so with my head bowed and heart willing to give freely, I feel this embodies the *yalo* (spirit) of talanoa and the values of relationships, reciprocity and respect which were established throughout this study. I increase my capacity and capability through research to create further opportunities for my people. For Pacific, by Pacific.

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