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An exploration of the cultural food and meal preferences of Māori, Pacific, and Chinese groups during hospital admission in New Zealand.

# My Culture My Plate

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A thesis submitted in partial fulfilment of the requirements for the degree of

**Master of Science majoring in Nutrition and Dietetics**

Massey University

Auckland, New Zealand

[February 2020]

## Abstract

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**Background:** There has been a rapid surge in the number of Indigenous Māori, Pacific and Chinese people residing in New Zealand (NZ). This influx in both indigenous and other ethnic minority groups generates a demand for culturally appropriate healthcare services, particularly within the hospital setting. Since hospital foodservice satisfaction contributes to overall patient satisfaction, it is important that the cultural food preferences of these ethnic groups are taken into account when developing or revising NZ hospital menu standards.

**Aim:** This study explores the cultural food preferences of Māori, Pacific and Chinese (MPC) adults residing in NZ when unwell and during hospital admission.

**Methods:** This exploratory, mixed-method study was conducted in four phases. Forty-four participants, 18+ years, hospitalised within the past year and of MPC ethnicity were recruited to participate in this study. A self-administered, semi-structured exploratory survey and three ethnic-specific focus groups and one combined ethnicity focus group from recruited participants, were used to explore the cultural food preferences and hospital foodservice experiences of MPC population groups. Descriptive statistics were used for the analysis of the quantitative survey results, and the framework data analysis method was employed for the analysis of the qualitative focus group data.

**Results:** The current menu for NZ public hospitals was not considered culturally appropriate by the majority of MPC participants, with the lack of cultural foods, poor menu variety, small food portions and cold food temperatures identified as significant concerns. Although the majority of MPC participants had most of their meals supplied by the hospital, hardly anyone reported finishing their hospital meal at any point in time and most were supplied with family-made meals. The most disliked meal was breakfast, including cold toast and cereal, and the most enjoyed meal across ethnic groups was dinner, with favoured meals being chicken-based dishes. MPC population groups expressed a strong preference for cultural foods when unwell or in hospital. This preference was retained despite evidence of dietary acculturation following exposure to western dietary patterns a) since colonization for Māori

and b) upon migration to NZ for Pacific and Chinese groups. A variety of MPC cultural food preferences were identified as appropriate for hospital menu incorporation: for Māori and Pacific, starchy vegetables (e.g. taro, kumara) and seafood (e.g. fish, mussels); for Māori, fried bread and boil-up; for Pacific, chop suey and supu povi / pisupo; for Chinese, rice-based dishes and thin soups (e.g. congee and chicken soup). Food textures and temperatures were also of great importance to Chinese groups, as hot, liquid-based foods were prescribed by their Traditional Chinese Medicine (TCMM) practices when unwell. For all ethnic groups, cultural food preferences contribute to their identity, health and wellbeing.

**Conclusion:** Foodservices within public hospitals can be improved to sufficiently meet the cultural needs of MPC groups residing in NZ. The MPC cultural food preferences and hospital foodservice improvement suggestions from this research study may be used for future menu developments and reviews of the National Nutrition Standards in NZ public hospitals. Providing culturally-appropriate meals in hospital would improve the hospital experience and foodservice satisfaction levels for MPC populations residing in NZ.

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## Acknowledgements

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This thesis would not have been possible without the extraordinary support, love and encouragement of some incredible people.

I would like to express my sincere and most heartfelt gratitude to my academic supervisor Rozanne Kruger, and to my co-supervisors Reena Soniassy-Unkovich and Hajar Mazahery, for your endless patience, guidance, encouragement and support throughout this project, and for believing in me. Thank you for championing me forward, and for fighting in my corner, despite all the pot-holes and near-misses along this windy road. And to Hajar Mazahery, I cannot thank you enough for your positivity, the late-night emails peppered with advice, the quickly organised meetings that stretched on for hours, and for keeping me calm when things got tough.

To Marilize Richter; thank you for being my first port-of-call for this project, for introducing me to this thesis and for helping to set the foundation for this journey.

I would like to thank Messina Shaw, for all the Māori cultural support and advice, for directing me to the right places for participant recruitment, and for encouraging me to keep going.

To all my participants from such a diverse range of ethnicities and backgrounds; thank you for taking the time and effort to be a part of this study, and for the wealth of knowledge and experience you so willingly shared. This research would not have been possible without you.

To all my Church family and friends; I cannot thank you all enough for your support and love. You were the ultimate stress-relievers with all your prayers, laughs and hugs – and I'm sorry for stressing you all out! Thank you for your patience and understanding during the times I was flustered, stressed and caffeine-fuelled. Thank you especially to Lizzy (our Cook Island Queen!) for all the late-night messages of encouragement and support, for bribing me to carry on with promises of dinner and all the fun times ahead, and for reminding me to keep going.

My "Cambridge" family; thank you for the constant love, prayers, encouragement, mental breaks, amazing food and coffee, for the laughs and mini-breakaways – it was all sorely needed and made such a difference!

My grandparents; I don't know how to thank you for the prayers, for all the love and support you wrapped me in, for making sure I was doing OK, for the cups of tea, the 5/6am wake-up calls, for reminding me to have breaks and that everything was going to work out beautifully.

To my incredible parents and little sister; where do I start? My number-one support system and the ultimate sacrificers on this journey from the get-go. Thank you for your unfailing love, support, prodding, encouragement, grit and determination and for keeping me sane and grounded. Thank you to my sister for taking up all the extra chores when deadlines loomed and for doing your best to be stay up with me when I had to pull an all-nighter (my turn to reciprocate). To mom and dad ... thank you for everything. I know I would not be where I am without you. There are no words to tell you how much I love and appreciate you both, and all that you've done for me over the past few years. You've seen me at my lowest and my highest and have loved me through it all. You are my heroes! And now, you get to have your computers and normal stress-levels back.

But most importantly, and above everything else, I give all the thanks, praise, honour and glory to my Lord Jesus Christ; not only for the opportunity to complete this degree, but for the strength, courage, fortitude and the ability to see this project through from the beginning to the end.

It took a diverse and vibrant village of people, and a powerfully awesome God for me to reach the end of this thesis road.

## Contributors to the Study

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Researchers	Contributions
<b>Kim Esau</b> <i>Student</i>	Main researcher, participant recruiter, developed exploratory survey, conducted focus groups, data analysis, statistical analysis, interpretation and discussion of results, author of thesis.
<b>Rozanne Kruger</b> <i>Supervisor</i>	Main academic supervisor, development of exploratory survey, study design, proposed hospital menu, focus group schedule, assistance with data analysis, interpretation of results and reviewed thesis.
<b>Reena Soniassy Unkovich</b> <i>Co-Supervisor</i>	Supporting supervisor, development of proposed hospital menu, focus group schedule, assistance with interpretation of results and reviewed thesis.
<b>Hajar Mazahery</b> <i>Co-Supervisor</i>	Main support person, assistance with data analysis, interpretation of results and reviewed thesis.
<b>Marilize Richter</b> <i>Initial Supervisor</i>	Initial supervisor of this project, assistance with thesis foundation and application for ethics.

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## Abbreviations

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ACH	Auckland City Hospital
ADHB	Auckland District Healthboard
CA	Catering Associate
CMDHB	Counties Manukau District Healthboard
LOS	Length of Stay
MAAS	Male Arab-American Acculturation Scale
MPA	Māori, Pacific, Asian
MPC	Māori, Pacific, Chinese
MH	Middlemore Hospital
NSH	North Shore Hospital
NS	New South Wales
NZ	New Zealand
NZANS	New Zealand Adult Nutrition Survey
OBR	Overseas-born-residents
RM	Rongoā Māori
SSCC	Soups/stews/casseroles/curries
TCM	Traditional Chinese Medicine
UN	United Nations
WH	Waitakere Hospital
WDHB	Waitemata District Healthboard



# Chapter 1. Introduction

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## 1.1 Study Introduction

Over the past two centuries, the ethnic mosaic of Aotearoa (Land of the Long White Cloud) has shifted considerably. Of the six major New Zealand (NZ) population groups, indigenous Māori, migrant Pacific and Asian (MPA) groups (particularly Chinese), have experienced significant growth and now comprise almost 40% of the total population (Statistics New Zealand, 2019b). In Auckland, this ethnic diversity is reflected in the population distribution of the local district healthboards (DHBs), who provide and fund personal, public and disability support services for their local population (CMDHB, 2018). CMDHB services South Auckland and is home to the largest Pacific and 2<sup>nd</sup> largest Māori population, while ADHB and WDHB (servicing Central and North-West Auckland respectively) have the largest Asian (predominantly Chinese) populations, with growing Māori and Pacific populations as well (ADHB, 2019; WDHB, 2019). These population surges generate a demand for culturally appropriate services for these ethnic groups, particularly in healthcare. Globally, ethnic minority groups consistently experience inequalities in healthcare and health outcomes, and this is reflected in the experiences of indigenous Māori, Pacific and Chinese (MPC) populations in NZ (Degrie, Gastmans, Mahieu, Dierckx de Casterlé, & Denier, 2017) (Bacal & Jansen, 2010; Houkamau, 2016; Russell, Smiler, & Stace, 2013; Sorenson & Jensen, 2017; Wong, 2015). Hospital foodservice has been established as a vital component of patient wellbeing and recovery, an influencer of patient satisfaction, and identified as a key area for the improvement of cultural competency (Degrie et al., 2017). Furthermore, hospital food provides nutrition for approximately 80 – 100% of patients and poor meal-uptake promotes illness complications, decreases recovery rate and increases length of stay, readmission frequency and mortality risk (Barker, Gout, & Crowe, 2011; Correia, Perman, & Waitzberg, 2017; Kirkland, Kashiwagi, Brantley, Scheurer, & Varkey, 2013; Meehan et al., 2016). Patient food preferences are impacted by a variety of factors, of which culture is a prevailing influence. As of today, the national NZ Nutrition hospital menu standards for adult inpatients in public hospitals acknowledge the need for culturally appropriate foods for ethnic minorities, but do not specify what these cultural foods are (Healthboard Limited, 2013).

However, according to the NZ Public Health and Disability Act (2000), DHBs are required to provide effective, efficient care and support, and to have the best interests of the populations whom they service ("New Zealand Public Health and Disability Act 2000," 2000). Therefore, it is vital that hospital foodservices take the cultural food preferences of the population groups they serve into account when developing or improving menus.

Although a recent study has explored the food preferences and hospital foodservice experiences of Chinese people (Lum, 2019), little is known about the food preferences and hospital foodservice experiences of Māori and Pacific populations in New Zealand. Therefore, there is a critical need for this study, which seeks to improve the knowledge void concerning the cultural food preferences of MPC populations and their experiences with the service and food provided by public hospitals in NZ.

## 1.2 Significance of Study

It is important that the cultural food preferences of these population groups are considered within the guidelines of food provision within the hospital, in order to meet the objectives as set out by the NZ Public Health and Disability Act 2000, to improve patient satisfaction and reduce ethnic healthcare disparities. To date, there is a dearth of data with limited studies exploring the cultural food preferences and subsequent hospital foodservice experiences of MPC cultural groups in New Zealand.

## 1.3 Aims

To explore the cultural foods and / or meals preferred by different cultural groups (Māori, Pacific and Chinese) during hospital admission.

## 1.4 Objectives

1. To explore the types of foods and / or meals that are preferred by Māori, Pacific and Chinese participants.
2. To investigate the reasons for specific preferences, likes and dislikes regarding food choices and eating habits.
3. To explore participant's opinions of the meals offered during a previous hospital stay.

4. To make recommendations regarding potential foods, meals or practices which are suitable to incorporate within the NZ National Hospital Menu.

## 1.5 Thesis Structure

This thesis has six chapters in total.

Chapter One presents the aims, objectives hypothesis and purpose of this thesis, with key concepts explained. Also included within this chapter is a brief overview on the background and scope of this study along with study significance.

Chapter Two is a literature review, where relevant research efforts and available literature regarding migration patterns, traditional diets, rates of dietary acculturation and impact on health outcomes and the effects of culture on food preferences when unwell, both within and outside the hospital will be explored, presented and critiqued.

Chapter Three outlines the study methodology and Chapter four will present the results of this exploratory study.

Chapter Five will draw together the findings and discussion in relation to the existing literature, and Chapter Six will serve as the study conclusion and present the final recommendations for future research. Study limitations will also be acknowledged and discussed, along with possible solutions for avoidance in future investigations.

## Chapter 2. Literature Review

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### 2.1 Introduction

Diverse cultural and ethnic backgrounds are reflected in the food habits and preferences of Māori, Pacific and Chinese (MPC) populations. Understanding these differences is essential when investigating the cultural foods, habits and preferences of these ethnic groups when unwell and in a hospital setting. Thus, this literature review aims to investigate the original cultural habits, foods and preferences of MPC ethnic groups and how diets and health are affected by immigration to western countries, including New Zealand (NZ). The literature reviewed will include culturally appropriate foods for these ethnic groups and how this is reflected in hospital menu standards. Furthermore, global and national migration patterns and how this reflects in the population of NZ is examined, in order to determine the necessity of a cultural approach in healthcare. Methodologies of similar studies are also reviewed in order to identify a best practice study design and data analysis approach for this exploratory study.

For this review, online journal articles and e-books with information regarding food preferences, food habits and cultures of the ethnic groups investigated were sourced through Massey University Library databases and supplemented by references from relevant articles. The following databases were searched: Google Scholar, PubMed, Discover, Scopus, Web of Science and Science Direct. Search terms including “Food Preference”, “Food Habit”, Māori, Pacific, Pacific, Chinese, “South-East Asian”, “Dietary Acculturation”, “Patient satisfaction”, immigration, “Patient Experience” and “Hospital Foodservice” were used in various combinations.

### 2.2 Understanding ethnicity, culture, and food habits and preferences

It is essential that an understanding of ethnicity, culture, food habits and preferences is grasped, in order to understand the impact of ethnicity and culture on food habits and

preferences. Ethnicity is a self-perceiving, context-specific, multilevel and multifactorial social construct that is closely linked to race (Ford & Harawa, 2010; Ford & Kelly, 2005; Little & McGivern, 2016). Although the two concepts are often confused, race includes phenotypic characteristics and ethnicity encompasses the shared cultural factors of a particular group (da Silva Santos, Palomares, Normando, & Quintao III, 2010; Ford & Harawa, 2010). These factors include religion, customs, culture, beliefs, ancestry, language and diet (Bhopal, 2004; Ford & Harawa, 2010; Little & McGivern, 2016; Smith, 1996). Therefore, ethnic identities are fluid and a developmental process by which diverse populations can be distinguished, and personal / group identities can be established (da Silva Santos et al., 2010; Ford & Harawa, 2010). Although a characteristic of race, culture can be difficult to define as it can be construed in a number of different ways (Minkov, 2013; Rathje, 2009; Spencer-Oatey, 2012). The literature thus concedes that the cultural perspective that best suits the purpose of the researcher should be selected and explained (Minkov, 2013; Spencer-Oatey, 2012). Therefore, for the purpose of this study, 'culture' will broadly refer to a set of values, knowledge, language, rituals, habits, lifestyles, attitudes, beliefs, rules and traditions that identify a particular group of people (Minkov, 2013; Stajcic, 2013).

In order to determine how to improve menu planning in a foodservice context and generate high levels of patient satisfaction, it is vital that an understanding of population-specific food habits is investigated (Spears, 1995). Shaped from a young age and often maintained throughout life, dietary habits influence the nutritional status, the health and the well-being of people (Ministry of Health, 2012b; Scaglioni et al., 2018). They are the practices and associated attitudes that predetermine what, when, why and how an individual will eat (Spears, 1995). Although the literature identifies a variety of factors that influence food habits (e.g. socioeconomic status, environment, food beliefs, age, family, education, time, religion), cultural practices hold significant sway over an individual's food habits (De Irala-Estevez et al., 2000; Dibsall, Lambert, Bobbin, & Frewer, 2003; Gilbert & Khokhar, 2008; Kearney, Kearney, Dunne, & Gibney, 2000; Nestle et al., 2009; Oliver & Wardle, 1999). Somewhat similar to food habits, food preference is generally defined as an expression of choice, where certain options are seen as more desirable than others (Koehler & Leonhaeuser, 2008; Smith, 2006). Similar to food habits, our food preferences are differentially affected by a variety of factors. These include the food sensory appeal (e.g.

taste, smell and appearance), our biological response to food (e.g. appetite) and psychological factors (e.g. learned behaviour and previous experiences) (Drewnowski & Hann, 1999; Koehler & Leonhaeuser, 2008; Vabø & Hansen, 2014). Nevertheless, the literature agrees that the surrounding social and cultural context have significant influence on individual food preferences (Drewnowski & Hann, 1999; Koehler & Leonhaeuser, 2008; Vabø & Hansen, 2014). Hence, it can be appreciated how our culturally influenced habits and preferences significantly impact our food choices (Drewnowski & Hann, 1999; Koehler & Leonhaeuser, 2008; Smith, 2006; Vabø & Hansen, 2014).

## 2.3 Migration and New Zealand population

Both global and national migration patterns are reviewed in order to determine the degree of ethnic population growth within host countries, and the ensuing need for a culturally sensitive approach in host country legislation and policies.

In the second half of the twentieth century, there was a significant boom in international migration rates (Castles, 2000). The United Nations (UN) migration agency reported that an estimated 224 million migrants (3.3% of the global population) crossed international borders in 2015 (IOM, 2018). This is projected to increase to 405 million international migrants by 2050 (IOM, 2018). 'Migrant' is a neutral term used to refer to an individual moving within or between countries to improve their social or economic conditions (Douglas, Cetron, & Spiegel, 2019). Other types of migrants include asylum seekers who have been forcibly displaced and are seeking international protection for fear of persecution or danger in their national country (Douglas, Cetron, & Spiegel, 2019; IOM, 2020). Asylum seekers can further apply for and await refugee status in their new country of residence, as they are unable or unwilling to avail themselves to the protection of their own country (Douglas, Cetron, & Spiegel, 2019; IOM, 2020). The majority of international migrants seek overseas employment, and this flow of human capital can generate great benefit for destination countries (Castles, 2000; IOM, 2020; Kanengoni, Andajani-Sutjahjo, & Holroyd, 2018; Noja, Cristea, Yuksel, Panzaru, & Dracea, 2018). These benefits include supporting economic growth, improving labour supply and productivity, boosting the national skills pool and bringing fresh energy,

innovation and cultural diversity (Castles, 2000; IOM, 2018; Noja, Cristea, Yuksel, Panzaru, & Dracea, 2018). However, the unprecedented level of international migration poses new challenges for societies and policy-makers of host countries (Castelli, 2018; Castles, 2000). According to the International Human Rights law, it is a host country's responsibility to respond appropriately and develop culturally appropriate legislation, policies and initiatives (Castelli, 2018; IOM, 2018; Singham, 2006). This will contribute to ensuring equality, equity and to help reduce the disparities between minority and majority population groups (Castelli, 2018; Castles, 2000; Singham, 2006).

New Zealand (NZ) has been identified as one of the highest migrant receiving countries since early 2001 (Singham, 2006), as captured by national census data. This flow of migrants has shifted the ethnic mosaic of NZ considerably over the past few decades and can be demonstrated in the number of overseas-born residents (OBR). The proportion of OBR in NZ has steadily increased since 1996 (Statistics New Zealand, 1999). In the most recent census (2018), more than 27% of those counted were born overseas (Statistics New Zealand, 2019b), compared to 17.5% of the population in 1996 (Statistics New Zealand, 1999).

NZ's population is projected to increase to more than 5.8 million by 2038 (Kanengoni et al., 2018). With the annual quota for refugee settlement now increased to 1,000 (New Zealand Immigration, 2020) and a sustained high net migration rate, we can thus anticipate that the multicultural societies of NZ will continue to flourish (Kanengoni et al., 2018; NZ, 2018).

## 2.4 Māori, Pacific and Chinese populations in NZ

Māori, the indigenous population of NZ, were early settlers of Polynesian descent who settled in NZ between 1000 – 2000 years ago (Bellamy, 2008; Cambie & Ferguson, 2003; McKerchar, Bowers, Heta, Signal, & Matoe, 2015; Whiu, McKerchar, & Maxted, 2014). Subsequent waves of migration included a) the arrival of Europeans after Captain James Cook discovered NZ in 1769; b) the arrival of Chinese and Australians in the 1860's; c) the arrival of the biggest group of assisted settlers in the 19<sup>th</sup> century in 1874, numbering over 32,000 (Bellamy, 2008). Pacific labourers first arrived in 1870, and in response to a labour shortage,

there was a record inflow of migrants, predominantly of Pacific ethnicity, between 1973 and 1974 (Bellamy, 2008; Ministry for Culture and Heritage, 2019). In NZ, there are now six major population groups; European, Māori, Pacific Peoples (Pacific), Asian and Middle Eastern/Latin American/African (MELAA). All have experienced growth over the past two decades, notably Māori, Pacific and Asian (MPA) populations. These three ethnic groups now comprise 39.7 percent of the total population (Statistics New Zealand, 2019b), in comparison to 34.1 percent in 2013 (Statistics New Zealand, 2014). Comparatively, although the European ethnic group remains the largest by a significant margin, it decreased to 70.4 percent in 2018 (compared to 74 percent in 2013) (Statistics New Zealand, 2019b). Using Census data, **Table 1** presents each ethnic groups' proportion of the total NZ population, along with their population percentage increase from 2006 - 2018.

**Table 1. Population percentage and percentage increase of major ethnic groups in NZ**

Ethnic Group	% of NZP	% of NZP	% of NZP	% Increase	% Increase
	2006	2013	2018	2006 - 2013	2013 - 2018
European	67.6	74	70.2	13.8	11.1
Māori	14.6	14.9	16.5	5.9	29.6
Asian	9.2	11.8	15.1	33	50
Chinese	4 **	4.3	4.9	16.2	-
Pacific	6.9	7.4	8.1	11.3	29

\*NZP: New Zealand Population

#: Percentage

(MacPherson, 2013; Statistics New Zealand, 2014; Statistics New Zealand, 2007, 2019a)

From 2013 – 2018, the population percentage increase for MPA is more than double that of their European counterparts. Additionally, national projections for 2038 (using the 2013 Census as the baseline) indicate that MPA populations will continue to grow (particularly across the Auckland region) while European populations are expected to decrease (New Zealand Immigration, 2015). These projections are presented in comparison to population figures for 2013 and 2018 in **Table 2** below.



**Table 2. Māori, Pacific and Chinese resident population from 2013 - 2018 and projections for 2038**

Ethnic Group	[n] 2013	[n] 2018	[n] 2038*	% of NZP 2038*
<b>Māori</b>	598,605	775,836	>1 million	22
<b>Pacific</b>	295,944	381,642	530 - 650,000	11
<b>Asian</b>	471,711	707,598	1.2 - 1.4 million	21
<b>European</b>	2,969,391	3,297,864	3.6 - 4 million	66

\*Projections made with 2013 Census data as baseline.

(New Zealand Immigration, 2015; MacPherson, 2013; Statistics New Zealand, 2014, 2019a)

It is expected that the Māori, Asian and Pacific populations will continue to increase in their share of the total population, and that the Asian population will exceed the Māori population from the mid-2020s (Ministry of Social Development, 2016). The MPC populations were selected for this study based on their documented and projected growth rate. This rapid growth rate reflects a greater need for the development and implementation of culturally appropriate legislation, policies and initiatives for these populations within NZ.

## 2.5 Food-related values, food-related health beliefs and traditional foods/diets of Māori, Pacific and Chinese populations

In this section, the food values, traditional diets and food-related health beliefs of MPC populations will be reviewed in order to grasp a deeper understanding of food within their cultural context.

### 2.5.1 Food-Related Values of Māori, Pacific and Chinese Populations

For Māori, food (kai) has ihi (life force) and is acknowledged as coming from atua (gods) (Bowers et al., 2009; Heke, 2017; Philips, Jackson, & Hakopa, 2016; Whiu et al, 2014). Food is a sacred gift from the four sons of Ranginui (Sky Father) and Papatuanuku (Earth Mother); the birds of the forest from Tāne Mahuta, seafood from Tangaroa, wild edible plants from Haumia-tiketike, and cultivated plants from Rongo (Marwick, 2009). Many tikanga (customs; correct way of doing something) around

food are still practiced today (Best Practice, 2008b; Jefferies & Kennedy, 2009; McKerchar et al., 2015; Whiu et al., 2014). Tikanga were also instituted to both protect and conserve the resources of Mother Earth (Philips et al., 2016). Tikanga guided agricultural activities, and today, it includes saying karakias (prayers) over food, never passing food over the head, keeping anything that comes into contact with the body or bodily fluids separate from food, and using specific utensils for drinking water only (Best Practice, 2008b; Jefferies & Kennedy, 2009). Furthermore, food is integral to several fundamental concepts of Māori culture (McKerchar et al., 2015; Moeke-Pickering, Heitia, Heitia, Karapu, & Cote-Meek, 2015). An example of this is manaakitanga - a Māori concept where the mana (authority and status) of others is acknowledged through the sharing and showing of hospitality, kindness and respect. This establishes relationships and fosters deeper connections with others (Batman, MacFarlane, Glynn, & Cavanagh, 2007; McKerchar et al., 2015; Moeke-Pickering et al., 2015). Food can be used to express manaakitanga, such as through the serving of kai to guests or traditional kai at marae (meeting place) events (Beavis, 2017; McKerchar et al., 2015; Moeke-Pickering et al., 2015). Mahinga kai is another indigenous Māori concept. This broadly refers to the traditional food-gathering sites and practices of Māori, critical for tribe survival in earlier centuries (McKerchar et al., 2015; Philips et al., 2016; Tipa & Nelson, 2008). Their connection to and sustainable use of these practices reinforces their connection to the land and their whakapapa (genealogy), and underpins positive conceptualisations of their cultural identity, health and wellbeing (Hikuroa, 2017; McKerchar et al., 2015; Philips et al., 2016). This is common amongst indigenous peoples across the world (Philips et al., 2016). For Māori, food can also be used in ceremonies for the purification or removal of tapu (forbidden; taboo) and can be considered taonga (highly prized property) (McKerchar et al., 2015).

In the lives of Pacific peoples, food has a significant social and cultural role that surpasses their biological need for survival (Ahio, 2011; Deo, 2014; Hughes & Marks, 2009; King, Tamasese, Parsons, & Waldegrave, 2012; McCubbin, Pearce, Ford, & Smit, 2017; Ruikka, 2016; Skudder, 2014). It is used as a symbol of thanks, to build and strengthen filial and community relationships, and to affirm one's identity and place

(Hughes & Marks, 2009; King et al., 2012; Ruikka, 2016; Rush, 2009). For Pacific peoples, food a source of malie (physical, emotional and spiritual satisfaction), where the volume and symbolic status of the food served represents the degree of prosperity, hospitality, generosity and warm-heartedness (Ahio, 2011; Hughes & Marks, 2009; King et al., 2012; McCubbin et al., 2017; Ruikka, 2016; Skudder, 2014). Traditional food-sharing practices are continued today. As a result of the symbolic role of food and an ingrained feast-or-famine mentality that stems from times of periodic famines on the islands, Pacific groups focus on providing and consuming large amounts of food at social occasions whenever possible (Haden, 2009; Hughes & Marks, 2009; King et al., 2012; McCubbin et al., 2017). One of these prominent social occasions occur on Sundays after church, where large feasts are served for lunch and families often eat together (Deo, 2014). Furthermore, a food hierarchy exists, where certain foods are given a higher status and considered nutritionally superior to other foods (Haden, 2009; Morrell, 2010). For example, taro (starchy vegetable) is seen as a highly prestigious crop and the food of choice for traditional feasts, gifts and for fulfilling social obligations (Haden, 2009; Morrell, 2010). Food consumption also follows a strict pecking order, where elders and those of higher social status are served first and given the bulk of higher-status foods before the general crowd (Kinaston et al., 2014; Skudder, 2014).

Similar to Māori and Pacific, food has a significant and influential role in Chinese culture and identity (Ma, 2015; Payne, Seymour, Chapman, & Holloway, 2008). It is used to establish, maintain, and express the closeness of relationships, to celebrate important events and express individual social status (Ma, 2015; Zili, 2017). Furthermore, the quality and quantity of food is of great importance, utilised to demonstrate the degree of formality and respect (Zili, 2017). For example, formal dinners require at least eight dishes, excluding appetisers, snacks and desserts, and the highest quality of foods are always served (Zili, 2017). Certain foods also have symbolic meanings and are eaten at certain occasions. For example, oranges and chestnuts are eaten at birthdays for good luck, and noodles are often served at gatherings as they represent long health and longevity (Ma, 2015; Payne et al., 2008; Zili, 2017).

### 2.5.2 Food-Related Health Beliefs of Māori, Pacific and Chinese Populations

Traditional Māori healing, known as Rongoā Māori (RM) is a complex holistic system of healing that encompasses Māori values, customs and healing practices (Ahuriri-Driscoll, 2014; Ahuriri-Driscoll, Baker, Hepi, & Hudson, 2008; Mark, Chamberlain, & Boulton, 2017). Rongoā Māori incorporates ritenga (rituals), karakia (prayers), mirmiri (massage), wai (water) and rongoā rākau (herbal remedies) (Ahuriri-Driscoll, 2014; Best Practice, 2008a; Mark et al., 2017). Food, as it is believed to come from atua, is believed to impact the oranga tangata (human health) and wellbeing (Heke, 2017). The therapeutic use of medicines derived from herbs, trees and plants involves the gathering, preparation and formulation of plant materials, which may be given in the form of infusions, baths or poultices (Ahuriri-Driscoll, 2014; Best Practice, 2008a; Mark et al., 2017). Plants are believed to be of celestial origin (the offspring of Tanemahuta - the god of the forests) and are seen as the link between humans and sacred ancestors (Mark et al, 2017). Tohunga (practitioners of RM) utilise numerous native plants to treat a variety of illnesses (Ahuriri-Driscoll, 2014; Best Practice, 2008a; Mark et al., 2017). For example, tea made from leaves of the kawakawa tree (Māori pepper tree) can be used for toothaches, arthritis and bruises, while tawaka (type of mushroom) can be used to treat a fever and improve the health of expectant mothers (Best Practice, 2008a; Riley, 1994). **Table 3** presents examples of some of the plants used in RM (Best Practice, 2008a).

**Table 3. Examples of plants used in Rongoā Māori**

<b>Māori Name</b>	<b>Common Name</b>	<b>Part Used</b>	<b>Condition</b>
Kawakawa	Māori Pepper Tree	Leaves: chewed	Tooth ache, swollen face, kidney and bowel stimulation
		Leaves; boiled	Boils, diuretic, paipai (skin disease resembling ringworm), gonorrhoea, syphilis, arthritis, bruises
		Leaves/branches; smoke, steam	Gonorrhoea, syphilis, paipai, chest congestion
		Roots; chewed	Dysentery
		Leaves; whole	Wounds, bandaging
Koromiko	Hebe	Leaves; poultice	Ulcers, venereal disease, bleeding post-birth
		Leaves; boiled	Inhalation, throat gargle
		Leaves; chewed	Diarrhoea, dysentery, promotes hunger
		Leaves; infusion Shoots; chewed	Astringent Stomach pain
Mamaku	Black Tree Fern	Bark; poultice	Boils, pus, sores, chaffing, swollen feet, sore eyes, sun burn
		Wood; gum	Stem bleeding, diarrhoea
		Shoots; boiled	Astringent
		Shoots; poultice	Breast pain
Karamu	Coprosma	Leaves; compress	Aches, pains
		Leaves; decoction	Cuts, sores
		Sap	Scabies
		Shoots; boiled	Kidney/urinary problems
		Bark; infusion	Aches, pains, colds, stomach pain, nausea
Kumarahou	Gumdigger's soap	Leaves; infusion	Coughs, colds, asthma, bronchitis, tuberculosis, wounds, skin disorders, blood purification
Manuka, Kanuka	Red tea tree, White tea tree	Leaves; infusion	Kidney/urinary problems, fever, cough, gonorrhoea

Bark; decoction	Diarrhoea, dysentery, pain, healing, inflamed breasts, sedative
Shoots; chewed	Diarrhoea, dysentery
Seeds; chewed	Stomach problems
Seeds; poultice	Wounds
Seeds; boiled	Anti-inflammatory
Oil	Antiseptic
Gum	Burns, wounds, coughing

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(Best Practice, 2008a)

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Similar to Māori, throughout the Pacific nations, traditional healers utilize plant medicines to treat illnesses (Bacal & Jansen, 2010). For example, crushed kava is drunk to relieve headaches and sleeplessness and raw candlenut is eaten as a laxative in Hawaii (Bacal & Jansen, 2010). Furthermore, in Pacific worldview, it is considered a traditional sign of wellbeing and health to be of a larger body size, while thinness is associated with unhealthiness (Haden, 2009; Skudder, 2014). This is due to the fact that a Pacific individuals' diet is considered the source of their strength and necessary for illness prevention (Bruss, Dannison, & Orbe, 2005). For example, de Garine & Pollock (1995) demonstrated that a larger body size was considered to be helpful for both the health and social status of women of childbearing age in Nauru (de Garine & Pollock, 1995). Furthermore, Pacific caregivers strive to feed their children as much as possible, due to previously ingrained cultural thoughts and habits surrounding health and wellbeing (Bruss, Morris, Dannison, & Orbe, 2005). For these people, traditional foods also carry a psychological and spiritual value, that once again promotes their health and wellbeing, and reconnects them with their island of origin (Skudder, 2014).

Traditional Chinese medicine (TCM) is an essential form of primary healthcare in China and several other Asian countries (Hu et al., 2011; Xue, Zhang, Greenwood, Lin, & Story, 2010; Zou, 2016). Practiced for several thousand years, it takes a holistic approach to the body and seeks to achieve harmony in the body, mind and spirit (Chan, Tan, Xin, Sudarsanam, & Johnson, 2010; Fung & Linn, 2015; Payne et al., 2008; Xue et al., 2010). However, only the basic concepts of TCM relating to food will be reviewed here, as TCM is a highly complex practice (Lum, 2019). Traditional Chinese medicine principles are centered on balancing the two opposing forces of the

universe, Yin (cold energy) and Yang (hot energy) (Chan et al., 2010; Patwardhan, Warude, Pushpangadan, & Bhatt, 2005; Payne et al., 2008; Wu & Liang, 2018, 2019). These relative forces are consistent with modern homeostasis, and the four bodily humors; qi (life force), blood, moisture and essence, along with the internal organ systems (zang-fu) help to maintain balance within the body (Chan et al., 2010; Patwardhan et al., 2005). Achieving a yin-yang balance is the crux of health, and an imbalance is believed to lead to disease and illness (Chan et al., 2010; Patwardhan et al., 2005; Payne et al., 2008). Common symptoms of yin-yang deficiencies are presented in **Table 4** below.

**Table 4. Common symptoms of Yin-Yang deficiencies**

Deficiency	Symptoms
<b>Yin</b>	Sore and dry mouth and tongue, dysphoria with feverish sensation in chest, palms and soles, and dry stool.
<b>Yang</b>	Cold limbs and waist, chills, thin sloppy stool and frequent nocturia.

(Wu & Liang, 2018)

Replenishing these energies will promote optimal wellbeing and recovery (Chan et al., 2010; Wu & Liang, 2018). Diet therapy is one of the key therapies utilised to rebalance yin-yang (Chan et al., 2010; Wu & Liang, 2018). Foods are classified as either warm, hot, cold or cool, and the food types consumed during periods of disharmony depend on which energy is deficient (Wu & Liang, 2018). For example, an individual deficient in Yang (hot energy) will need to consume hot foods in order to restore balance (Wu & Liang, 2018). Furthermore, some foods are considered energy neutral and these foods do not shift the imbalance of yin-yang (Wu & Liang, 2018). Generally however, cold foods and drinks are believed to alter yin-yang balance, and this has resulted in Chinese populations preferring hot food and drink when unwell, particularly soups (Lum, 2019; Wu & Liang, 2018). **Table 5** presents common food examples of warm, hot, cold, cool and neutral energy.

**Table 5. Yin-Yang and neutral food examples**

Yin (Cold) Food		Yang (Hot) Food		Neutral
Cool	Cold	Warm	Hot	
<ul style="list-style-type: none"> <li>• Millet,</li> <li>• Mung bean,</li> <li>• Pear, mango, loquat, tomato, eggplant</li> <li>• Tofu, lotus root, lily</li> <li>• Milk, rabbit</li> </ul>	<ul style="list-style-type: none"> <li>• Watermelon, bitter gourd</li> <li>• Kelp, seaweed, water spinach,</li> <li>• Honeysuckle and aloe</li> </ul>	<ul style="list-style-type: none"> <li>• Glutinous rice, oats.</li> <li>• Red dates, pine nut, garlic, chives, onion,</li> <li>• Coffee, black tea</li> <li>• Chicken</li> </ul>	<ul style="list-style-type: none"> <li>• Chilli, pepper, cinnamon</li> <li>• Onion,</li> <li>• Mutton, venison</li> </ul>	<ul style="list-style-type: none"> <li>• Rice porridge, Chinese yam</li> <li>• Corn, sesame, soybean, pea, radish, Chinese yam,</li> <li>• Apple, pineapple, grape, peanut, mushroom</li> <li>• Pork</li> </ul>

(Wu & Liang, 2018)

Following migration to western countries, TCM remains practiced by the majority of Chinese populations, particularly amongst the older generation (Jiang & Quave, 2013; Lv & Cason, 2004). In their study, Deng, Zhang and Chan (2013) determined that compared to other immigrant groups, Chinese retain TCM practices following immigration often considering it an effective complement to western medicine (Chung et al., 2014; Deng, Zhang, & Chan, 2013; Lai & Chappell, 2007). Accordingly, traditional models of disease treatment, such as TCM, are highly influential for the dietary choices in health and illness for many Chinese (Payne et al., 2008).

### 2.5.3 Traditional foods/diets of Māori, Pacific and Chinese populations

Indigenous Māori migrated to NZ in waka (canoe) over ten centuries ago, bringing a range of foods to supplement their diet, including yam, taro, cabbage, gourds and kumara (sweet potato) (Bowers et al., 2009; Cambie & Ferguson, 2003; Whiu et al, 2014). Māori iwi (tribes) were nomadic hunter-gatherers and crop growers, harvesting food from forests, rivers, and the sea, as well as through the cultivation of large communal gardens (Bowers et al., 2009; Cambie & Ferguson, 2003; Royal & Kaka-Scott, 2013). They established different tikanga that governed the collection, cultivation, storage and preparation of foods, and each tribe had their own fishing grounds and diving rocks protected by kaitiaki (guardians) (Bowers et al., 2009;



McKerchar et al., 2015; Royal & Kaka-Scott, 2013). Traditionally, their diet consisted of birds (e.g. seabirds), seafood (e.g. fish, seals, whales, shellfish and eels), berries, wild vegetables, herbs and roots from edible plants native to NZ, including aruhe (fern root), puha (sow thistle) and watercress (green leafy vegetable) (Cambie & Ferguson, 2003; Royal & Kaka-Scott, 2013). Traditional cooking methods included hāngi (underground steam oven), charring foods over open fire, as well as drying and preserving foods in fat (Whiu et al, 2014). Furthermore, food was communally gathered and stored in pataka (storage houses) for rationing during periods of famine (Royal & Kaka-Scott, 2013). However, following colonisation, a variety of food ingredients were introduced into their diet. These include potatoes, pumpkin, squash, corn, wheat, pigs, chickens, beef, watercress and flour (Bowers et al., 2009; Whiu et al, 2014). Other cooking methods were also introduced post-colonization, which resulted in additional foods being included within their diet. This included boil-up (a stew made with pork bones and leafy greens) and Māori fried bread. As a result, the new ingredients and foods became a part of the traditional Māori diet, many of which are consumed to this day (Bowers et al., 2009; Whiu, 2014). Furthermore, along with their traditional diet, their eating patterns have shifted over the years and the majority of 21<sup>st</sup> century Māori peoples residing in NZ are less likely to eat breakfast daily (Ministry of Health, 2012b).

Pacific Island countries comprise 22 diverse countries and territories within the Pacific Ocean (Ataera-Minster & Trowland, 2018; Hughes & Marks, 2010). Their geographic location, relative isolation and abundance of local produce resulted in a nutrient-rich and low-calorie diet (Hughes & Marks, 2009). Consisting of similar food ingredients, the traditional and highly Pacific diet remains relatively similar across the different Pacific Island nations today (DiBello et al., 2009; Ruikka, 2016; Veatupu, Puloka, Smith, McKerchar, & Signal, 2019). It includes starchy root vegetables (e.g. taro, breadfruit and cassava), non-starchy and green leafy vegetables (e.g. spinach and watercress), fruit (e.g. coconut and pawpaw), fish, seafood and minimal meat (DiBello et al., 2009; Hughes & Marks, 2009; Ruikka, 2016; Veatupu et al., 2019). Generally, taro is their staple root vegetable and fish is their main source of protein (DiBello et al., 2009; Morrell, 2010; Ruikka, 2016). Coconuts are one of their most important and versatile

crops, and everything is utilized, from the husk and flesh, to the cream and water (Morrell, 2010; Ruikka, 2016). Similar cooking methods to Māori are used, including an umu (a Pacific version of the Māori hāngi), where raw food is wrapped in leaves and cooked in an underground oven, with stones placed on top to trap the heat (Skudder, 2014). Unlike western cooking methods, no fat or cooking oil is needed, and as the food is steamed, most of the fat is drained out (Skudder, 2014). Traditionally, Pacific people on their native islands have no typical meal pattern, and the general Island dictum is to eat when you are hungry or when food is available, with breakfast being the most skipped meal of the day (Deo, 2014; Fitzgerald, 1986).

The traditional Chinese diet is high in rice, noodles, steamed buns, coarse grains, vegetables, fruit, legumes, tubers, tofu, fish and shrimp (Li & Hsieh, 2004; Lv & Cason, 2004; Shu et al., 2015; Wu-Tso, Yeh, & Tam, 1995). As a result, their diets are higher in complex carbohydrates, lower in fat, with a moderate protein content compared to the diet of Māori and Pacific groups (Song & Cho, 2017; Wu-Tso et al., 1995). Meals generally consist of a carbohydrate staple (i.e. rice, noodles, bread), accompanied by stir fried vegetables, a protein source and soup (Ma, 2015; Song & Cho, 2017). Nevertheless, China has a rich and diverse food culture that is further influenced by the geographical distribution of populations across the country (Song & Cho, 2017). One of the main differences in consumption patterns exists between Northern and Southern China. For example, while wheat flour products (e.g. steamed bread and buns) are the staple foods in the North, rice is the staple food in the South (Ma, 2015; Song & Cho, 2017). Traditionally, three meals a day are eaten, with dinner being the most important meal and consisting of two to four dishes and one soup, and taking one to two hours to prepare (Ma, 2015). Generally, fresh fruit, nuts and tea are consumed after meals (Lv & Cason, 2004; Ma, 2015). **Table 6** presents a list of the common traditional Māori, Pacific and Chinese foods consumed today.

Table 6. Common traditional foods of Māori, Pacific and Chinese populations

Food Group	Māori	Pacific	Chinese
<b><i>Fruit &amp; Vegetables</i></b>	Kumara (sweet potato) Kowhitiwhiti (watercress) Puha (sow thistle) Taro Yam	Green bananas Kumara Yam Taro Breadfruit Coconut cream*	Leafy vegetables Pickled vegetables Red & lotus bean foods Tofu**
<b><i>Seafood</i></b>	Inanga (whitebait) Kuku (mussels) Kina (sea eggs) Abalone (paua)	Fish Mussels Oysters Oka (raw fish in coconut cream)	Salted fish Fish balls General seafood
<b><i>Meat</i></b>	Pork Boil-up (traditional stew)	Povi masima (salty corned beef)	-
<b><i>Breads and cereals</i></b>		Chop suey (rice noodles with meat)	Rice Congee Steamed bread Buns Noodles

\*Coconut cream extracted from the coconut fruit

\*\*Tofu produced from soybeans

(Bowers et al., 2009; Li & Hsieh, 2004; Ma, 2015; Metcalf et al., 2008; Royal & Kaka-Scott, 2013; Village, 2020; Whiu, 2014)

## 2.6 Māori, Pacific, and Chinese dietary acculturation

In order to understand how the traditional diet of these population groups have changed upon migration, it is essential to understand dietary acculturation. Dietary acculturation is an established immigrant health effect. It defines the gradual and continuous process of immigrants adopting the western food choices and eating patterns of their host country (Lesser, Gasevic, & Lear, 2014; Satia-Abouta, Patterson, Neuhouser, & Elder, 2002; Satia & Shatenstein, 2010). The degree of acculturation depends on a variety of factors, including age, age of immigration, level of education, socioeconomic status, residency duration, English proficiency, as well as cost, convenience and access to traditional foods (Deng et al., 2013;

Holmboe-Ottesen & Wandel, 2012; Lv & Cason, 2004; Nguyen, Smith, Reynolds, & Freshman, 2015; Satia-Abouta et al., 2002; Wu-Tso et al., 1995). Thus, the degree of exposure generates changes in psychological factors, taste preferences, food procurement and preparation which leads to dietary acculturation (Holmboe-Ottesen & Wandel, 2012; Satia-Abouta et al., 2002). Dietary acculturation is something that all three ethnic groups, Māori, Pacific, and Chinese, have experienced to varying degrees.

Indigenous Māori consume a predominantly western diet which has become increasingly acculturated since the time of colonisation (McKerchar et al., 2015; Whiu et al, 2014). The decline in traditional food consumption has been linked to the introduction of new foods, cooking methods (e.g. frying) and the loss of traditional food-gathering places and practices as a result of land loss through legislation and clearance for farming (McKerchar et al., 2015; Whiu et al, 2014). This nutrition transition has occurred over a 200-year period and traditional foods and practices have been progressively replaced by the globalised food system of multinational corporations (McKerchar et al., 2015). Findings from the 2008/2009 NZ Annual Nutrition Survey (NZANS) identified similar dietary patterns between Māori and non-Māori (Ministry of Health, 2012b). However, Māori had a higher intake of fish, processed meat, margarine, full-fat milk, lollies and confectionary compared to non-Māori (Ministry of Health, 2012a). They were also less likely to eat breakfast and to remove the fat and skin from meat and chicken respectively (Ministry of Health, 2012b). Furthermore, a study comparing the dietary intake of European, indigenous Māori, Pacific, and Asian men and women living in Auckland, found that Māori men and women had a higher intake of eggs, bread and alcohol, and a lower intake of fruit, vegetables and cheese than non-Māori (Metcalf et al., 2008).

Since the early 1940s, the literature has chronicled the acculturation of traditional Pacific diets (Ahio, 2011; DiBello et al., 2009; Haden, 2009; Hawley & McGarvey, 2015; Shintani & Hughes, 1994; Skudder, 2014; Veatupu et al., 2019). Several studies have documented their rapid transition to energy-dense-nutrient-poor (EDNP) diets which are higher in fat, sugar and processed foods (Ahio, 2011; DiBello et al., 2009; Ruikka, 2016; Skudder, 2014; Veatupu et al., 2019). Although traditional dietary patterns are maintained to an extent, traditional foods (e.g. fish, fruits and vegetables) are being displaced by western foods, including

processed meats, refined grains, sugar, rice, canned foods, soft drinks, confectionary, margarine and high-energy snacks (Ahio, 2011; DiBello et al., 2009; Haden, 2009; Hawley & McGarvey, 2015; Metcalf et al., 2008; Skudder, 2014; Veatupu et al., 2019). This dietary pattern shift has been observed amongst Pacific groups in NZ (Metcalf et al., 2008; Ministry of Health, 2012c). A large study comparing the dietary intake, food servings and cooking practices of Pacific groups with NZ Europeans, found that Pacific people had more servings of chicken, fish, bread and coconut cream, and fewer servings of cheese, eggs and breakfast cereals per month (Metcalf, 2014). The 2008 NZANS reported a higher intake of soft and energy drinks, takeaways and full-fat margarine, and a lower intake of vegetables and breakfast meals in comparison to non-Pacific groups (Ministry of Health, 2012c). Furthermore, Pacific groups were less likely to trim the fat and remove the skin from meat and chicken respectively (Ministry of Health, 2012c).

Similar to the Pacific population, Chinese migrant dietary acculturation has been well documented within the literature. The studies exploring the rates of dietary acculturation determined that although Chinese migrants generally retain their traditional dietary practices more faithfully than other immigrant groups, they layer western dietary practices over Chinese eating patterns (Deng et al., 2013; Kwok, Mann, Wong, & Blum, 2009; Nguyen et al., 2015; Satia-Abouta et al., 2002; Satia et al., 2001; Tseng, Wright, & Fang, 2015; Wu-Tso et al., 1995). A large study conducted in Canada found that although Chinese migrant women maintained their traditional diet, food and breakfast styles, they consumed less preserved foods, incorporated more western and high-fat foods (e.g. milk products, snacks, cakes and pies) and had increased their intake of cold food and drink (Satia et al., 2001). Furthermore, other studies demonstrate an increased consumption frequency of all food groups, including breads and cereals (e.g. pizza, burgers and sandwiches), red meat, fish, dairy, fruit and vegetables, fats, sweets, beverages (e.g. fruit juices), fats and oils, along with an increased consumption of snack items, particularly seen amongst Chinese youth (Deng et al., 2013; Lv & Cason, 2004; Satia et al., 2001; Shu et al., 2015; Tseng et al., 2015; Wu-Tso et al., 1995). This has also been documented in NZ, where migrant Chinese youth have a strong preference to integrate and adopt aspects of NZ culture, whilst retaining their cultural heritage (Ward, 2006). However, a recent study exploring the cultural food preferences of Chinese in NZ when unwell (the first to do of its kind), determined that when in hospital, individuals

continue to prefer cultural foods due to their healing properties and the comfort they provide (Lum, 2019). There was also a strong preference for hot food and drink, and for their foods to be cooked in a certain way (i.e. soft, fluffy rice) (Lum, 2019). It has been suggested that as their average time lived in NZ continues to increase, the rate of acculturation is likely to be greater amongst them than those of other Asian groups (Scragg, 2016). Scragg (2016) also identified that Chinese (and all other Asian ethnicities), along with indigenous Māori and migrant Pacific groups, have lower proportions of people eating the recommended daily servings of fruit and vegetables than their NZ European counterparts. This snapshot of the documented dietary westernisation of all three ethnic groups is of significant concern, as this dietary pattern is positively associated with metabolic syndrome and other non-communicable diseases (NCDs), including cardiovascular disease and diabetes (Fabiani, Naldini, & Chiavarini, 2019; Rodriguez-Monforte, Flores-Mateo, & Sanchez, 2015).

## 2.7 Health effects of immigration and dietary acculturation

It is well established that immigration, westernisation and dietary acculturation are associated with poor health outcomes for migrants and indigenous population groups (Borrows, Williams, Schluter, Paterson, & Helu, 2011; Davis et al., 2004; DiBello et al., 2009; Haden, 2009; Khan, Jackson, & Momen, 2016; Misra & Ganda, 2007; Nguyen et al., 2015; Rush, 2009; Tseng et al., 2015). The increase in availability and exposure to calorie-dense, low-fibre, high-fat and high-sugar foods, along with the adoption of sedentary lifestyles following migration, lead to the increased prevalence and risk of morbidity and mortality due to diet-and-lifestyle-related chronic diseases (Misra & Ganda, 2007; Nguyen et al., 2015; Tseng et al., 2015). The nutritional transition that migrants undergo as a result of acculturation, has been found to involve four dietary patterns; high calories, saturated fat, and simple sugars, and a low intake of dietary fibre, fruits and vegetables (Misra & Ganda, 2007).

Although Māori are the indigenous natives of NZ, the decline of traditional food and high rates of dietary acculturation have profoundly affected the health status of this population group, a finding that is reflected in other indigenous groups around the world (McKerchar et

al., 2015; Moeke-Pickering et al., 2015). Research has shown that a decrease in traditional food consumption and a subsequent increase in highly processed, sugary and high-fat foods are responsible for many diet-related diseases amongst indigenous peoples (Gracey, 2000; Ishak, Zahari, & Othman, 2013; Van Hook, Quiros, Frisco, & Fikru, 2016). Māori consistently experience systematic disparities in health outcomes and are leading in almost every major disease category in NZ, with their burden of chronic disease well documented (McKerchar et al., 2015; Moeke-Pickering et al., 2015; Russell et al., 2013). This includes significantly higher mortality rates and a higher prevalence NCDs than non-Māori (McKerchar et al., 2015; Moeke-Pickering et al., 2015; Russell et al., 2013). Māori adults also have the second highest obesity prevalence in NZ (48.2%) behind Pacific adults, and are 1.5 times more likely to be obese than non-Māori adults (Ministry of Health, 2019a, 2019c). They have a higher mortality cancer rate and their chronic rheumatic disease mortality rate is eight times higher than that of non-Māori (Ministry of Health Wai, 2019). Furthermore, Māori hospitalisation rates are around six to eight times higher than non-Māori and non-Pacific males and females respectively (Russell et al., 2013).

Similarly, studies reveal similar effects of dietary acculturation on Pacific health. Chiefly, they are disproportionately affected by NCDs, with NCDs accounting for approximately 70% of all deaths in the Pacific Islands (Borrows et al., 2011; Davis et al., 2004; DiBello et al., 2009; Hawley & McGarvey, 2015; Rush, 2009; Veatupu et al., 2019). This has also been reported in NZ (King et al., 2012), Hawaii (Davis et al., 2004), the Cook Islands (Fitzgerald, 1986) and Western and American Samoa (Davis et al., 2004; DiBello et al., 2009). In NZ, the westernisation of their diets has resulted in systematic disparities in Pacific health outcomes (DiBello et al., 2009; King et al., 2012; Ministry of Health, 2012c; Rush, 2009). The burden of chronic disease for Pacific people residing in NZ has also been well documented. Pacific peoples have a lower life expectancy than non-Pacific, the highest rate of diabetes compared to the total NZ population (9 vs 5.5% respectively) and high burden of ischaemic heart disease and stroke (Sorenson & Jensen, 2017) (Ministry of Health, 2014, 2019a; Sorenson & Jensen, 2017). According to the latest NZ Health Survey 2018/19, the Pacific population has the highest prevalence of obesity in NZ (66.5%) with an obesity rate 2.5 times higher than that of non-Pacific (Ministry of Health, 2014, 2019a; Sorenson & Jensen, 2017).

In addition, the literature reports that global Chinese immigrants have higher rates of NCDs in comparison to Chinese populations living in Asia (Chen, Juon, & Lee, 2012; Deng et al., 2013; Khan et al., 2016; Kwok et al., 2009; Lv & Cason, 2004; Tseng et al., 2015). Acculturation studies on Chinese immigrants demonstrate that the westernisation of their traditional diet has led to an increase in obesity, diabetes, hypertension, hyperlipidaemia, heart disease and cancer (Chen et al., 2012; Khan et al., 2016; Lv & Cason, 2004; Tseng et al., 2015). In NZ, there is a limited amount of literature available on the health status of Chinese populations. Nevertheless, the data available documents an increase in the prevalence of obesity, diabetes, heart disease for Asian adults, and a high risk of stroke for Chinese (Mehta, 2012; Scragg, 2016; Wong, 2015). Nevertheless, the burden of disease of Chinese residing in NZ is comparatively lower than that of Māori and Pacific, including relatively lower rates of diabetes and cardiovascular disease (Rasanathan, Ameratunga, & Tse, 2006).

Hospitalisation rates for MPC populations are somewhat variable. Chinese have lower rates of healthcare utilization / access due to a number of barriers (including language and social isolation) and the proportion of adults who attend public hospitals has been observed to be lower than that of other ethnicities (Mehta, 2012; Rasanathan et al., 2006; Scragg, 2016; Wong, 2015). Comparatively, the underutilization of primary health care services by indigenous Māori and Pacific groups has been seen as a significant factor in their high use of inpatient hospital services (Barwick, 2000; Malcolm, 1996). For Pacific, many are reluctant to self-admit to hospitals, as they consider hospitalisation as a precursor to death (Bacal & Jansen, 2010). Nevertheless, the rate for ambulatory-sensitive hospitalisations for Pacific is nearly twice the rate of other New Zealanders, and since 2007/09, the rate of hospitalisation for Māori has consistently been 1.2 - 1.3 times higher than for non – Māori (Ministry of Health, 2019b). Consequently, the health outcomes of MPC populations in NZ presents a significant problem for health services. This highlights the demand for culturally appropriate and ethnic-specific healthcare services in order to meet the need and improve the health status of MPC populations residing in NZ.



## 2.8 The importance of hospital food in patient recovery

Hospital food is recognised as fundamental to patient care and the sole provider of nutrition for approximately 80 – 100% of patients (Scottish Government, 2008; South Australia Health, 2014; ACI Nutrition Network, 2011; Meehan et al., 2016; Poulia & de van der Schueren, 2016; Williams, Hazlewood, & Pang, 2014). Patients represent a diverse group with varied cultural needs, and the literature supports this cultural diversity as a necessary requirement within hospital services to ensure patient foodservice satisfaction (Doyle, Simmance, Wilding, & Porter, 2017). It is widely recognised that patient foodservice satisfaction influences overall patient hospital experience (Dall'Oglio et al., 2015; Theurer, 2011). In a recent systematic review analysing foodservice satisfaction levels in Australia, Canada, Italy, Iran, Switzerland, the United Kingdom (UK) and the USA, researchers found that inpatient meal consumption was a good indicator of dietary status, patient and foodservice satisfaction (Dall'Oglio et al., 2015). Therefore, as hospital food intake depends upon patient food acceptability and foodservice satisfaction, the provision of acceptable hospital food for ethnic minority groups should be a priority area for the development of culturally sensitive hospital services (Degrie et al., 2017; Jessri et al., 2011; K. Kim, Kim, & Lee, 2010; Messina et al., 2013).

Foodservice satisfaction studies around the world have identified common aspects of the hospital foodservice system which impact on patient satisfaction. These include menus with low meal preferences, poor variety and inconsistent meal quality, and other food factors such as taste, portion sizes and inappropriate food temperatures (Dall'Oglio et al., 2015; Kim et al., 2010; Kim, Kim, & Lee, 2008). In a study carried out in public hospitals in Eastern Malaysia, poor food quality and a lack of menu variety were the key factors influencing patient dissatisfaction, and only 32% of participants rated hospital foodservice as good or very good (Aminuddin, Vijayakumaran, & Razak, 2018). These findings are similar to that of a study involving 415 inpatients from a selection of hospitals in Egypt (El-Sherbiny, Ibrahim & Hewedi, 2017), 189 patients in Eastern Malaysia (Aminuddin et al., 2018), 614 inpatients in a public hospital located in the south of England (Hartwell, 2004) and 75 inpatients from five general hospitals in Tehran (Jessri et al., 2011). In NZ, only a few studies exist that explore patients' expectations and satisfaction with public hospital foodservices. In studies conducted by

Lowerson (2017) and McLachlan (2018), it was found that patient expectations for hospital foodservices were high and these expectations were fulfilled in their overall foodservice experience, often with high levels of satisfaction. Nevertheless, the study populations had a high proportion of NZ European patients and were conducted on the South Island of NZ. With regards to the cultural foodservice satisfaction of ethnic minority groups, the literature is sparse. One study investigated the need for culturally appropriate foods of older Chinese patients with cancer during hospitalisation in the UK (Payne et al., 2008). In this study, Payne et al. (2008) determined that hospital foodservices were unable to provide culturally acceptable foods for this population group. This led to high levels of patient dissatisfaction and served as a major barrier to hospital admission (Payne et al., 2008). In the aforementioned study conducted in Tehran, it was found that poor foodservice quality and a lack of amenities deprived patients of the components necessary for their traditional meal intake (Jessri et al., 2011). Furthermore, this, along with the western hospital foodservice models of Iranian hospitals that lacked the influence of local culture and tradition, led to high amounts of plate waste (Jessri et al., 2011).

### 2.8.1. Hospital foodservice preferences of other cultures

Only a few studies have explored the cultural acceptability of hospital food by ethnic minority groups in NZ. In Mohamad Shahir's study (2019), she found that the food preferences of Indian and South Asian adults when unwell or during hospitalisation, are heavily influenced by religion and cultural food traditions. This led to patients preferring chicken dishes in hospital, as cows are considered sacred in Hindu religion, and pork is forbidden for Muslims (Mohamad Shahir, 2019). In Lum's study (2019), she found that ethnic foods were of great importance to Chinese and Filipinos, as they had an important role in enjoyment, comfort and recovery. Similar to Mohamad Shahir, their food preferences were also heavily influenced by cultural traditions and traditional medicine practices (Lum, 2019). Both studies concluded that NZ public hospital foodservices are not meeting the needs of these ethnic minority groups (Lum, 2019; Mohamad Shahir, 2019).

Poor patient food satisfaction can lead to poor meal uptake, which results in high levels of plate waste. This cycle can lead to malnutrition - a major public health issue affecting approximately 40 – 50% of patients worldwide and at least 30% of patients in Australia and

New Zealand collectively (Agarwal et al., 2012; Correia et al., 2017; Kirkland et al., 2013; Meehan et al., 2016). As a systemic determinant of recovery within the hospital setting, malnutrition promotes illness complications, decreases rate of recovery and increases length of stay, readmission frequency, morbidity and mortality risk (Barker et al., 2011; Correia et al., 2017; Kirkland et al., 2013; Meehan et al., 2016). This can increase the burden of health care costs across the hospital and healthcare setting (Correia et al., 2017; Degrie et al., 2017; Jessri et al., 2011; Meehan et al., 2016; Payne et al., 2008). Therefore, providing culturally familiar meals to MPC populations is likely to reduce the risk of effects associated with poor patient food acceptability, food satisfaction and plate waste. Thus, it is imperative that the NZ hospital foodservices implement a more culturally comprehensive menu standard that is appropriate for indigenous Māori, and migrant Pacific and Chinese ethnic groups of NZ. **Table 7** summarizes a few studies with aims similar to this present study below.

Table 7. Summary of studies exploring patient foodservice satisfaction and studies with similar aims to this present study

Authors/setting	Study Aim	Study Details	Study Outcome
Miyoba & Ogada, 2019	To assess dietary satisfaction amongst adult surgical inpatients at a teach hospital in Lusaka province, Zambia.	Hospital-based cross-sectional study design using a research-administered questionnaire that measured 9 aspects of satisfaction.	64.3% of surgical patients were dissatisfied with the overall hospital food quality. More than half of patients were dissatisfied with the type, variety, appearance and taste of hospital food. May patients were also satisfied with portion size, temperature and meal timing.
<i>Zambia</i>		n=98	
Ncube & Nesamvuni, 2019	To assess patient perceptions concerning hospital foodservice quality in South Africa	Cross-section comparative and quantitative study following an <i>ex post facto</i> design and using a structured questionnaire.	Low patient satisfaction with regards to foodservice reliability. Meal delays, length of time between meals, foodservice misinformation, unexplained menu items and lack of nutritional value explanations for meals were the main areas of concern.
<i>South Africa</i>		n=419	
Aminuddin, Vijayakumara & Razak, 2018	To investigate patient satisfaction with foodservice and plate waste at East Malaysian public hospitals	Non-experimental study design using the Acute Care Hospital Foodservice Patient Satisfaction Questionnaire (ACHFPSQ) translated into Malay.	Non-experimental study design using the Acute Care Hospital Foodservice Patient Satisfaction Questionnaire (ACHFPSQ) translated into Malay.
<i>Malaysia</i>		n=189	

Authors/Setting	Study Aim	Study Details	Study Outcome
El-Sherbiny, Ibrahim, Hewedi, 2017	To assess the patients' satisfaction with the food hospital services in Fayoum, Egypt and to determine factors affecting patient's satisfaction	Cross-sectional study design using an interview questionnaire adapted from the ACHFPSQ.	Increasing the quality of foods and hospital foodservices are more likely to increase the level of overall patient satisfaction. Significant aspects influencing patient satisfaction include food, taste, appearance and cooking methods.
<i>Egypt</i>		n=415	
Wright, Connelly, Capra & Hendrikz, 2013	To analyse the factors affecting resident satisfaction in the long-term care setting.	Cross-sectional study design using the Resident Foodservice Satisfaction Questionnaire.	Foodservice satisfaction was an effective influencer of patient/resident satisfaction.
<i>Australia</i>		n=313	
Jessri, Mirmiran, Jessri, Johns, Rashidkhani, Amiri, Barfmal & Azizi, 2011	To investigate inpatients' satisfaction with meals in five Iranian hospitals.	Cross-sectional study design using focus group discussions, interviews and meal observations.	Approximately half of all patients were dissatisfied with hospital foodservices. This was due to poor food variety, small portions, lack of snacks, poor food quality and inadequate hygiene.
<i>Iran</i>		n=75	

Authors/Setting	Study Aim	Study Details	Study Outcome
Kim, Kim & Lee, 2008	To assess hospital foodservice quality and identify the causes of quality problems and improvement strategies.	Observational two-phase study design using meal observations and measuring plate waste.	80 – 90% of patients consumed less than their nutritional requirements and four gaps in the Hospital Foodservice Quality model were identified. Most of the issues occurred in Gap 3 (lack of portion control, and standardized recipes) and Gap 4 (inappropriate food temperatures, low menu preferences and variety, and patient misunderstanding of nutrition).
<i>South Korea</i>		n=516	
Naithani, Whelan, Thomas, Gulliford & Morgan, 2008	To examine in-patients' experiences of access to food in hospital.	A qualitative study design using semi-structured interviews with inpatients and informal observations of mealtimes.	The majority of patients were satisfied with meal quality and felt that meals met their expectations. Almost half of patients felt hungry during hospitalisation and identified many barriers to food access. This included unsuitable serving times, lack of menu information, physical barriers (e.g. food out of reach) and environmental factors (interrupted mealtimes). Barriers are often unnoticed by staff.
<i>UK</i>		n=48	
Hartwell, Edwards & Symonds, 2006	To explore the antecedents to patient satisfaction and experience, including the hospital foodservice element.	Hospital based, qualitative study design using four focus groups and open-ended interviews.	Although food quality was better than expected, food quality was a significant influencer of patient satisfaction. This included food temperature and texture. Patients wanted recognizable and traditional meals that reminded patients of home.
<i>UK</i>		n=22	

Authors/Setting	Study Aim	Study Details	Study Outcome
Lum, 2019	To investigate food preferences and hospital foodservice experiences of Chinese and Filipino adults in New Zealand	Exploratory mixed-method study design using a survey, focus group interviews and a questionnaire.	Cultural foods are preferred by Chinese and Filipino adults when unwell or during hospitalisation and Chinese continue to follow traditional Chinese medicine practices despite residing in NZ. These cultural food preferences are not appropriately met by the foodservices of NZ public hospitals.
<i>New Zealand</i>		n=40 <i>[excluding pilot test]</i>	
Mohamad Shahir, 2019	To investigate food preferences and hospital foodservice experiences of Indian and South Asian adults in New Zealand	Exploratory mixed-method study design using focus groups, semi-structured interviews and a questionnaire.	The food preferences of Indian and South-Asian adults when unwell or during hospitalisation are influenced by religion and cultural food traditions. These preferences are not being appropriately met by foodservices of NZ public hospitals.
<i>New Zealand</i>		n=45 <i>[excluding pilot test]</i>	
McLachlan, 2018	To explore factors influencing patients' expectations of public hospital foodservices and to refine the 2016 Patient Foodservice Expectations and Satisfaction Questionnaire for a public hospital population.	Three-phase mixed method study using questionnaires and semi-structured telephone interviews.	Patients high expectation of hospital foodservices were fulfilled in their overall hospital experience. Six main factors found to influence patient foodservice expectation, with food and meal service quality being of great significance.
<i>New Zealand</i>		n=38	

## 2.9 Current New Zealand hospital menu standards

Hospital menus are a critical aspect of hospital foodservices. They are developed using evidence-based standards that govern the provision of food, fluid and nutrition in hospitals, which are consistent with national dietary guidelines (Scottish Government, 2008; Health, 2014; ACI Nutrition Network, 2011; Williams et al., 2014). Overall, these standards are used to ensure that patients have access to foods that satisfy their nutrient requirements, improve their well-being and enhance their hospital experience (Health, 2014; ACI Nutrition Network, 2011). The current National Nutrition Adult Menu Standard employed by DHB foodservices across NZ was adapted from the Queensland and New South Wales (NSW) hospital menu standards (Healthboard Limited, 2013). It provides nutrient goals and exemplary menu and meal ideas for foodservice providers (Healthboard Limited, 2013). Nevertheless, to date, no culturally-specific standards for ethnic minority groups within NZ exist, despite the original NSW standards stipulating best practice menu design should incorporate the cultural needs of patients (Lum 2019; Mohamad Shahir, 2019).

The latest nutrition standards for hospitals in New South Wales (NSW) are comprised of two key sets of standards which are outlined in **Table 8** below. These standards are flexible and allow hospitals to tailor individual food choices to meet the specific preferences and needs of their local populations (ACI Nutrition Network, 2011). Furthermore, the NSW Hospital standards provide several principles to ensure hospital foodservices are patient-focussed. The principles relevant to this investigation are also presented in **Table 8** below.



**Table 8. New South Wales public hospital nutrition standards and relevant principles**

Standard	Details
<b>Nutrient Goals</b>	Target amounts of key nutrients that standard menus need to provide to enable the majority of patients to meet their individual nutrient requirements.
<b>Minimum menu choice standard</b>	The minimum number of food choices and minimum serving sizes for each menu item provided at main and mid-meals.
Relevant Principles	Standard Details
<b>1</b>	A duty of care to ensure access to <b>safe, appropriate</b> and <b>adequate</b> food and fluid for patient care and treatment.
<b>2</b>	The menu will offer food choices that are <b>appealing</b> and <b>enjoyable</b> to patients which will assist them in meeting their nutritional requirements
<b>3</b>	Menu design will be based on <b>local population needs</b> , applying best practice in menu planning by taking into account the psychosocial, <b>cultural</b> and religious needs of patients.

(ACI Nutrition Network, 2011)

## 2.10 Data collection methods used to food preferences and patient experiences in hospital

A selection of data collection methods is commonly utilised to explore dietary habits and preferences in dietary acculturation studies. Although qualitative and quantitative methods can be simultaneously used for corroboration, elaboration, complementarity or contradiction, qualitative methods are the preferred method of choice for understanding dietary habits of different population groups (Hammarberg, Kirkman, & de Lacey, 2016). Qualitative research is a holistic research approach that allows the researchers to access the thoughts, feelings and perspective of participants (Hammarberg et al., 2016; Harris et al., 2009; Sutton & Austin, 2015; Williams, 2007). This enables the researchers to develop an understanding of the meanings that people ascribe to their unique experiences and facilitates the development of themes, concepts, patterns and their level of interconnection (Hammarberg et al., 2016; Harris et al., 2009; Williams, 2007).

Common quantitative and qualitative methods utilised include self/interview-administered surveys or questionnaires and focus groups, respectively. Surveys are frequently used in quantitative studies and questionnaires are their most commonly utilised data collection method (Jones, Baxter, & Khanduja, 2013; Ponto, 2015). They are used to gather information on individual perspectives in a large cohort/population through participant responses to questions (Jones et al., 2013; Ponto, 2015). They can be self/professional/group-administered and may be delivered in paper, electronic or telephone format (Ponto, 2015). Furthermore, the literature supports the use of questionnaires in assessing patient food satisfaction in hospital (Abdelhafez et al., 2012; Aminuddin et al., 2018; Beattie, Murphy, Atherton, & Lauder, 2015; El-Sherbiny et al., 2017; Wright, Capra & Aliakbari, 2003). Descriptive statistics are frequently used for data analysis in both dietary acculturation and hospital foodservice satisfaction studies across the world (Abdelhafez et al., 2012; Aminuddin et al., 2018; Chen et al., 2012; Kwok et al., 2009; Veatupu et al., 2019). Descriptive statistics can be used to accurately describe population samples, compare samples (within or between studies) and enable the researchers to detect specific characteristics of their samples that may influence their conclusions (Spriestersbach, Rohrig, du Prel, Gerhold-Ay, & Blettner, 2009; Thompson, 2008).

Focus groups are a common method of qualitative data collection. This method involves a small group of people engaging in a collective discussion of a topic preselected by the researcher (Edwards & Holland, 2013; Fitzpatrick & Boulton, 1999; Gill, Stewart, Treasure, & Chadwick, 2008; Harris et al., 2009). This enables the researcher to generate ideas about the research subjects, with group interactions and dynamics revealing further insights into their worldview, language, and beliefs about specific topics (Edwards & Holland, 2013; Harris et al., 2009). Participant numbers depend on the nature of the study and although small groups are often used, the literature suggests that 3 - 12 subjects are an appropriate cohort size (Capra, Wright, Sardie, Bauer, & Askew, 2005; Edwards & Holland, 2013; Gill et al., 2008; Harris et al., 2009). The researcher facilitates the discussion, using a predetermined interview guide, and a second researcher can help to take field notes of the interactions (Edwards & Holland, 2013; Harris et al., 2009; Sutton & Austin, 2015). It is critical that facilitators are relaxed and that ground rules are established so that group members feel comfortable enough to share their experiences and views (Gill et al., 2008; Harris et al., 2009). Sessions last approximately 1 - 2

hours and are generally audio/videotaped, before being transcribed for subsequent data analysis (Edwards & Holland, 2013; Gill et al., 2008; Harris et al., 2009; Sutton & Austin, 2015). Most food preference and patient foodservice satisfaction studies employ a mixed-method approach, where both quantitative and qualitative methods are used to collect and analyse data. This approach provides a more complete and synergistic utilization of the data, allowing the comparison of both data sets, giving a voice to participants and ensuring comprehensive data collection (Wisdom & Creswell, 2013). Please refer to **Table 7** in **section 2.8** for a summary of studies with similar aims to this study that utilize a mixed methods approach. **Table 9** summarises the advantages and disadvantages of the methods utilized in this present study, including focus groups and surveys / questionnaires.

Table 9. The advantages and limitations of focus groups and self-administered surveys / questionnaires.

Method	Advantages	Limitations
Surveys / Questionnaires	<ul style="list-style-type: none"> <li>• Enables the researcher to target a larger cohort in a shorter time frame.</li> <li>• Quicker response</li> <li>• Low inconvenience to participants.</li> <li>• Low cost</li> </ul>	<ul style="list-style-type: none"> <li>• Poor participant response if questions are considered irrelevant.</li> <li>• Coverage errors</li> <li>• Sampling errors</li> <li>• Measurement errors</li> </ul>
Focus Groups	<p>(Jones et al., 2013; Ponto, 2015)</p> <ul style="list-style-type: none"> <li>• Enable the researcher to quickly establish a range of perspectives on specific issues of importance among different groups.</li> </ul> <p>(Fitzpatrick &amp; Boulton, 1999)</p> <ul style="list-style-type: none"> <li>• Allow researchers to probe for additional information.</li> <li>• Enables the researcher to gain further insight by observing the interaction between participants and group dynamics.</li> <li>• Appropriate for nonsensitive, low-involvement topics.</li> </ul> <p>(Edwards &amp; Holland, 2013; Gill et al., 2008)</p>	<p>(Jones et al., 2013; Ponto, 2015)</p> <ul style="list-style-type: none"> <li>• The researcher requires training to ensure focus groups are conducted appropriately.</li> </ul> <p>(Gill et al., 2008)</p> <ul style="list-style-type: none"> <li>• The researcher can initiate focus group bias in order to obtain a desired response</li> </ul> <p>(Harris et al., 2009)</p> <ul style="list-style-type: none"> <li>• Data collection can be limited, biased or irrelevant if the group dynamics and interactions are not appropriately managed.</li> <li>• Difficult to arrange and recruit participants.</li> <li>• May be of high inconvenience for participants to attend.</li> <li>• Unable to provide numerical results.</li> </ul> <p>(Gill et al., 2008)</p>

## Chapter 3. Methodology

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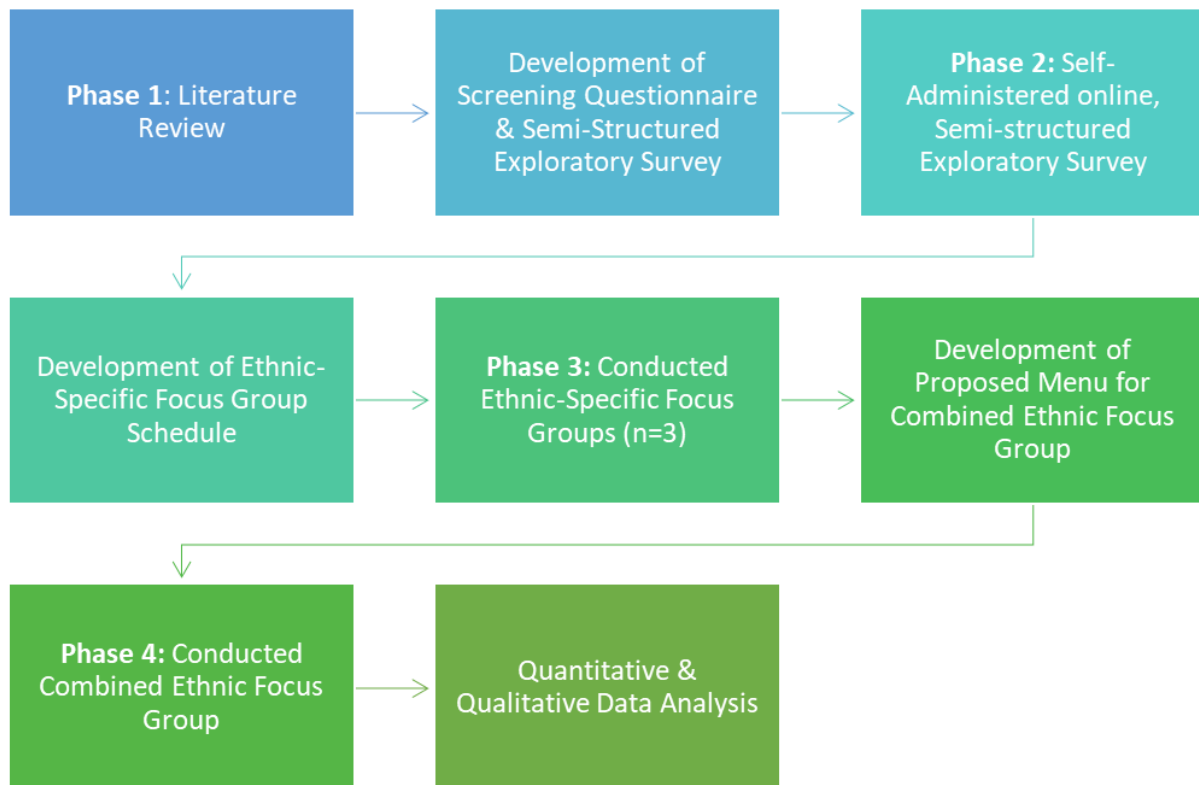
In this chapter, the study design and rationale are presented first, followed by ethics approval and the study protocols for each phase. Lastly, the contextual notes taken during the focus group sessions and the data analysis processes are described.

### 3.1 Study Design

A four-phase mixed-method exploratory study design was used to explore:

- The preferred foods of Māori, Pacific and Chinese groups when unwell.
- Their recent NZ hospital food-service experience.

This study approach enhances the scope of data collection to a greater extent than the sole use of either quantitative or qualitative methods, thus providing completeness, explanation, unexpected results and in-depth illustration (Bryman, 2006; Wisdom & Creswell, 2013). The first phase of this study consisted of a literature review in order to develop a semi-structured exploratory survey. Phase-2 consisted of a self-administered online exploratory survey, followed by ethnic-specific focus groups in phase-3. The final phase-4 was a combined ethnic focus group consisting of participants from all three ethnic groups.



**Figure 1. Study Design and Procedure**

### 3.2 Rationale

Common data collection methods for exploratory studies include self-administered surveys / questionnaires and focus groups. In Tami's study (2012), they explored the effect of acculturation on the dietary and physical activity behaviours of Arab mothers in Lubbock, Texas. A Participant Background Survey (PBS) and the Male Arab-American Acculturation Scale (MAAS) were used to collect demographic data, levels of physical activity, and information concerning dietary patterns and their extent of acculturation (Tami, Reed, Boylan, & Zvonkovic, 2012). These results were used to help structure the schedule for the subsequent focus groups and determine areas for further exploration. A mixed-method approach is considered appropriate when background data is minimal, such as the food preferences and practices of unwell Māori, Pacific and Chinese people residing in NZ (Lum, 2019).

An online, self-administered, semi-structured, exploratory survey was developed using information from the literature. The purpose of the survey was to explore the food preferences of general free-living participants when well and unwell, including experiences from their most recent hospital foodservice experience. The data collected from this survey were used to develop a targeted focus group schedule for phase-2 (Tami et al., 2012). The results from the phase-2 focus groups enabled the identification of culturally appropriate meals for further exploration in phase-3 focus groups.

### 3.3 Ethics

This project was submitted for and received ethics approval in April 2018 (**Appendix 1**). This project had been evaluated by peer review and judged to be low risk ethics (**4000018990: 24/04/2018**). The researcher(s) named in this document are responsible for the ethical conduct of this research. All the participants were informed of the study details. As stated in the Participant Study Information sheet (**Appendix 2**), all the data collected will be safely stored by Massey University and will be kept confidential and anonymous.

### 3.4 Phase 1: Development of the semi-structured, investigative-exploratory survey and screening questionnaire

Existing knowledge on the food habits and preferences, cultural food beliefs and values of MPC populations and the appropriate data collection methods were sourced from the literature. Information was obtained from government reports, online journal articles and eBooks sourced through the Massey University library databases. Although the literature expounds on the traditional diets and acculturation of Māori and Pacific residing in NZ, this information for Chinese as a specific population was scarce. Information on the food preferences of MPC populations when unwell and whilst residing in NZ is also scant. However, a recent and parallel research project exploring the general eating habits of Chinese and Filipino adults residing in NZ, their food preferences when unwell and their experiences of NZ public hospital foodservices unearthed significant results (Lum, 2019).

Specific databases used included Google Scholar, PubMed, Discover and Web of Science. Search terms included “Food Preference”, “Food Habit”, Māori, Pacifica, Pacific, Chinese, “South-East Asian”, “Dietary Acculturation”, “Patient satisfaction”, immigration, “Patient Experience” and “Hospital Foodservice”

As this is the first study investigating the unwell food preferences and hospital foodservice experiences of Māori and Pacific in NZ, questions were developed that could obtain information with the capacity to be further explored in focus groups. Therefore, the survey aims were to explore:

- The general food preferences of Māori, Pacific and Chinese adults living in NZ.
- The general and traditional food preferences of these population groups when unwell.
- The NZ hospital foodservice experiences of Māori, Pacific and Chinese peoples.

Aspects explored in the survey included: a) preferred cultural meal preferences when sick; b) participant opinion of the meals consumed during their most recent hospital stay and; c) cultural meal suggestions that participants would like to see incorporated within the hospital menu. A 32-item draft questionnaire was drawn up and administered to a pilot group of five participants of varying ethnicities. Based on the pilot survey, it was identified that too many open-ended questions existed (e.g. “why” / “please explain”), which amplified participant burden. These open-ended questions were reduced, rephrased and refined. The questionnaire was further separated into two sections to prevent participant confusion, with specific questions pertaining to each section. These sections were labelled as follows:

- *The following questions relate to when you are sick:*
- *The following questions relate to your most recent hospital stay:*

Some questions were reworded / simplified in order to increase readability and understandability (e.g. how important is it for you to have traditional meals or drinks when you are sick?). Likert scales, though widely utilised in global research, can severely limit the



number of choices for participants, with the literature criticising it for causing the loss of vital information (Treiblmaier & Filzmoser, 2011). Therefore, a continuous sliding / rating scale was used for several questions instead. This scale is also appropriate for online surveys and enables participants to express their opinion visually whilst simultaneously enabling them to make a choice over a greater range. This type of measurement can prevent information loss, allow for advanced and robust statistical analysis application and may reduce the impact of noise in surveys (Treiblmaier & Filzmoser, 2011). Furthermore, questions with multiple factors requiring participant opinion for each factor were broken down into individual questions and spaced more evenly to reduce respondent confusion and mitigate participant boredom. The full survey can be found in **Appendix 3**.

The survey was created with Survey Monkey, an online survey platform which was credible, easily manageable and accessible for participants. The participant consent form (**Appendix 4**) and survey were combined in order to ease participant burden.

### 3.5 Phase 2: Self-administered online, semi-structured exploratory survey

Although this survey was conducted in order to supplement the scant literature available, it was also used to gather further information on the general hospital foodservice experience of participants.

#### 3.5.1 Study Population

The MPC ethnic groups were selected as the three main ethnic groups for investigation. As highlighted in the literature review, these ethnic populations are continuing to grow (**Section 2.3**) and consistently experience the effects of dietary acculturation on their health and wellbeing, particularly indigenous Māori and Pacific groups (**Section 2.6 – 2.7**). Inclusion criteria for this study were adults of both genders, being of Māori, Pacific and Chinese ethnicity, aged 18 years and above, having had at least one hospital admission within the last year. Exclusion criteria were other ethnicities and not being a hospital inpatient within the last year. Reasons for these criteria include minimizing participant memory / recall bias and optimizing the gathering of relevant hospital foodservice opinions and food preferences that reflect

current hospital menus. This was accomplished with the online screening questionnaire that formed part of the study registration process.

### 3.5.2 Participant Recruitment

This study was advertised via social media, word of mouth and through the distribution of study information flyers and pamphlets. A number of community centres, maraes (meeting houses), health clinics, general practitioners, healthcare providers, churches, early childhood centres, gyms, businesses and libraries all over the Auckland region were visited. The student researcher also liaised with different ethnic organisations and agencies (e.g. Chinese New Settlers Services Trust) and hospital health services (e.g. Māori Health Services) in order to extend the study and reach further out into the community. Furthermore, study information posters were translated into Mandarin in order to capture the interest of Chinese individuals on their social media platforms, such as WeChat and Skykiwi.

### 3.5.3 Data Collection

Interested individuals were directed to the study website (via email link), where they were able to learn more about the study and study process. They were invited to register by completing the screening questionnaire to determine eligibility to participate in this study. Eligible participants were emailed their unique participant number, a study information sheet and a link to the combined online consent form and survey. The information sheet explained the nature of the research and what was expected of participants, including information on; what traditional foods they consume when unwell, their experiences with the food offered to them during hospitalisation, and what cultural foods that they would “like to be” offered during any future hospital stays. Additionally, they were assured that their responses would be treated with confidentiality and respect.

Participants had the opportunity to ask questions and clarify anything before agreeing to participate, either via email or telephone. Once satisfied, they could follow the link and fill out the online consent form, before progressing on to complete the survey online. Paper copies were available if required and entered manually in the database

to ensure consistency of captured data. Data collection was undertaken from October 2018 until March 2019. Data was extracted from Survey Monkey, exported into an Excel spreadsheet and checked for accuracy. Statistical analysis was performed using IBM SPSS statistics package version 23 (SPSS Inc., Chicago IL, USA).

### 3.6 Phase 3: Ethnic-specific focus groups

Individual focus groups for all three ethnic groups were conducted in this phase of the study.

The aims of the focus group sessions were to:

- Delve deeper into participant's hospital foodservice experiences
- Investigate the ethnic-specific cultural meal suggestions identified in the online survey from their associated population group.
- Identify any other cultural meals and/or culturally appropriate suggestions for implementation in NZ hospital foodservices.



**Figure 2. The Focus Group Process (From Phase 3 – Phase 4)**

### 3.6.1 Development of Focus Group Guide

Data from the literature review and any common ideas / suggestions arising from phase-2 data and results were taken into consideration throughout the design process of the focus group script. Further exploration of hospital foodservice experiences and additional cultural meal suggestions / opinions were also required between ethnic groups. Therefore, the script was designed to consist of open-ended questions and to be relatively easy for the moderator to follow during a group conversation. As this present study seeks to explore the cultural food preferences of MPC populations when unwell, the focus group moderator guide covered the following two areas:

1. Exploring participants' thoughts and opinions regarding their most recent NZ hospital foodservice experience, including the menu and hospital food qualities from a cultural perspective.
2. Exploring cultural food, drink and dietary practice suggestions for hospital menu incorporation, including participant opinion of the suggestions made by participants in phase-2.

The focus group schedule was drafted by the student researcher and reviewed by the research project supervisors. Minor adjustments, including the addition of probing questions concerning *why the menu should change*, were made. The final moderator guide and structure is listed in **Appendix 5**.

### 3.6.2 Recruitment of Focus Group Participants

Focus group participants were sourced from the phase-2 population that completed the survey. Eligible participants were randomly approached to attend their ethnic-specific focus group. Participants who indicated their interest in attending a focus group in the online consent form were contacted via mobile or email and invited to attend. Following confirmation, they were provided with their session details and information on how the session was to be conducted.

### 3.6.3 Focus Group Data Collection

Prior to the focus group sessions, it was emphasized to participants that the sessions would be informal and relaxed and that there were no right or wrong answers. They were given the opportunity to answer as they saw fit, without any demands being made which might unintentionally cause any discomfort to the attendees.

Both the Māori and Chinese focus groups were carried out in the Study Room at Massey University (MU) whilst the Pacific focus group was held at a local church in south Auckland. All sessions were conducted in an informal manner with a strong focus on achieving group rapport, and free refreshments were available. To ensure consistency and accuracy to data capturing, all focus groups were recorded with consent obtained from all participants. Furthermore, the moderator guide was used to guide the discussions. However, when participants spontaneously referred to or discussed other dimensions of the study, the researcher would follow their lead, listening and asking relevant questions as appropriate. Occasionally, further probes were required beyond the script in order to ensure that any underlying themes and other dimensions of cultural food preferences when unwell were appropriately explored. Each session lasted approximately for one hour, with the shortest interview being 49 minutes (Chinese) and the longest being one hour and 25 minutes (Māori). The recorder was then switched off and the session was completed. The researcher thanked the participants for their time and participation and assured them that they would be contacted again later with the results of the study.

All sessions were led by the student researcher. One research supervisor attended the first focus group in order to ensure that the focus group guide was appropriate and that the correct procedures were followed. Following completion and transcription of all three focus groups, the cultural meal suggestions were then compiled into a list of the most popular meals. This list was drawn up into a proposed menu featuring all the cultural food suggestions for breakfast, lunch and dinner, as well as any other suggested dietary practices (**Appendix 6**). The proposed menu was required for phase-4 of this study.

### 3.7 Phase 4: Combined ethnic focus group

Phase-4 centred around the final combined focus group comprising of participants from all three ethnic populations. The cultural suggestions extracted from phase-3 were presented to participants in phase-4 in the form of a proposed menu. The aim of this session was to encourage participants to explore and understand cultural meals pertaining to other ethnic groups, and to:

- Determine their opinion of the cultural meals presented to them (i.e. their likes and dislikes)
- Determine what cultural food / drink they would anticipate choosing for breakfast, lunch, dinner and snacks if ever hospitalised again.
- Determine which meals were culturally appropriate across all three ethnic groups.
- Compile a list of culturally appropriate suggestions for NZ hospital foodservices.

#### 3.7.1 Participants & Recruitment

Participants were recruited from the same pool as those in phase-3 (i.e. those who had completed the online survey). Participants from all three ethnic groups were in attendance; Māori (n=3), Pacific (n=2) and Chinese (n=2). This session was held in May 2019 on the Oteha Rohe Campus at Massey University, in North Auckland.

#### 3.7.2 Data Collection

In this phase, the proposed hospital menu was utilized as a focus guide for the moderator (i.e. student researcher), and data collection followed the same process as illustrated in phase-3. The information gathered was collated into a final list of culturally appropriate hospital menu suggestions which may be considered for future hospital menu development and review processes.

### 3.8 Contextual notes

For each session, the student researcher created contextual notes to supplement the raw data collected from each of the four focus groups. These are the impressions and insights that were observed during each session, with regards to the group dynamics and how participants interacted with each other.

### 3.9 Data analysis

As a result of the mixed-method approach utilized, data analysis either underwent quantitative and qualitative analysis.

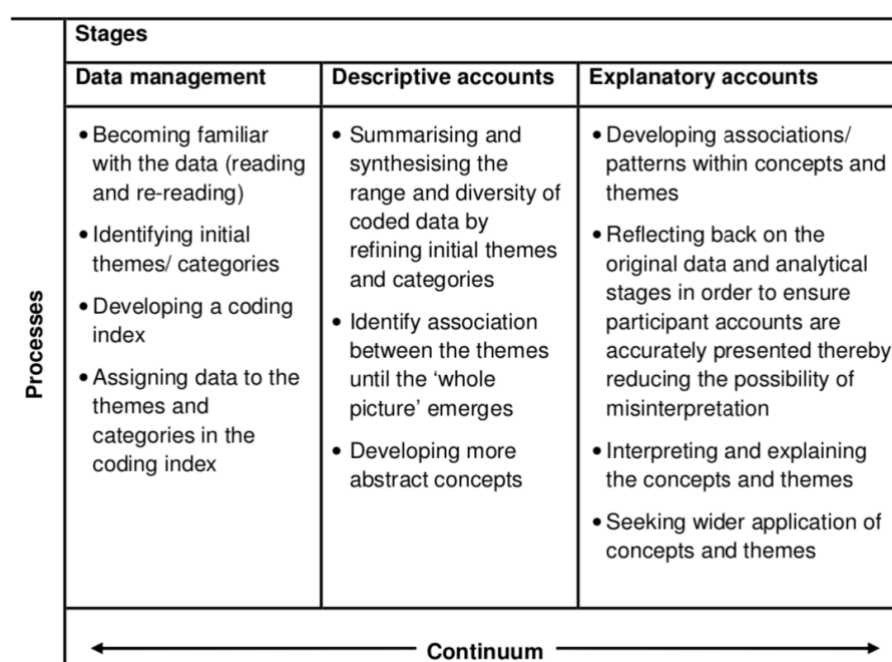
#### 3.9.1 Quantitative Data Analysis

In order to conduct statistical analysis on IBM SPSS Statistics for Windows (Version 25.0), we categorized the raw demographic data collected via the online survey. Categorization was primarily for participant food suggestions, which were grouped together into 12 main food groups, and drinks were categorized as either *herbal*, *caffeinated* / *hot*, *juice*, *fizzy*, *water*, *other*. Furthermore, the information obtained from questions utilising a continuous sliding scale was also categorized for data analysis. The sliding scale range was from 0 – 100, and responses were appropriately grouped into four or five main categories. These categories correlated to a particular response. For example, 0-25, 26-50, 51-75, 76-100 correspond to participant opinion of food hospital portions, including *just right*, *too small*, *too late* or *inconsistent*. If any of these response groups had small sample sizes, they were collapsed, and similar categories were combined for analysis. The lag time between participants' most recent hospital stay and date of survey completion was calculated and also categorized according to the months elapsed since hospitalisation. Basic descriptive statistics were used for scale and categorical data analysis (age across ethnicity). Population number (n) and percentage (%) were reported for demographic, scale and categorical data summaries and responses to free-text questions were accumulated and presented as bar graphs. The demographic and visual scale categories are

presented in **Appendix 7**. The initial food and drink categories are presented in **Appendix 8**. These initial food categories were further collapsed into seven main categories and subgroups to classify the general and cultural food suggestions given by participants. These can also be found in **Appendix 8**.

### 3.9.2 Qualitative Data Analysis

In this study, focus group transcripts were analysed using the framework method approach. This method is being increasingly utilized to analyse data applied to policy research (Smith & Firth, 2011). Although labour intensive, it enables the researcher to explore data in-depth, while simultaneously maintaining an effective and transparent audit trail, which enhances the rigour of the analytical processes (Ritchie & Lewis, 2003). Furthermore, this method values the patient experience by exploring health and wellbeing complexities, thereby facilitating a deeper understanding of the patient experience (Smith & Firth, 2011). This approach is similar to the thematic analysis method where recurring and significant themes are identified, however it is a series of interconnected stages that enable the researcher to consistently move across the data until a coherent account emerges (Ritchie & Lewis, 2003; Smith & Firth, 2011). **Figure 3** is an adapted overview of the framework approach from (Smith & Firth, 2011).



**Figure 3. Overview of the Framework Approach (Smith & Firth, 2011)**



Audio recordings were transcribed using the transcript protocol outlined by Krueger & Casey (2009). The initial transcription was a rough draft, followed by a second round of reviewing each audio recording (multiple times if necessary) to ensure accurate data capture and transcription. The final transcripts were re-read multiple times and individually scrutinized. The general steps outlined in Smith & Firth's (2011) exemplary study were followed for data analysis and are presented in **Table 10** below.

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**Table 10. Framework analysis step-by-step process**

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1. The student researcher familiarized themselves with the data by re-reading each individual printed transcript multiple times.
  2. Key phrases were highlighted, and preliminary thoughts were written in the margins.
  3. Create In-vivo codes by summarizing key phrases utilizing the participants own words.
  4. Identify Initial categories utilizing in-vivo codes.
  5. Create coding index created from the initial categories and thoughts
  6. Group together similar categories into broader categories to form themes.
  7. Create a coding matrix from the identified categories and themes (see excerpt example in **Appendix 9**)
  8. Refine initial categories and themes to find links between categories and themes.
  9. Develop core concepts from **Step 8**
  10. Interpret and explain core concepts and themes
  11. Reflect on the data analysis process and explore the relationship between core concepts and established literature.
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### 3.9.3 Common Food Definitions

The definitions of some of the common cultural food suggestions made in this study are presented in **Table 11** below, along with definitions from Royal & Kaka-Scott (2013) for certain Māori foods.

Table 11. Common cultural food suggestions of Māori, Pacific and Chinese populations

Food Group	Cultural Food	Definition
<b>Māori</b>		
<b>Breads</b>	Rewena / Māori bread	Traditional sourdough made with fermented potato starter.
<b>Meat</b>	Dough boys	Similar to dumplings and cooked in a boil-up
	Hāngi	Traditional form of cooking where food is cooked in earth ovens
<b>Seafood</b>	Inanga	Whitebait
	Kuku	Mussels
	Kina	Sea eggs / sea urchin
<b>Soups</b>	Paua	Abalone
	Boil-up	Traditional Māori stew made with pork or mutton bones, watercress and/or puha. Other vegetables may be added (e.g. pumpkin or kumara)
<b>Vegetables</b>	Kumara	Sweet potato
	Kowhitiwhiti	Watercress
	Puha	Sow thistle
<b>Pacific</b>		
<b>Cereals &amp; Grains</b>	Vaisalo	Coconut porridge
	Niuean porridge	Porridge made from water, coconut flesh and starch powder
	Cocoa rice	Chocolate rice pudding made with coconut cream
<b>Breads</b>	Suafa'i	Banana pudding
	Panikeke	Round, deep fried donuts
<b>Meat</b>	Povi masima / pisupo	Salty corned beef
	Chop suey	Rice noodles with meat and soy sauce. Vegetables are optional.
	Lu sipi	Meat cooked with coconut cream and wrapped in taro leaves
<b>Seafood</b>	Oka / fai elegi	Raw fish in coconut cream
<b>Soups</b>	Supo povi / Pisupo soup	Corned beef soup (vegetables are optional)
<b>Vegetables</b>	Taro, cassava, breadfruit	Starchy root vegetables, similar to potato
<b>Drinks</b>	Koko samoa	Samoan hot chocolate
	Otai	Fresh fruit drink made with coconut cream
<b>Chinese</b>		
<b>Cereals &amp; Grains</b>	Congee	Savoury or sweet rice porridge

(Royal & Kaka-Scott, 2013)

## Chapter 4. Results

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In this chapter, the results of both the quantitative (Phase-2) and qualitative (Phase-3 and 4) data analysis will be presented

### Quantitative Analysis

A total of 101 participants showed interest in our study. Of the 101, 52 attempted the survey. Closer inspection revealed three survey replicas and five incomplete surveys, thus only 44 participants fully completed the online survey. The ethnic distribution of our 44 participants was relatively equal across all three groups. We had 14 Māori (32%), 17 Pacific (39%), and 13 Chinese (29%) participants. The mean $\pm$ SD age of participants was 41 $\pm$ 17 years, and the majority were women (66%). The demographic characteristics of our study population is presented in **Table 12** below.

**Table 12: Demographic characteristics of study population (n=44)**

	Total n (%)	Māori (n=14) n (%)*	Pacific (n=17) n (%)*	Chinese (n=13) n (%)*
<b>Age</b>				
<40 years	23 (52)	10 (71)	6 (35)	7 (54)
≥40 years	21 (48)	4 (29)	11 (65)	6 (46)
<b>Gender</b>				
Male	15 (34)	4 (29)	7 (41)	4 (31)
Female	29 (66)	10 (71)	10 (59)	9 (69)
<b>Hospital</b>				
ACH	12 (27)	4 (29)	6 (35)	2 (15)
MH	12 (27)	4 (29)	7 (41)	1 (8)
NSH	10 (23)	1 (7)	1 (6)	8 (62)
WH	10 (23)	5 (36)	3 (13)	2 (15)
<b>Length of stay <sup>†</sup></b>				
<1day	4 (9)	1 (7)	1 (6)	2 (15)
1-3 days	28 (64)	11 (79)	9 (56)	8 (62)
4-7 days	7 (18)	2 (14)	3 (19)	2 (15)
>7 days	4 (9)	0 (0)	3 (19)	1 (8)
<b>Tine between survey completion and hospitalisation<sup>‡</sup></b>				
<3 months	14	2	7 (41)	5 (39)
3-6 months	10	3	4 (24)	3 (23)
6-9 months	6	2	2 (12)	2 (15)
9-12 months	10	3	4 (24)	3 (23)

n: Number; %: Percentage; ACH: Auckland City Hospital MH: Middlemore Hospital; NSH: North Shore Hospital; WH: Waitakere Hospital

\*Percentage of participants within each ethnic group is reported.

<sup>†</sup> n(total): 43

<sup>‡</sup> n(total): 40

## 4.1 General food preferences when well and unwell

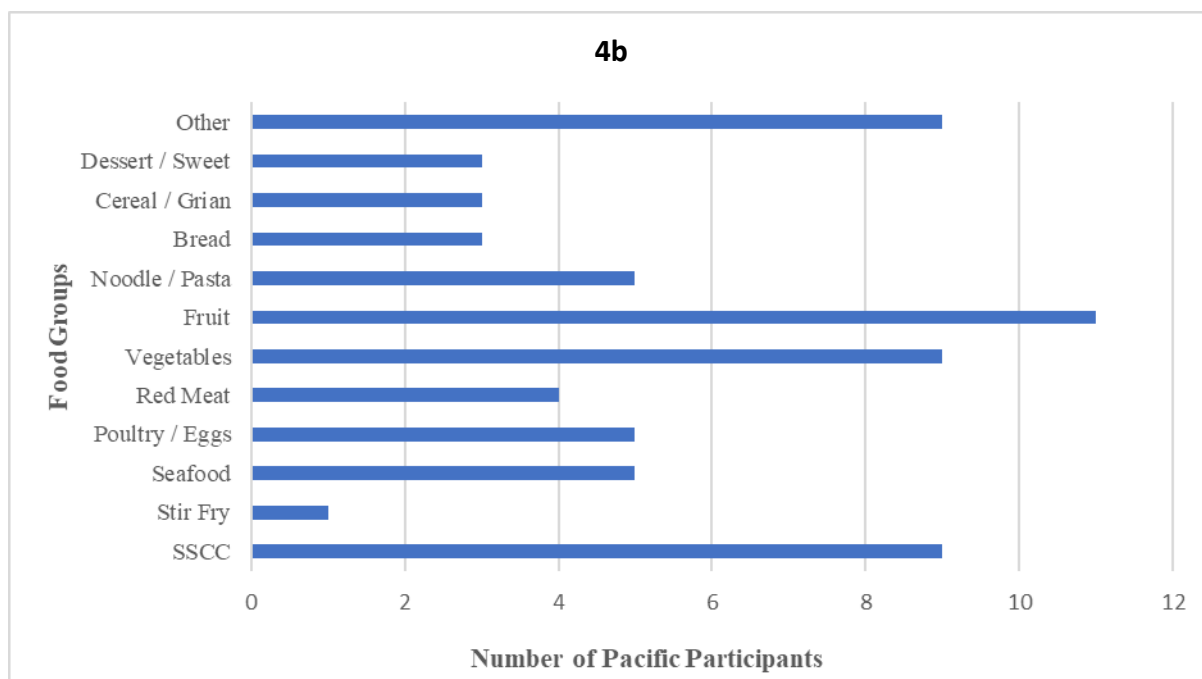
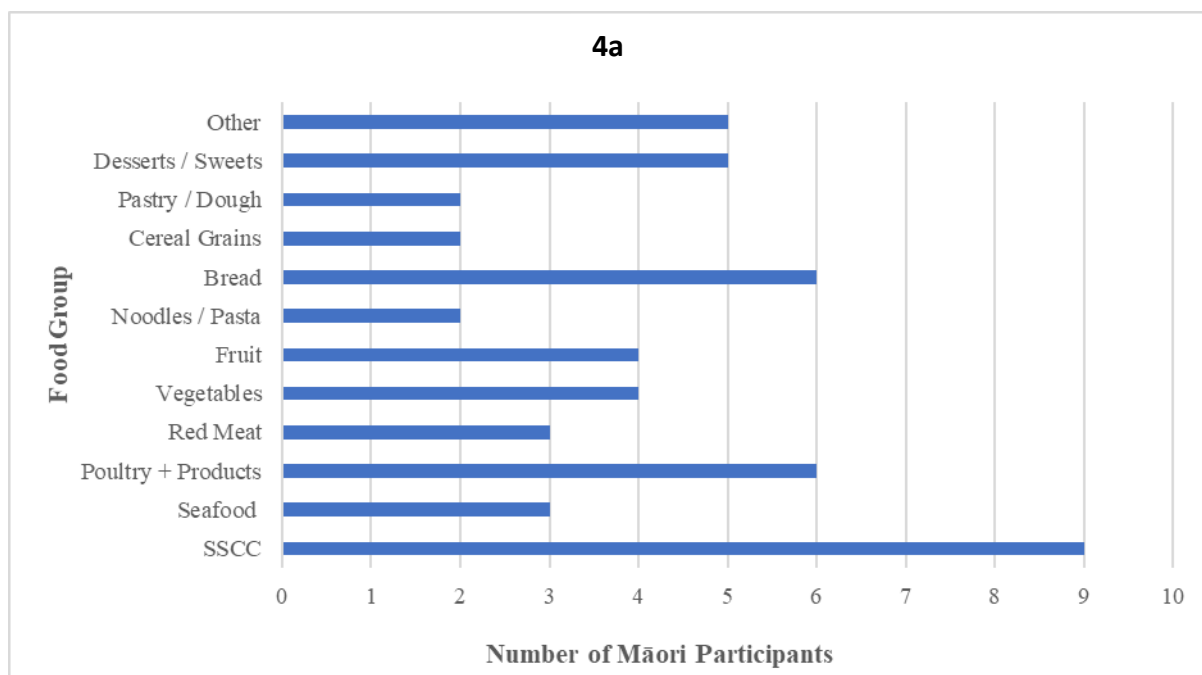
Participants identified the most important reason for food consumption as hunger (36%), followed by health (34%), enjoyment (21%) and social reasons (9%). Seventy-five percent of participants said it was very important for them to consume foods that they enjoy.

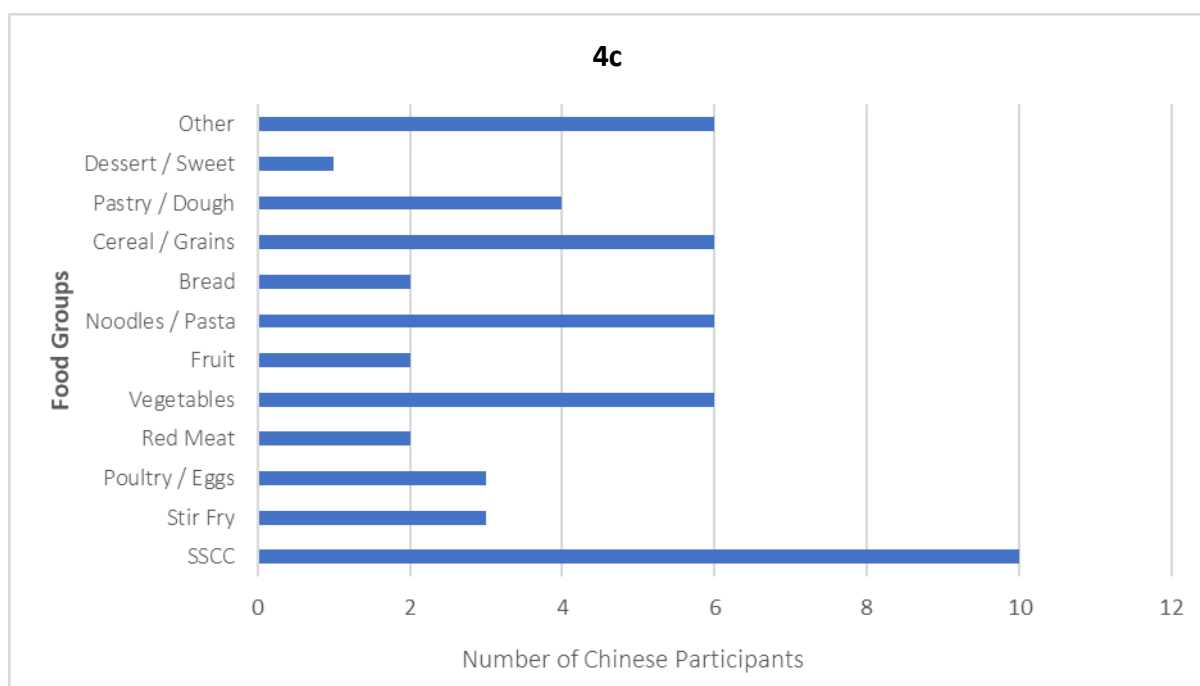
#### 4.1.1 General Food Preferences when Well

When well, 79% of Māori said that it was important for them to have foods that they enjoyed. Sixty-two percent of Pacific and the majority of Chinese (92%) reported that it was very important for them to have foods that they enjoyed. For Māori, these foods were either of the *seafood* (50%) or *vegetable* (43%) variety, including mussels, fish, oysters, kinnas, pauas, potatoes, kumara and pumpkin. Pacific also enjoyed foods of the *seafood* (59%) and *vegetable* (59%) variety, the only difference being the addition of traditional Pacific vegetables such as taro, green banana, cassava and yam. The majority of Chinese also listed a variety of *other* foods as their most enjoyed when unwell. This included international cuisine foods such as Indian, Italian and broad Asian, as well as a variety of Western fast food (e.g. McDonalds). Fifty-four percent also chose fresh vegetables.

#### 4.1.2 General Food and Drink Preferences when Unwell

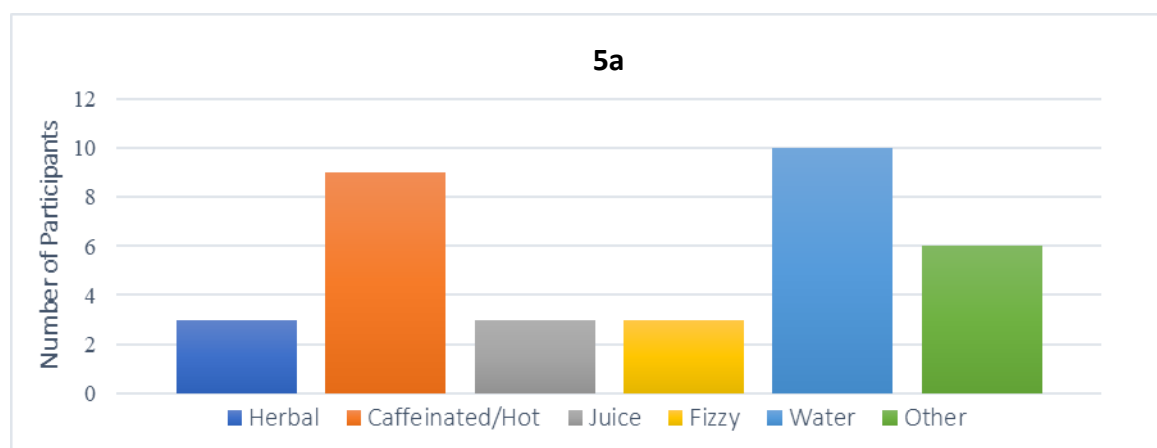
Figure 4 presents the reported foods most enjoyed when Māori (Figure 4a), Pacific (Figure 4b) and Chinese (Figure 4c) participants are unwell. For Māori, foods of the soup/stew/casserole/curry (SSCC) variety were the most favorite (64%) followed by foods of the bread and poultry / egg variety (43%). For Pacific, fruit was the most preferred food group when unwell (65%), which included bananas and mandarins. This was followed by vegetables, SSCC and other foods (53%). Chinese participants reported primarily enjoying SSCC foods (77%), including chicken noodle soup, beef soup, chicken and corn soup, wonton soup and broth. Vegetables, noodles / pasta, cereals / grains and other foods were the second-most preferred foods.

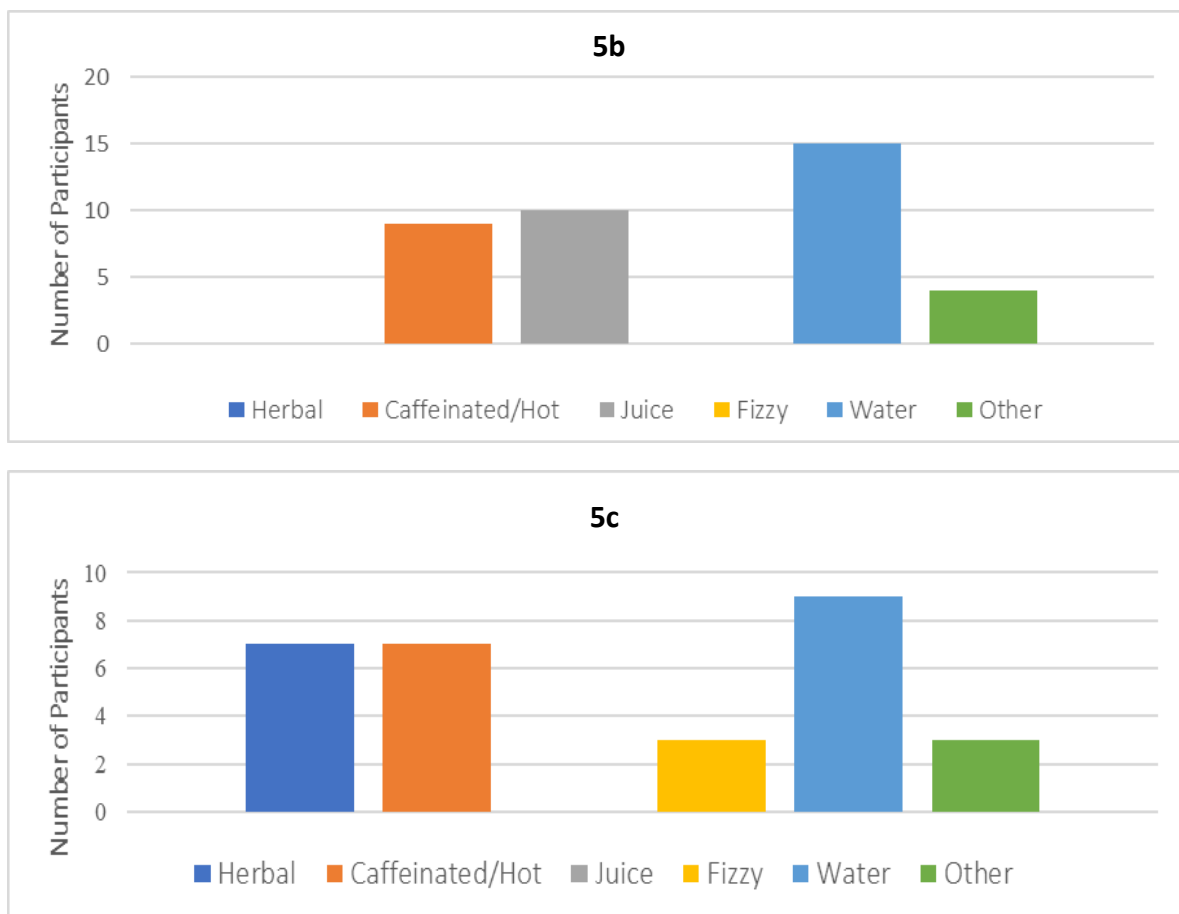




**Figure 4:** Food preferences of Māori (4a), Pacific (4b) and Chinese (4c) participants when unwell.  
SSCC: Soups/Stews/Curries/Casseroles

‘Figure 5 presents the reported drinks most enjoyed when Māori (Figure 5a), Pacific (Figure 5b) and Chinese (Figure 5c) participants are unwell. Water, including plain, mineral and barley water, was mostly preferred by Pacific (88%), followed by Chinese (69%) and Māori (64%). All three ethnic groups also preferred caffeinated and / or hot drinks (64%, 59% and 54% for Māori, Pacific and Chinese respectively). However, Māori also preferred fizzy drinks (43%), whilst Pacific preferred juice (59%) and Chinese preferred herbal drinks (54%).



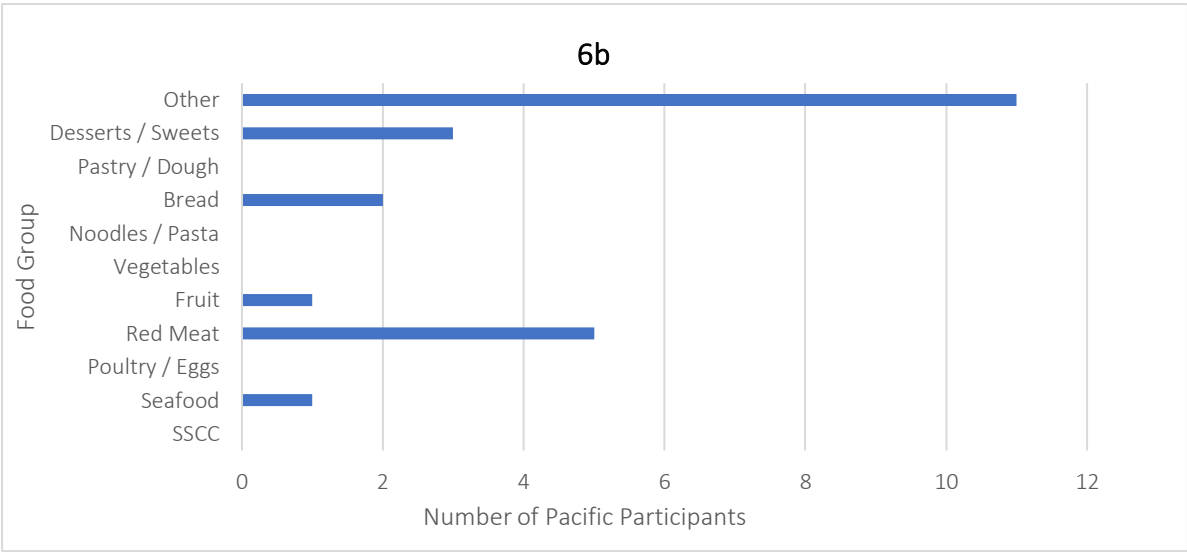
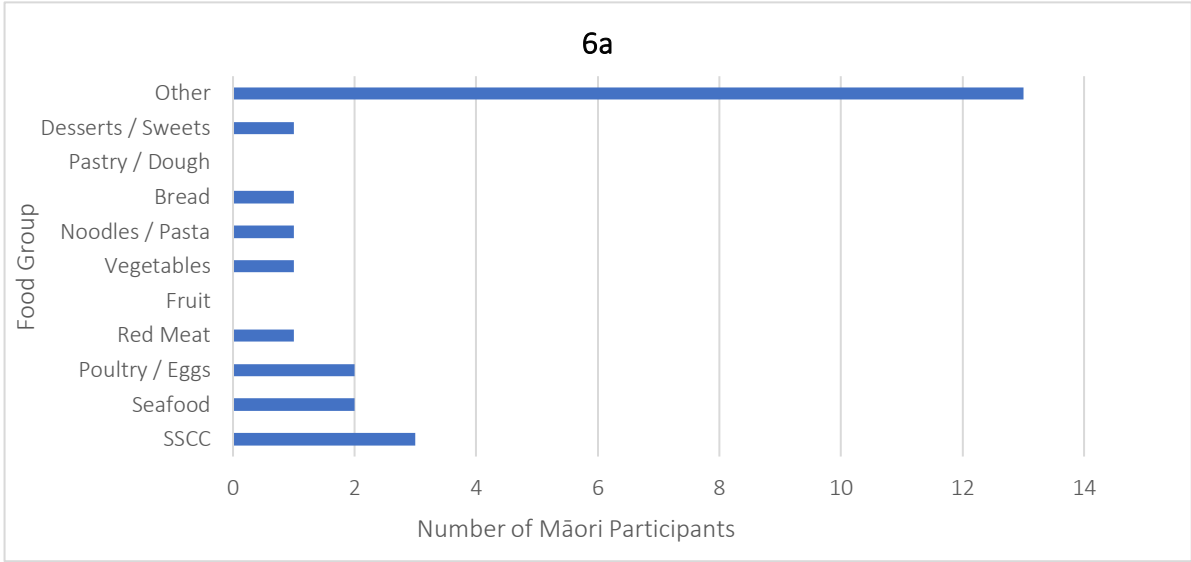


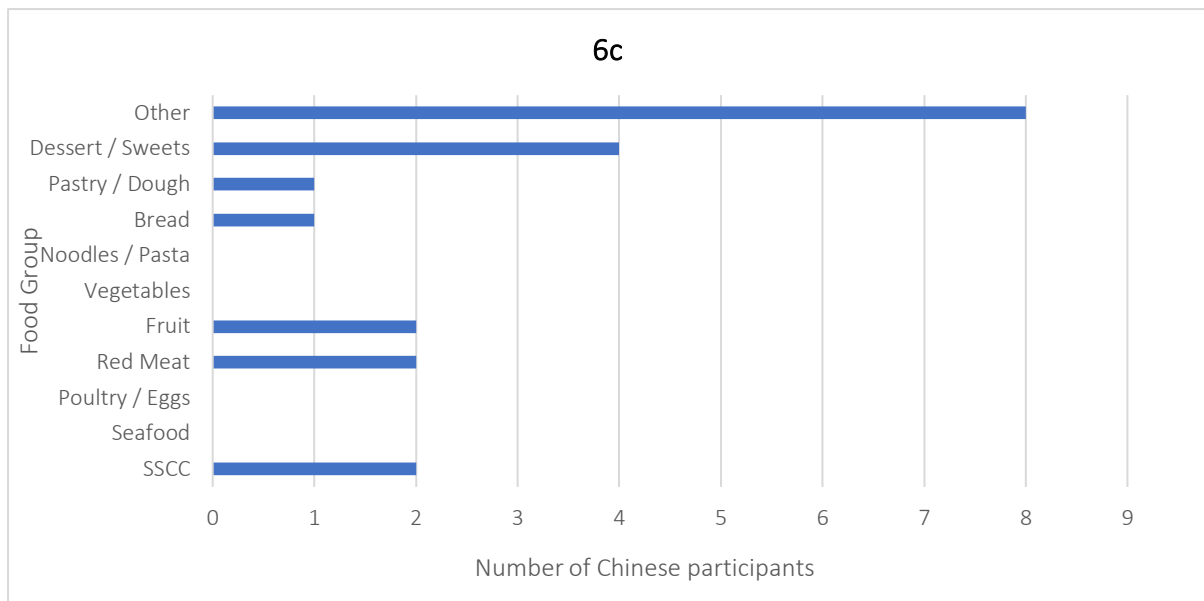
**Figure 5:** Favorite drinks of Māori (5a), Pacific (5b) and Chinese (5c) participants when unwell.

Figure 6 presents the most disliked foods when Māori (Figure 6a), Pacific (Figure 6b) and Chinese (Figure 6c) participants are unwell. The most disliked food group across all ethnic groups was reported to be *other* foods; 93% for Māori, 65% for Pacific and 62% for Chinese. Pacific and Chinese also disliked red meat (29%) and dessert / sweet foods (31%) respectively. Both Māori and Pacific reported that temporary gustatory and olfactory changes that often accompany periods of illness (i.e. taste and smell), impacted the taste of these foods, decreased their appetite and made them “*feel worse*”. *Other* foods were classified as not doing “*too well for [their] stomachs*”. Furthermore, Pacific felt that fast food made them feel heavy and that solid foods were harder to “*chew and keep down*”. Chinese reported that cold, dry and spicy foods were very much disliked and disapproved of for consumption when sick. Warm/hot and liquid foods were preferred, a childhood tradition for many. They also



disliked fast foods as a result of temporary taste changes. These foods do not “*taste nice*” and often “*spoil* their appetites.





**Figure 6:** Disliked foods of Māori (3a), Pacific (3b) and Chinese (3c) participants when unwell.  
*SSCC: Soups/Stews/Curries/Casseroles; Other: international cuisines, fast-food, oily/creamy foods.*

## 4.2 Hospital foodservice experiences

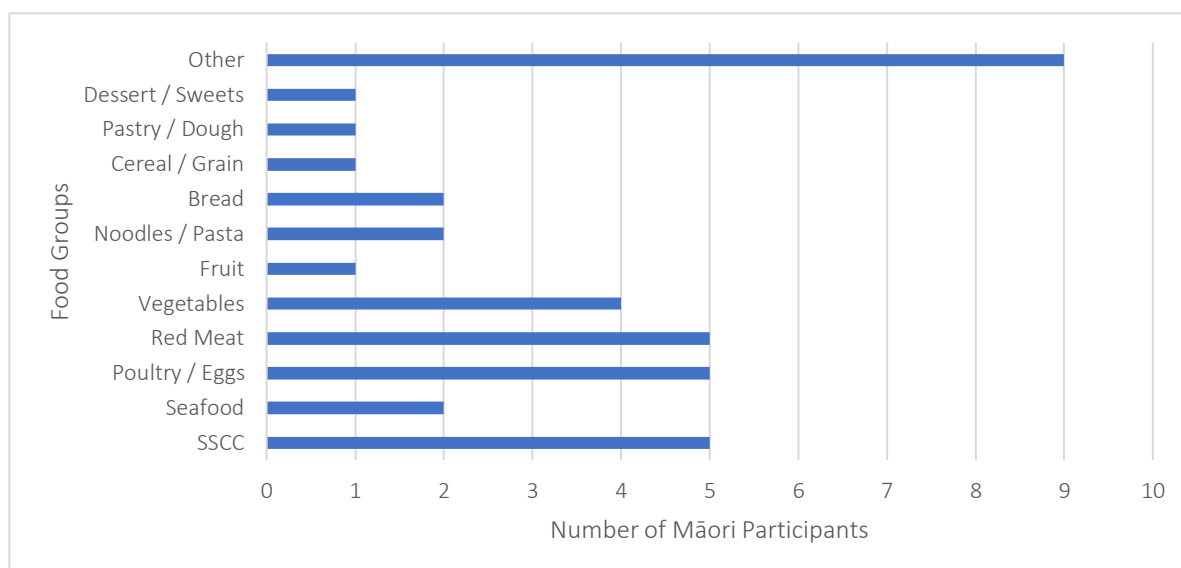
This section presents participants' hospital foodservice experiences and concludes with their final cultural suggestions for hospital menu incorporation.

### 4.2.1 Patient Meal Provision

Most Māori participants reported that all of their meals were provided by the hospital (57%). Some reported having other foods brought in to either supplement or replace hospital meals (43%). Twenty-nine percent ate most meals and 14% of participants admitted to skipping at least two hospital meals. No one reported consuming the entire hospital meal at any one time and 50% revealed that they only ate ½ of each meal.

Most Māori reported skipping a meal(s) because they either a) received meals from home (50%), b) did not like the meals served (31%), or c) the food was different to that eaten at home (30%). Family and friends were reported as bringing in mostly *other foods* (64%), such as KFC, Subway, fried chicken, butter chicken and fish and

chips. *Red meat* (e.g. lamb, pork), *poultry / eggs* and *SSCC* (e.g. leftover boil up, curry and chicken stew) were also frequently brought in (reported by 36% of Māori participants respectively). A full list of brought-in foods is presented below in **Figure 7**.

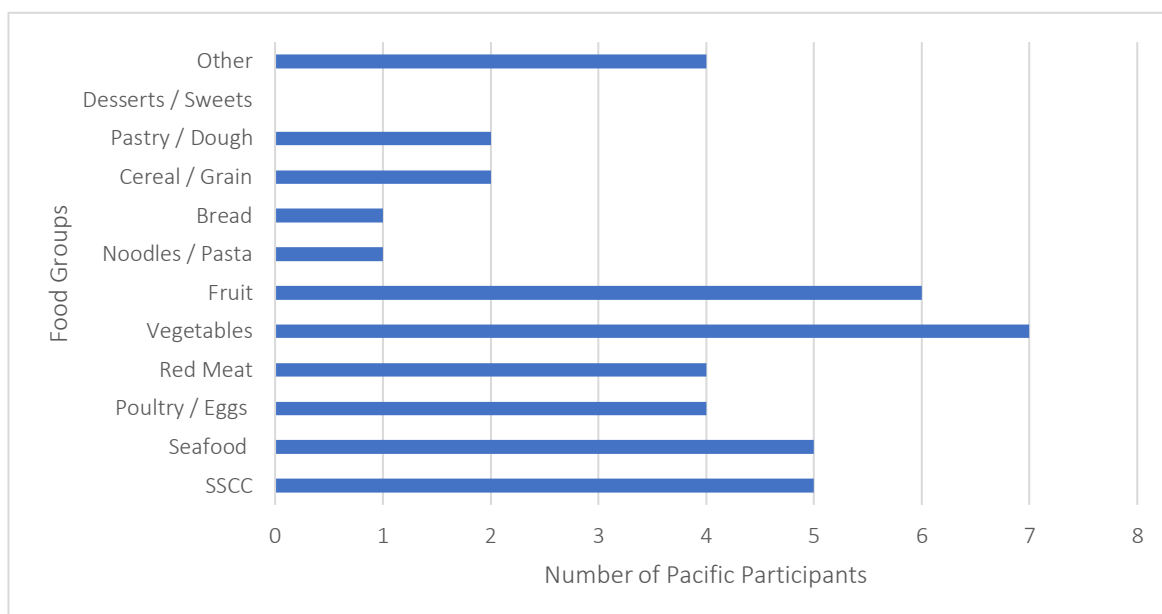


**Figure 7.** Common foods brought in by family and friends of Māori participants (n=9).  
SSCC: *Soups/Stews/Casseroles/Curries*.

For Pacific participants, 77% reported that all their meals were provided by the hospital. Thirty-five percent admitted to having food brought in by friends or family to either supplement or replace their hospital meals, whilst 12% reported skipping either one or two hospital meals. Only one participant admitted to consuming no hospital meals. Forty-seven percent of Pacific participants reported consuming at least ½ of all their hospital meals and one participant reported finishing all of the hospital meals received. Four participants (24%) reported either finishing more or less than half of the meals received.

The reasons for most of Pacific participants skipping hospital meals and / or not finishing meals were varied. Forty percent said it was because the food was different to that eaten at home, 37% admitted to receiving food from home and 31% reported that they did not like the meals served in hospital. Family and friends brought in mostly *fruit* (36%) and *vegetables* (41%), such as taro and banana, as well as *seafood*

(e.g. fish with rice or in coconut cream) and SSCC (e.g. beef bone, corned beef or chicken soup). A full list of brought-in foods is presented below in **Figure 8**.

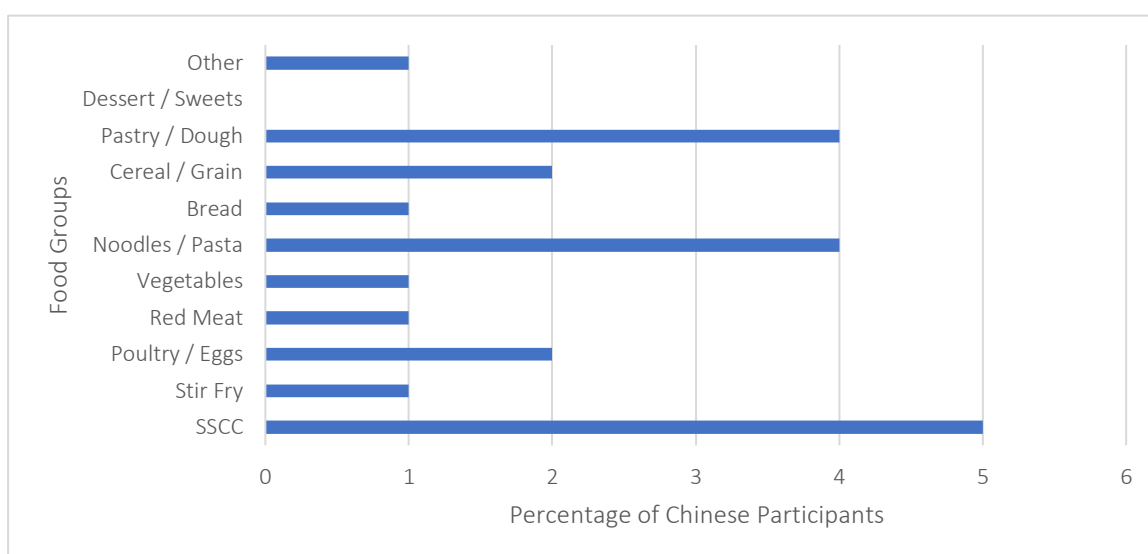


**Figure 8.** Common foods brought in by family and friends of Pacific participants (n=7).  
SSCC: *Soups/Stews/Casseroles/Curries*

In comparison, 69% of Chinese participants reported all their meals as being provided by the hospital. Thirty-eight percent had food brought in by family / friends to supplement / replace their hospital meals and 15% admitted to having takeaways. Thirteen percent skipped one meal per day and one participant said they skipped two meals per day. The majority of Chinese participants reported eating more than ½ of all their hospital meals (62%), whilst only one participant said they finished all hospital meals received. Four participants (30%) reported either finishing half or less than half of the hospital meals received.

The reasons for skipping / not finishing meals completely were as follows. Thirty-eight participants did not like the meals served, 30% felt that the food was different from that eaten at home, and only one participant said it was because they received most of their meals from home. For this group, 39% of the foods brought in by family and friends were of the SSCC food group, consisting of mostly chicken and / or chicken noodle soup. Other foods brought in were *noodles and pasta* (31%) and *pastry /*

*dough* (31%), which included foods like stir fried noodles, wontons and dumplings. A complete list of the foods brought in is presented below in **Figure 9**.



**Figure 9.** Common foods brought in by family and friends of Chinese participants.  
*SSCC: Soups/Stews/Curries/Casseroles*

#### 4.2.2 General Hospital Meal Opinion

When asked how much they enjoyed the hospital food, participant response varied across a spectrum, although the majority of participants reported the food as either acceptable (OK) or satisfactory (better than OK). **Table 13** demonstrates participant opinion with regards to other aspects of hospital foodservice. This includes menu options, meal portions and meal delivery timing. The majority of Pacific and Chinese participants felt that there enough options (77% of each group), most Māori and Pacific felt that food portions were too small (79 and 41% respectively) and the majority of all MPC groups agreed that meal delivery times were acceptable (64, 47 and 61% respectively).

**Table 13: Participants' opinion about hospital meal quality (n=44)**

	Total n (%)	Māori (n=14) n (%)*	Pacific (n=17) n (%)*	Chinese (n=13) n (%)*
<b>Enjoying hospital meal†</b>				
Enjoyed	2 (5)	1 (7)	1 (6)	
Satisfactory (> OK)	19 (43)	5 (36)	8 (47)	6 (46)
Acceptable (OK)	20 (45)	7 (50)	6 (35)	7 (54)
Not enjoyed (< OK)	3 (7)	1 (7)	2 (12)	
<b>Menu options</b>				
Enough	25 (57)	6 (43)	13 (76)	6 (46)
Limited/less than enough	16 (36)	7 (50)	4 (24)	5 (38)
More than enough	3 (7)	1 (7)	-	2 (16)
<b>Portions</b>				
Just right	12 (27)	3 (21)	6 (35)	3 (23)
Too small	22 (50)	11 (79)	7 (41)	4 (31)
Too large	1 (2)	-	-	1 (8)
Inconsistent	9 (20)	-	4 (24)	5 (38)
<b>Meal timing</b>				
Acceptable/well-timed	35 (80)	12 (86)	14 (82)	9 (69)
Too early/too late	4 (9)	1 (7)	3 (18)**	-
Too close together/too far apart	4 (9)	-	-	4 (31)***
Inconsistent timing	1 (2)	1 (7)	-	-

n: Number; %: Percentage

\*Percentage of participants within each ethnic group is reported.

\*\*Two participants suggested meal timing was too early and one suggested it was too late.

\*\*\*One participant suggested meal timing was too close together and three suggested it was too far apart

†Missing data (n=43)

#### 4.2.3 Most Liked Hospital Mealtimes and Foods

Participants were asked to reveal their most enjoyed mealtime and provide examples. For Māori, three participants chose breakfast (21%), one participant chose lunch (7%) and 10 participants chose dinner (71%). The most enjoyed dinner meals included the fish pie, roast meats (beef/chicken), chicken dishes, vegetables (roasted vegetables, mashed potato), lasagne and rice. *Other* foods included ice-cream, jelly and yoghurt. For Pacific, 9 participants chose dinner (53%) and eight participants chose breakfast (47%) as their most enjoyed meals. Their most enjoyed dinner meals included roast meats (beef and chicken) with vegetables, mashed potatoes and gravy, lasagne, varied soups and fish, while their favourite breakfast foods were fruit and porridge (24% each), with scrambled eggs and fruit yoghurts also mentioned. For Chinese, 10 participants chose dinner (77%), two chose breakfast (15%) and only one chose lunch (8%). Their most enjoyed dinner meals consisted mostly of chicken and eggs, whilst fruit and cereal was enjoyed for breakfast, and soup was favoured at lunch.

#### 4.2.4 Most Disliked Hospital Mealtimes and Foods

**Table 14** presents the full list of disliked mealtimes and foods across all three ethnic groups. Nine Māori participants chose breakfast (43%), three chose lunch (21%) and two chose dinner (14%) as their most disliked meal. Toast was the most disliked breakfast food (57%). When listed, it was always preceded by negative adjectives such as *cold*, *soggy*, *dry* and *hard*. For lunch, cold sandwiches and watery / bland soups were the most commonly disliked foods. Unpopular dinner foods included curry, sausages and steamed fish.

**Table 14: Disliked hospital mealtimes and foods by participants (n=44)**

	Total n (%)	Māori n (%)*	Pacifica n (%)*	Chinese n (%)*
<b>Breakfast</b>				
Cereal	13 (30)	5 (36)	3 (18)	5 (38)
Porridge	10 (23)	2 (13)	4 (24)	4 (31)
Eggs	1 (2)	-	-	1 (8)
Toast	19 (43)	8 (57)	4 (24)	7 (54)
Dairy	1 (2)	-	-	1 (8)
Fruits	1 (2)	-	-	1 (8)
<b>Lunch</b>				
SSCC	4 (9)	3 (21)	1 (6)	-
Seafood	1 (2)	-	-	1 (8)
Poultry/eggs	2 (5)	1 (7)	1 (6)	-
Red meat	3 (7)	1 (7)	2 (12)	-
Bread	10 (23)	2 (14)	6 (35)	2 (16)
Noodles/pasta	-	-	-	-
Vegetables	-	-	-	-
Fruits	2 (5)	-	1 (6)	1 (8)
Other**	2 (5)	-	1 (6)	1 (8)
<b>Dinner</b>				
SSCC	2 (5)	2 (14)	-	-
Seafood	2 (5)	1 (7)	1 (6)	-
Poultry/eggs	2 (5)	-	1 (6)	1 (8)
Red meat	3 (7)	2 (14)	1 (6)	-
Bread	3 (7)	-	-	3 (23)
Noodles/pasta	2 (5)	-	1 (6)	1 (8)
Vegetables	2 (5)	1 (7)	1 (6)	-
Other**	3 (7)	1 (7)	1 (6)	1 (8)

n: Number; %: Percentage

\*Percentage of participants within each ethnic group is reported.

\*\*Other: international cuisines, fast-food

Comparatively, seven Pacific participants (41%) chose lunch, eight chose breakfast (24%) and four chose dinner (24%) as their most disliked hospital mealtime. For breakfast, they used multiple negative adjectives to describe these unappetizing foods. These included *cold*, *lumpy* porridge and *hard*, *dry* toast. Sandwiches (bread) was the most commonly disliked lunch food and were either *cold* or *dry*, while a beef



burrito was described as *gluggy*, lacking in flavour and drenched in sauce. Other unpopular dinner foods included vegetarian meals, steamed fish, and beef stews. Common adjectives used to describe the foods included *cold*, *very dry*, *tasteless*, *lack of flavour*. For Chinese, their most disliked hospital mealtimes were breakfast (33%) and lunch (23%). *Cold* was frequently used to describe the foods not enjoyed. Their most disliked breakfast food was toast (54%), described as *cold*, *dry* and *hard*. Cereal (38%) was identified as *cold* and the fruit offered was described as *overripe*. *Cold* and *plain* sandwiches (bread food group) were the most frequently mentioned and least liked lunch item (23%). Participants mentioned that it was “*always sandwiches*” on offer for lunch during hospitalisation.

#### 4.2.5 Cultural Appropriateness of the Hospital Menu

Participants were asked to reveal whether they felt that the hospital menu received was culturally appropriate for them. Half of our Māori participants reported the hospital food as being culturally appropriate. For them, growing up eating both western “*pakeha*” and traditional Māori foods on the marae and at home was the reason for considering hospital meals as culturally appropriate. They reported that the hospital food was “*nice*” and similar to what was eaten at home (i.e. meat and vegetables), but it would “*be better*” to see more cultural foods on the menu. Some mentioned that cultural foods are not regularly consumed at home (e.g. hāngi) and that those who eat healthier foods are eating “*closer to what is considered traditional foods*”. Participants stated that they were not expecting culturally appropriate food whilst at hospital. For those who said that the menu *was not culturally appropriate*, the freshness of the foods, small portions and the lack of traditional options were their main reasons for saying so. They agreed that the food was “*OK*” and tasted “*alright*”, but the absence of these familiar cultural foods (e.g. seafood, fried bread, boil up), which represent a connection to the land, their culture and their people, was disconcerting. Many reported that the lack of these foods may have impacted their wellbeing and slowed down their recovery. However, one participant could not see how the logistics of offering more “*Māori food*” would work out on such a large scale and in a public context. They felt that as long as the food tastes “*reasonably good*”, then that was “*OK*”.

For Pacific, 47% of participants found the hospital menu culturally appropriate. These participants drew comparisons between the foods offered in hospital and what was cooked and eaten at home, identifying it as “*similar*”. Some revealed that they were not fussy eaters and although a few meals lacked variety, they were “*grateful*” for the food provided. Other participants mentioned not “*expecting culturally appropriate meals*” whilst in hospital, as it may “*clash*” with their medical diagnosis. They felt that their “*cultural foods*” may not be appropriate for them during hospitalisation (e.g. large portion meals, starchy foods). For the Pacific participants who found the hospital menu culturally inappropriate (53%), some singled out the menu as being “*western*” with options limited to bland “*palagi*” tastes. Others felt that the food offered was based on the “*nutritional value and guidelines for the average person of European descent*” and not culturally appropriate or tailored to those of Pacific descent. Many highlighted the link between cultural foods and the comfort that they bring when consumed, especially when sick. Furthermore, the lack of cultural food in hospital was determined as contributing to the foreignness of the hospital environment and the feeling of isolation during hospitalisation.

Chinese participants had the smallest proportion of those who agreed that *the menu was culturally appropriate* (39%). These participants expressed enjoying the food that was served and found it similar to what was eaten at home (*vegetables with meat and rice*). One participant revealed having adapted to a culturally varied diet, especially with living in Auckland. Of all three groups, our Chinese cohort had the greatest proportion of participants who found *the hospital menu culturally inappropriate* (62%). They mentioned receiving cold food and explained how this contradicts TCM practices, which demands warm / hot foods when unwell. Dry textured hospital foods also contradict cultural practices, which call for watery and easy-to-chew-and-swallow foods when sick. Some participants revealed that they struggled to understand the menu as they were unfamiliar with the English words used and the names of different dishes. This made it difficult identifying different meals, which made the meal order process very stressful and confusing. The hospital menu was described as mostly “*Kiwi*” and “*European*” with “*unfamiliar*” foods. However, some understood that they

could not expect traditional Chinese food to be offered in a NZ hospital. A few participants revealed that they were simply grateful for the food received in hospital.

#### 4.2.6 Ethnic-Specific Cultural Food Suggestions for Hospital Menu Incorporation

A variety of MPC cultural food and drink suggestions for hospital menu incorporation were extracted from the exploratory survey. These are categorized by each meal and organised within the main food groups used to report the food suggestions (as identified in **Chapter 3**). The categories are *cereals & grains, breads, meats (red meat, poultry and eggs, seafood), soups, vegetables (starchy and others) and fruit*. Drinks are presented at the end. **Table 15** below presents these suggestions.

Table 15: Cultural food and drink suggestions of Māori, Pacific and Chinese populations for hospital menu incorporation, as identified in the exploratory survey (phase-2).

Food Group	Food Group Subcategories	Traditional Foods		
Breakfast		Māori	Pacific	Chinese
<b>Cereals &amp; Grains</b>		Porridge with honey Weetbix	Niuean Porridge Vaisalo ( <i>coconut porridge</i> ) Samoan pancakes Cocoa Rice Suafa'i ( <i>banana pudding</i> ) Chia pudding Weetbix	Congee Cereal
	<b>Bread</b>	Fried bread Rewena bread Toast	-	Fried rolls Noodles
<b>Meat</b>	<i>Red meat</i>	Boil-up Bacon	-	Congee with meat and vegetables
	<i>Poultry &amp; Eggs</i>	Scrambled eggs Omelettes	Scrambled eggs Egg with spaghetti Eggs on toast	Congee with chicken Scrambled eggs
	<i>Seafood</i>	Fish cooked in butter	-	-
<b>Fruit</b>		Fresh fruit	Fresh fruit Stewed fruit	-

Lunch				
<b>Cereals &amp; Grains</b>		-	Fettucine	Congee Fried rice
<b>Breads</b>		Fried bread Subway-type sandwich	Sandwiches (with meat and vegetables)	Dumplings Wontons Stir fry noodles
<b>Meats</b>	<i>Red meat</i>	Stew with dumplings / doughboys Hāngi Chop suey	Chop suey Pisupo ( <i>corned beef</i> )	Stir fries (meat, chicken, vegetables)
	<i>Poultry &amp; Eggs</i>	Chicken stew	Chicken salad	Chicken soup
	<i>Seafood</i>	Fish Mussels Kinas Pauas Seafood chowder	Steamed fish with salad Faiai elegi ( <i>raw fish in coconut cream</i> ) Fish	-
<b>Soups</b>		Chicken soup	Supo povi / Pisupo soup ( <i>corned beef soup</i> ) Hearty soups	Soup with/without noodles Chicken broth with vegetables (e.g. mushrooms, ginger, cabbage) Clear broth Beef soup Wonton / dumpling soup

<b>Vegetables</b>	<i>Starchy</i>	Kumara Hot chips	Ulu ( <i>breadfruit</i> ) Ripe banana pudding Baked green bananas Roast potatoes	-
	<i>Non-starchy</i>	Avocado General salad	-	-
<b>Fruit</b>		-	-	-
<b>Dinner</b>				
<b>Cereals &amp; Grains</b>		-	Couscous	Rice
<b>Breads</b>		-	Dinner rolls	Dumplings
<b>Meats</b>	<i>Red meat</i>	Roast / grilled meat	Sapasui ( <i>chop suey</i> )	Stir fried meat with noodles and vegetables
		Pork / pork bones	Pork	
		Hāngi	Lu sipi ( <i>meat with coconut cream wrapped in taro leaves</i> )	
		Boil up	Mutton flap and corned beef stew	
			Pisupo ( <i>corned beef</i> )	
			Lamb / lamb chops	
	<i>Poultry &amp; Eggs</i>	-	Chicken stir fry	Stir fried chicken with noodles and vegetables Sweet and sour chicken
	<i>Seafood</i>	Raw fish	Fish with coconut cream	-
		Mussels	General seafood	
		Creamed pauas Kinnas		

<b>Vegetables</b>	<i>Starchy</i>	Potato (Jacket potato) Kumara (steamed)	Taro Cassava Green banana Yam	-
	<i>Non-starchy</i>	Puha (Pumpkin) Carrots	-	General vegetables
<b>Fruit</b>		-	-	-
<b>Snacks</b>				
<b>Cereals &amp; Grains</b>		Crackers Mini chip packets	-	-
<b>Breads</b>		Flavoured muffins	-	-
<b>Meats</b>	<i>Red meat</i>	Pork rinds	-	-
	<i>Poultry &amp; eggs</i>	-	-	-
	<i>Seafood</i>	General seafood	-	-
<b>Vegetables</b>	<i>Starchy</i>	-	Slices of cooked taro	-
	<i>Non-starchy</i>	Vegetable sticks	-	Seaweed
<b>Fruit</b>		General fruit Bananas	General fruit Bananas	Cooked fruit

	Berries	Mandarins	
Drinks			
	Flavoured water	Koko Samoa ( <i>Samoan hot chocolate</i> )	Warm water
	Herbal tea	Otai ( <i>Tongan tropical fruit drink</i> )	Green tea
	Kombucha	Fresh fruit juice	Lemon tea
	Lemon & honey tea	Fruit/vegetable smoothies	Ginger tea
	Ginger tea	Strong milo	Hot milk
	Smoothie	Water	Hot milo
*Western snacks			
- Not discussed			



Despite admitting that they consume both “*Pakeha*” and “*Māori*” foods, many Māori participants requested for more traditional foods to be served in hospital. These are foods that they and their people “*know and enjoy eating*”. Fresh and “*healthier*” foods, the basis of their traditional diets, were frequently requested. Hāngi, various seafoods, fried Māori bread, soups and stews were also often suggested. For Pacific groups, “*tastier meals*” overall and more savoury options for breakfast were suggested. Hearty soups with “*visible meat and vegetable pieces*” were frequently asked for. Starch alternatives (i.e. taro, cassava, yam) were suggested in place of rice, pasta, kumara and potato. A variety of traditional drinks were identified (e.g. otaí). However, Pacific participants acknowledged the practicality and difficulty in incorporating some of their cultural suggestions within the menu. For our Chinese population, congee was the most frequently mentioned breakfast food. Some participants requested for it to be cooked authentically. For lunch and dinner, soups and broths with vegetables, beef / chicken and / or wantons / dumplings and stir fries were popular suggestions. At least one participant requested that sandwiches should not be offered every day for lunch. There was unsurety about snacks as participants were unsure as to what Chinese people eat as snacks. Chinese also preferred warm, non-caffeinated drinks. From this list, it can be seen that the suggestions of Chinese participants are more traditional than that of Māori and Pacific participants, as the latter two made a selection “western” suggestions, such as spaghetti, porridge, sandwiches and smoothies.

## Qualitative Analysis

Following framework analysis, three **main themes** emerged; 1) general patient experience; 2) tradition; 3) cultural suggestions, with further minor categories identified. The results for each of the three single-ethnic focus groups were collated and are presented below by theme.

**Table 16** presents the basic demographic characteristics of participants who attended the single-ethnic focus groups. A total of 10 participants attended the three focus groups, with

the Pacific focus group being the largest (Māori: 3 Pacific: 5; Chinese: 2). The majority of participants were female (70%), less than 40 years of age (60%) and had been in NZ for more than 10 years (90%).

**Table 16: Demographic characteristics of Māori, Pacific and Chinese participants in single-ethnic focus groups.**

Characteristics		Māori n (%)	Pacific n (%)	Chinese* n (%)	Total n (%)
Gender	Male	-	3 (60)	-	3 (30)
	Female	3 (100)	2 (40)	2 (100)	7 (70)
Age Range	<40 years	2 (67)	2 (40)	2 (100)	6 (60)
	>40 years	1 (33)	3 (60)	-	4 (40)
Years in NZ	<10 years	-	-	1 (50)	1 (10)
	>10 years	3 (100)	5 (100)	1 (50)	9 (90)
	NZ Born	3 (100)	3 (60)	-	6 (60)

n: Number  
 %: Percentage  
 NZ: New Zealand

The demographic characteristics of participants in the combined focus group are presented in **Table 17**. The majority of participants were of Māori ethnicity (39%), female (71%), of the working age population (71%) and born in NZ (42%).

**Table 17: Demographic characteristics of combined focus group**

Characteristic		n (%)
Ethnicity	Māori	3 (42)
	Pacific	2 (29)
	Chinese	2 (29)
Gender	Male	2 (29)
	Female	5 (71)
Age Range	<40 years	5 (71)
	>40 years	2 (29)
Years in NZ	<10 years	2 (29)
	>10 years	2 (29)
	NZ Born	3 (42)
n: Number		
%: Percentage		
NZ: New Zealand		

### 4.3 General patient experience

In this section, the common themes extracted from the framework analysis of focus group data are presented.

#### 4.3.1 Family Support

In this study, family support was frequently mentioned by all ethnic groups. Families were able to satisfy the basic needs of participants in hospital and provide them with effective psychological and emotional support. Support was demonstrated through a variety of ways, primarily through the supply of homemade or store-bought meals.

*“Families come in with food”*

However, the significance of family support differed across ethnic groups. Although essential for Pacific and Chinese participants, it varied across a spectrum from “not needed” to “total reliance” for Māori.

*“... most of the time, I rely on my husband to bring in more food ... like porridge or soup”*

[Chinese]

*“Yeah, mum ... if you ask for something”*

[Māori]

*“I ate basically what my family brought in”*

[Māori]

Hunger and insufficient hospital food supply were the prevailing reasons for receiving family support across all ethnicities. Nevertheless, other ethnic-specific reasons were also identified. For Pacific participants, family support in hospital is an established tradition with food regularly brought in throughout the day. This ensured that family members were present at mealtimes. Therefore, this enabled Pacific families in fulfilling cultural responsibilities and duties towards their sick family members. However, this also meant that at times, participants were too full to eat hospital meals when they were delivered. Family meals were also preferred over hospital meals and leftovers were kept as snacks for later. However, some participants did voice concern regarding the effect of family-supplied meals on their medical condition. On the other hand, Chinese families were mainly concerned about the hospital food given to participants, and its' effect on participant wellbeing and recovery.

*“... will bring the kids up, and bring dinner up and we'll all have dinner together. Yeah ... and whatever is left over, we leave it”*

*“Families come in with food, and they ... spoil the dish of the hospital food”*

*“It [family meals] took off the flavour of what the hospital is trying to do”*

*“You can take this – a big orange like this – but then the family comes in ... and they bring a box of Kentucky fried chicken – then ... the flavour of the hospital food and home food – they don’t mix and whether they help with your condition or ... whether it deteriorates”*

[Pacific]

*“Oh yes, especially he bring me soup, and ... he will have the coffee”*

*“They [family] didn’t allow me to have cold food ...”*

[Chinese]

#### 4.3.2 Hospital Support

Appropriate hospital support ensures that every patient is treated with respect, receives appropriate care, experiences proper communication and receives relevant information that enables them to make informed choices. Hospital support experience varied across ethnic groups. Although not brought up as a theme by Chinese participants, it was frequently reported by Māori and Pacific, albeit with significantly contrasting experiences. For Māori, the hospital support received was lacking and their overall experience was predominantly negative. They found the hospital environment foreign and isolating, and poor communication with staff left them feeling unheard and voiceless. Furthermore, hospital staff assumptions and failure to recognise participant ethnicity, resulted in a lack of access to Māori cultural support services. Nevertheless, Māori participants reported that Māori individuals often self-identify as European in order to access better quality health care and services.

*“... at the time, you’re so like, stressed about the situation...”*

*“... I didn’t get offered because I’ve got white skin ... because my name isn’t Māori”*

*“... they think it’s better not to put down that you’re a Māori because you get better treatment if you’re white...”*

In contrast, Pacific participants generally reported positive hospital support experiences. Communication with hospital staff was appropriate and supportive, with relevant information conveyed to participants, including dietary information (e.g. explanation of and reason for different dietary codes). Pacific participants also felt that their established cultural practices (e.g. strong family support, family-supplied meals) were familiar to and respected by hospital staff. Furthermore, hospital attempts to promote patient health through various policies were recognised and appreciated by those of Pacific ethnicity (e.g. no sugar-sweetened beverages).

*“I think, what they’re trying to do, is get people to drink more water, and not – not that flavoured stuff ...”*

*“Most of the time, I get what I ask, and ah, doctors and medical team, and elaborate on the diet, and why you are on it”*

*“I think they’ve seen this ... they work in the place for like, 10 odd years or so, so they know ... how us Islanders – they’re probably around the corner thinking ‘Oh probably this family is going to come for so and so’ ... the thing is they already know the routine of how we work ...”*

#### 4.3.3 Health Literacy

The degree of health awareness differed across all three ethnic groups. This was particularly evident in the discussion regarding the healthiness of the hospital food served. For Māori, the hospital food was rich in carbohydrates, high in fat and sugar, and largely unhealthy.

*“Also, a lot of it wasn’t like, healthy ... they said it was healthy, and the healthy option, and you looked at it and it was a lot of like, carb ... high fat content”*

*“Yeah, I’m not sure if we should be having cornflakes for breakfast - because it’s sugar”*

This contrasted with Pacific and Chinese groups, who both viewed the hospital food as relatively healthy. Chinese participants found that meals often had large vegetable portions, making them well balanced and nutritious. Pacific agreed, understanding that the food served was appropriate for their wellbeing and recovery, regardless of their personal enjoyment levels. However, with their understanding of the link between food and recovery, they were confused as to why their medical team did not intervene and prevent family and friends from bringing in unhealthy food (i.e. takeaways). Nevertheless, it was believed that the medical team would intervene if the food brought in had great potential to adversely affect their medical condition. Pacific participants revealed further health awareness when they agreed that Pacific Island starches (e.g. taro), along with most foods, can be consumed in moderation and should not be eaten in excess. One Chinese participant was also particularly health conscious and reported having small dinner portions and avoiding dessert after dinner.

*“I normally just eat small dinner, because I think it’s good for my health”*

[Chinese]

*“I think the dietitian knows and the kitchen people have been told that... Mr X couldn’t have any coffee this morning, because of my, my fluids and things like that”*

[Pacific]

*“... they’re trying to help you but then, people will come with other food that you’re not meant to eat right now, and ... they just ignore it, like ‘Oh ... you’ve got heaps of food’*

[Pacific]

#### 4.3.4 Hospital Foodservice

The production and service of hospital meals were of great importance to members of each ethnic group. Hospital meal inconsistency was frequently mentioned by both Māori and Pacific groups. For Māori participants, the lack of staff cooking skills resulted in irregular meal quality. This compelled them to order foods that they deemed fool-proof. Comparatively, Pacific participants believed that inconsistent meal quality was due to a lack of ingredients and short-staffed kitchens. This was also the reason for why they often received the wrong meal order in hospital.

*“I think it’s real hit and miss ... you choose certain things, that you know, are pretty safe”*

[Māori]

*“I’m not sure, but they don’t have enough staff to cater to the whole hospital hey”*

*“... they don’t come with what you requested, because of shortage”*

[Pacific]

Chinese participants agreed with their Pacific counterparts over short-staffed hospital kitchens. For this group, short-staffed kitchens and hospital budget constraints were the reasons for the shift of mainstream hospital food production methods to other less-labour intensive methods (i.e. Steamplicity). Participants were uncomfortable with Steamplicity and its’ level of safety compliance, believing it to be the reheating of frozen food in a microwave. For them, this meant a lack of fresh food in hospital and altered food tastes.

*“... we know it’s shortage of staff ... that’s why they change the procedures”*

*“... changing to more gravy things because it’s easier to cook in the microwave ... I’m not sure if safer or not ... the taste is different”*



Food production was also a significant issue for Pacific groups. For them, all food should be prepared with care, regardless of the context. In hospital, this was not the case and all participants felt that the lack of care and service negligence was reflected in the food served to them.

#### 4.3.5 Menu

In hospital, unless on a strict diet code for medical reasons, patients are given a menu listing the general meal options available. Menus can either be in paper or electronic format, with patients able to order themselves or via a catering associate (CA).

Catering assistants read the menu aloud to patients, take their orders for the day, and deliver the food to bedside. In this study, the lack of choice, flexibility and menu options available was a common theme across all three ethnic groups.

*“You don’t choose, they just give it to you”*

[Pacific]

*“It’s just the same food, every time, the same”*

[Chinese]

For Pacific and Chinese populations, they believed that this is more prevalent among elderly patients who had a longer length of stay (LOS) in hospital. These patients often found the menu boring, repetitive and lacking in variety. Similarly, Māori participants found that the newer menu system (electronic or via CA) offered less flexibility, with no scope for patients to order other staple hospital food options (e.g. jelly and ice-cream) or to ask for larger portions. Furthermore, they felt that CA’s often fail to fully inform patients of the full list of meal options available. Participants across all three ethnic groups agreed that they were unaware that certain items (e.g. jelly and ice-cream and juice boxes) could be ordered, regardless of whether they were offered on the menu or not.

*“... back in the day, when you could do it on a piece of paper, and say there’s like a dessert option, and say you didn’t feel like that, you could write ‘jelly and ice-cream’ please, and normally, like most of the time, they’d bring jelly and ice-cream instead - because that’s kind of like a staple -”*

[Maori]

Menu misunderstanding was not brought up as a theme by Māori participants, but it was reported by participants of Pacific and Chinese ethnicity. For Pacific groups, their understanding of the language used within the menu contrasted with mainstream western understanding. They would often order a meal and when it was received, it differed greatly to what was expected.

*“Or they’ve got a pie on the menu, and you tick a pie and when it does turn up – you’ve got ... the bread here, the meat of the pie here, and something else on the inside... it’s not an actual pie – they’ve broken it down”*

[Pacific]

Language confusion was also reflected in Chinese participant experiences. The specific English words used to name or describe meals made it difficult for them to understand and interpret the menu. This resulted in them ordering meals with recognisable words in the menu description (e.g. beef, lamb).

*“Some specific words ... I couldn’t understand ... the specific food name, I don’t know what they are, but I do know beef or lamb and I just take the meat”*

Furthermore, all three ethnic groups reported that hospital menus lacked consistency and varied across hospital locations, both in menu format and the options available.

#### 4.3.6 Food Quality & Variety

For all participants across the different ethnic groups, the quality and variety of the food served in hospital was a complex and comprehensive issue. While Māori and

Chinese groups reported that the food served met and exceeded their expectations respectively, it failed to meet Pacific expectations and was considered not ideal for their population group. However, the food was still deemed acceptable by Pacific groups and considered appropriate for their medical condition, which they appreciated.

*“I don’t think it was that bad when I’ve been there”*

*“... they offered quite good food to me ... and I enjoyed... exceeded my expectations”*

*“The first part for the hospital is our health”*

[Pacific]

For Chinese participants, the quality of NZ hospital food surpassed that of Chinese hospitals. However, both Chinese and Māori groups reported that food quality, variety and the options available varied on a day-to-day basis and across ward locations.

*“I think it depends on what area of the hospital you are”*

[Chinese]

*“I think it’s real hit and miss, like some days...”*

[Māori]

Both Pacific and Chinese groups also reported that generally western foods were served in hospital. They also found it difficult to transition from their traditional foods to the hospital supplied meals. However, Chinese participants expected this transition as NZ is a western country. Nevertheless, Chinese participants found dry breakfast meals very difficult to adjust to, as breakfast foods of a more liquid texture are eaten at home, particularly when unwell (e.g. congee). For Pacific individuals, they found it difficult adjusting to the low-fat dairy products served in hospital. This included low-fat yoghurt and milk, which were not always accepted by Pacific individuals.

Bread (mainly toast) and sandwich fillings were other food items that raised criticism and discussion. Bread quality was considered poor by Māori and Pacific groups and the texture was considered unacceptable for Chinese participants. Breakfast toast was too soggy or dry for Chinese participants and lunch sandwiches were of poor quality for Pacific participants. Furthermore, Pacific groups reported that their sandwich fillings were usually ordered for them. Often, the margarine and filling had been skimmed on, and this left participants disappointed and unimpressed. However, Chinese participants enjoyed the egg sandwiches served for lunch, as they were easy to hold, chew and swallow. Generally, they enjoyed the egg dishes (e.g. omelettes, egg sandwiches) and the rice served with main meals.

Meat was another food item discussed by focus groups. The meat served for main meals, particularly roast beef, was unappealing to both Māori and Pacific participants as they thought it to be highly processed and of poor quality (resembling plastic). Furthermore, Pacific participants were concerned with the use of manufactured and highly processed foods.

Participants also gave mixed comments on the vegetables served with meals. Pacific individuals found that vegetables lacked variety, as the same vegetables were regularly served at dinner. This includes broccoli, carrots, kumara (sweet potato) and peas. However, Chinese participants enjoyed the vegetables served and commented positively on the large vegetable portions.

Participants also initiated a discussion on the types of drinks and snacks served. The orange juice served with each meal was criticised by both Māori and Pacific, albeit for different reasons. While the orange juice was too sweet for Māori participants (although they drank it anyway), it was found to be diluted and flavourless by Pacific participants (who often left it on their trays). Chinese participants also reported that non-caffeinated drink options were limited. These participants gave their caffeinated drinks to family and opted for water, warm milk or milo instead. Māori also found the drinks menu to be limited. Furthermore, snacks were rarely offered in hospital, and

only a few Māori and Chinese participants reported being offered snacks during hospitalization.

Meal types and variety were also discussed by focus groups, with mixed opinion. For example, breakfast meals were considered easy and self-serving by Pacific participants, whilst it was the most disliked meal for both Māori and Chinese groups. These participants found the meal components too dry, cold and hard (i.e. toast and cereal). Participants also reported that lunch and dinner meals lacked variety and were relatively similar.

Furthermore, food portions was frequently discussed by all three ethnic groups. Everyone agreed that hospital food portions were too small, which led to them to experience hunger, even after hospital meals had been served and consumed. For Māori participants, large portions often resembled medium-sized, whilst Chinese participants found their portions simply too small. Pacific participants reported that there is a discrepancy between what European and Pacific consider 'large', and that often, they received the incorrect meal portion size due to this discrepancy. Pacific participants were also unhappy with their food portioned into serving dishes that resembled prison trays. These trays were deceptively large and gave the appearance of large sized meals.

*"Honestly, they were quite small"*

[Pacific]

*"... portions are small ... even for the ladies"*

[Chinese]

*"I remember being real hungry"*

[Pacific]

Finally, food and drink temperature were another significant issue for all three population groups. Food and drink were often received lukewarm or cold, such as

cold toast served for breakfast (disliked by all three ethnic groups), cold soups and sandwiches served for lunch (predominantly disliked by Pacific and Chinese participants). This temperature discrepancy was attributed to the large distances for food delivery from kitchen to patient (as per a Pacific participants' comment). However, despite being cold, soups were often consumed by Chinese participants because it is considered culturally appropriate for when they are unwell.

#### 4.3.7 Gratefulness

Gratefulness was a strong theme across all three ethnic groups. Everyone reported being grateful for the food that was received, regardless of whether it met personal or cultural standards. As mentioned previously, both Pacific and Chinese groups found it difficult to adjust to the taste, texture and variety of hospital meals, and that hospital food significantly contrasted with cultural foods eaten home.

*"We're just grateful for what we get"*

[Pacific]

*"We're more kind of a 'you get what you're given' type of people"*

[Māori]

*"... they just won't bother about it you know. They'll just eat it anyway".*

*"I don't want to waste food .... but I prefer warmer meal. But if it is cold, it is acceptable ... but better if it is warmer"*

[Chinese0]

*"I appreciate ... what is being offered ... but if it can be better, it can be good"*

While Māori participants reported not being fussy and appreciating the cooked food delivered to their bedside, Chinese participants appreciated the effort made by staff and would consume meals to reduce food waste. For Pacific groups, gratefulness was reported as a cultural trait shared by all Pacific peoples. This trait enabled them to

overlook the negative qualities of hospital foodservices and avoid making complaints. Similarly, for our Māori population, gratefulness often shifted their perspective away from the negative elements of their hospital foodservice experience (e.g. cold food).

*“It’s nice not cooking”*

*“... that’s what it comes down to, for us islanders, we’re just grateful for the food that we got”*

*“I really appreciate their effort to ... offer us nice food”*

## 4.4 Ethnic traditions

In this section, the cultural beliefs and differences specific to each ethnic group are presented. This also includes comments on cultural adaptation, both within and across cultures, as noted by participants.

### 4.4.1 Cultural Beliefs & Differences

For Māori, food plays a significant role in their health and wellbeing. Participants believe that following their traditional diet as closely as possible would improve the health of their people. This includes directly sourcing their food from the land, sea and sky, with less reliance on manufactured foods. Furthermore, what is eaten and drunk is considered personal and sacred to individuals and should be treated with respect in hospital. Cultural support is an integral part of Māori life, and often demonstrated with cultural foods. This cultural food support is craved when unwell or in a foreign environment, as it provides a link to home, land and family. Thus, offering these traditional foods in hospital would benefit Māori patients on a holistic level, as it positively impacts their mental, physical, spiritual and emotional wellbeing.

*“... the best thing for our people and our health ...”* [living off the land]

*“... it’s quite a personal thing, like, what they put into their body”*

*“... I think that support thing would be, you know, for the Māori ’s and all that (...) it’s, it’s, actually, you know, quite strong?”*

*“... because you’re not feeling your best ... you want that sort of thing”*

*“Well it would definitely make you feel nice and happy”*

Pacific populations have a strong understanding of their cultural identity. A variety of factors contribute to this identity, with cultural food forming a significant component. Similarly, to indigenous Māori peoples, cultural food and deep-rooted food practices form an integral part of their lives. Furthermore, Pacific participants reported that their cooking methods are as natural as possible (i.e. umu), and that like Māori, natural food sourced from the land, sea and sky is preferred over manufactured and packaged foods. Cultural food production was also significant for this group. Participants believed that traditional foods should be prepared by those familiar with traditional ingredients and preparation methods. It was agreed that cultural foods would lose their appeal if prepared by those unfamiliar with their foods. For Pacific, food is also a social practice, with certain cultural meals consumed on specific days. Participants reported that Sundays are considered traditional feast days, where, following Sunday morning church services, feasts of traditional foods are eaten together with family and friends.

*“And food in our system ... it’s a very big part of our life”*

*“Most PI people – they prefer their traditional food cooked themselves...”*

*“And the majority of the CI in hospital on a Sunday – and they’re used to that meal at home”*

[Pacific]



Chinese participants reported that food temperature and texture form fundamental aspects of traditional Chinese medicine. This is shown in the three main requirements for appropriate foods when unwell, as identified by participants. According to participants, food and drink should be warm / hot, easy-to-chew and easy-to-swallow. Cold food and drink are strictly prohibited, and spicy foods are not considered appropriate. Furthermore, caffeinated drinks are considered western and should be avoided when unwell. Cultural differences were only brought up as a theme by the Chinese group (excluding food portion disparities as identified by Māori and Pacific). Chinese participants brought up the following cultural food differences: (1) breakfast foods must have a liquid texture (e.g. congee, noodles) while cereal and toast are served in NZ hospitals, along with cereal (2) lunch should be the biggest meal of the day while dinner is the largest meal for the general NZ population, (3) desserts are to be consumed in the afternoon while it is consumed after dinner in NZ and (4) caffeinated drinks should be avoided when unwell while they are frequently consumed with main meals. Participants generally follow these cultural practices when unwell, regardless of how difficult it is for them.

#### 4.4.2 Cultural Adaptation

For Māori, their lived environment and interracial heritage were significant factors in their rate of cultural adaptation. Participants lived in Auckland and reported that the city's multicultural environment had exposed them to a variety of cultures and cuisines from around the world. This was the prevailing reason for the westernisation of their diet. Māori also reported that cultures are often so interwoven, it is difficult to differentiate between them, as seen in their interracial heritage. For participants growing up, this had also increased their exposure to other ethnic foods, accelerating cultural adaptation and the westernisation of their diets. Additionally, adapting from a rural setting to a major urban setting was reported to have increased their exposure and subsequent consumption of fast food and manufactured foods, as well as supermarket dependence for most participants.

*“Definitely living in Auckland”*

*“I used to live in Kawhia, and you used to hardly ever go to the supermarket really .... you just had fish, seafood, whatever’s around”*

*“... I’ve got European, Māori , Pacifica - my family is so interracial now - like for me - I won’t ... eat one specific type of - like, stereotype into one specific type of food, because I’m Māori , that’s what I eat kind of thing - it’s more than that kind of thing”*  
[Māori]

On the other hand, Pacific populations maintained their traditional way of life and unique cultural practices in NZ, even post-migration. This includes their cultural foods, cooking methods and traditional feast days. Therefore, Pacific participants found it difficult to adapt to the food served in hospitals, as it was considered predominantly western. Nevertheless, they reported appreciating the hospital’s efforts to improve their health through the food served and would eat it. This indicates their willingness to adapt when needed. Furthermore, participants believed that their traditional diet was impacted by increased exposure to takeaway foods in NZ, as this was one of the most frequently reported family supplied foods.

*“But now, the hospital doctors and uh, people, they try to get us healthy by eating all this ... but it’s a big change from our way of life back home ... but again, we still eating...”*

For Chinese participants, the traditional habits acquired during childhood often persist into adulthood. This was demonstrated by participants acknowledging that they blindly follow cultural food practices, especially when unwell. Nevertheless, it was reported that cultural adaptation post migration may occur and for several various reasons. Firstly, their young children may adapt more quickly because they are increasingly exposed to western foods and dietary practices at school and early childhood centres. Furthermore, changes in life circumstances (e.g. work or tertiary studies), as well as time, space and work constraints, collectively influence the rate of cultural adaptation and dietary acculturation. Participants reported that it is increasingly difficult to uphold cultural food practices, such as ensuring that lunch

remains the main family meal, as traditional foods take time to prepare. Also, the length of time spent in NZ impacted on their cultural food practices. For example, one participant who has lived in NZ for longer period of time, reported cooking larger dinner meals (as this was now the only time her family could gather together) and to having coffee with meals. Participants also agreed that simple food is now consumed for lunch (e.g. sandwiches or leftovers). Furthermore, the presence of individuals of other ethnic backgrounds within the family can affect cultural adaptation. Nevertheless, it was agreed that Chinese individuals may choose to uphold their cultural practices, although this depends on the level of personal determination and the extent of their beliefs.

*“I don’t know why ... but it’s cultural”*

*“Probably, I’ve been here for a long time so ... I will change to the [western way] ...”*

*“I went to university and started working... of course you don’t have time to cook a proper lunch – and that’s why I change my lunch – and for lunch, I always have left over from previous day”*

*“For lunch, we don’t have time to do the lunch, so we probably just have time to do dinner – so that’s got the bigger thing for us”*

[Chinese]

## 4.5 Suggested improvements regarding service and food provision

In this section, the culturally appropriate improvement suggestions for the HFS by the three single-ethnic focus groups and the combined focus group are presented.

### 4.5.1 Hospital Foodservice Suggestions

Across the single- and combined-ethnic focus groups, common cultural suggestions for HFS were reported. These improvement suggestions related to three core aspects

of HFS: food portions, temperature and serving cultural foods on specific days. As hunger was frequently reported, participants suggested increasing and standardizing portion sizes across all meals throughout the day. To further improve satiety, Māori and Pacific suggested serving snacks in-between main meals. Improving food temperature was another critical point for all three ethnic groups, as food was often received lukewarm or cold. It was proposed that the HFS should invest in alternative food delivery equipment to ensure that patients receive hot food during hospitalization. Lastly, participants agreed that offering cultural foods on specific days of the week may be of benefit to patients, particularly to those who have been hospitalised for a longer length of time. This would enable patients in keeping track of the days and provide a strong cultural link to home, particularly for those of Māori and Pacific ethnicity. For Pacific populations, traditional feasts are generally held after Church services on Sundays. Therefore, Sundays was the suggested day for serving weekly cultural meals. Furthermore, Chinese participants suggested that serving cultural foods in hospital would simultaneously increase menu variety and decrease menu fatigue, thus encouraging patients to eat more while in hospital.

#### 4.5.2 Ethnic-Specific Cultural Food Suggestions

Various cultural food and drink suggestions for hospital menu incorporation were obtained from each single-ethnic focus group. Māori participants reported enjoying a large variety of seafood (mostly raw), including raw fish with coconut cream and lemon juice, kinnas, creamed / fried pauas, oysters, prawns and seafood chowder, and suggested this for inclusion within the hospital menu. Thick soups and stews are also enjoyed when unwell, particularly bacon hock, and chicken and vegetable soup. Participants also suggested cooking hāngi-styled meals in a steamer and serving these in hospital, as this would taste similar to a traditional styled hāngi.

Similar to Māori, Pacific also reported enjoying a wide range of seafood, which form a staple part of their diet. Warm and easy-to-swallow foods are also preferred when unwell. Furthermore, chop suey (vermicelli and meat), pisupo (*corned beef*), supo povi / pisupo (*corned beef soup*) and taro (*starchy carbohydrate*) are cultural favorites amongst most Pacific nations. Taro is generally cooked with onions and coconut milk

and participants suggested that starches (including Pacific starches) could be alternated for dinner every night. Participants also suggested increasing the amount of salads served in hospital, the variety of meat (include pork) and offer more wholemeal / wholegrain bread options. Specific drink recommendations included Ribena and Koko Samoa (*traditional hot chocolate*). However, Koko Samoa is considered very rich and should only be served on certain days.

For Chinese participants, breakfast is the most important meal of the day and these foods should have a soft liquid texture (e.g. *congee*). Congee (easy to chew and swallow) should be made with water and can either be sweet (with dates and peanuts) or savory (with meat / chicken / fish / vegetables). Lunch meals should be the biggest meal of the day, with clear chicken soups or congee preferred. Furthermore, a traditional dinner usually consists of one to two meat dishes, a vegetable dish and a soup. Participants also reported enjoying rice-based dishes for dinner and suggested fruit, cheesecake and cupcakes for dessert. Warm, non-caffeinated drinks were also preferred (e.g. *milk and milo*). The specific suggestions made by participants are presented below in **Table 18**.

Table 18: Cultural food and drink suggestions for hospital menu incorporation as suggested by participants in the single-ethnic focus groups conducted.

Food Group	Food Group Subcategories		Traditional Foods	
		Māori	Pacific	Chinese
Breakfast				
Cereals & Grains		Porridge	Hash browns	Congee (sweet or savoury)
Bread		Fried bread		-
Meat	Red meat	Bacon	Bacon	-
	Poultry & Eggs	Eggs on toast Omelettes Fish and eggs	Poached eggs	-
	Seafood	Fish cooked in butter	-	-
Vegetables	Starchy	-	-	-
	Non-starchy	-	Mushrooms	-
Fruit		Fresh fruit with yoghurt	Fresh fruit Stewed fruit	-
Lunch				
Cereals & Grains		-	-	Stir fries Rice Congee Noodles

<b>Breads</b>		Māori fried bread	Pork rolls Fresh sandwiches	
<b>Meats</b>	<i>Red meat</i>	Hāngi	Chop suey	-
	<i>Poultry &amp; Eggs</i>	-	-	-
	<i>Seafood</i>	Raw fish with coconut cream Kinnas Pauas	-	Stir fries (meat, chicken, vegetables)
<b>Soups</b>		Hearty chicken and vegetable soup Bacon hock soup Vegetable soup Seafood chowder	Chunky soup	Chicken and vegetable soup Clear chicken soup Broth
<b>Vegetables</b>	<i>Starchy</i>	-	-	-
	<i>Non-starchy</i>	-	-	-
<b>Fruit</b>		-	-	-
<b>Dinner</b>				
<b>Cereals &amp; Grains</b>		Lasagne	-	General rice dishes Fried rice
<b>Breads</b>		-	-	
<b>Meats</b>	<i>Red meat</i>	Boil-up with dough boys Roast meals	Chop suey Pisupo	
	<i>Poultry &amp; Eggs</i>	-	Butter chicken	
	<i>Seafood</i>	-	Fish Kinnas Mussels Oysters Prawns	
<b>Soups</b>		Seafood chowder	Supo povi / Pisupo soup	General soup

<b>Vegetables</b>	<i>Starchy</i>		Taro Kumara (steamed)	
	<i>Non-starchy</i>	-	-	General vegetables
<b>Fruit</b>		-	-	-
<b>Snacks</b>				
<b>Cereals &amp; Grains</b>		-	Honey-roasted peanuts	-
<b>Breads</b>		-	Banana bread	-
<b>Meats</b>	<i>Red meat</i>	-	-	-
	<i>Poultry &amp; eggs</i>	-	-	-
	<i>Seafood</i>	-	-	-
<b>Vegetables</b>	<i>Starchy</i>	-	-	-
	<i>Non-starchy</i>	-	-	-
<b>Fruit</b>		-	-	-
<b>Desserts</b>				
		Steamed pudding with custard Apple pie with custard Jelly & ice-cream	Fruit with yoghurt Panikeke	Fresh fruit Cheesecake Cupcakes
<b>Drinks</b>				
		-	Ribena Fruit juice fizz Hot milo and coffee Koko Samoa	Hot milk Hot milo
- Not discussed				



## 4.6 Integrated menu suggestions

When presented with a proposed hospital menu featuring the cultural food and drinks identified in the single-ethnic focus groups, participant opinion and meal choice varied across a broad spectrum. The full menu can be found in **Appendix 8**. For breakfast, there were several categories to choose from, including cereal / grains, meat/eggs, vegetables and fruit. For each category, both a hot and cold option were given. Firstly, all participants anticipated choosing a hot meal in hospital, particularly if unwell. For cereals/grains, hot cereals, congee, and Cocoa Rice were the chosen options, with hot cereals selected by all three ethnic groups. Congee was the next most popular grains option, selected by all Chinese and the majority of Māori and Pacific participants. Cocoa Rice (*a Samoan breakfast food*) was chosen by all Pacific participants, as well as a small number of Māori and Chinese participants. For meat/eggs (protein sources), eggs were the most preferred breakfast food across all three ethnic groups and were considered a full meal by most individuals. Vegetables were not selected by the majority of participants (sans Pacific), and all participants selected stewed fruit over fresh, as it was warm, easy-to-swallow and could be mixed in with other cereals.

When presented with lunch options (i.e. soup, sandwiches or a hot meal), freshly made soups were the prevailing meal of choice for all participants. Nevertheless, everyone anticipated choosing any of the options at any point in time in order to avoid meal boredom. Preferred soup textures also varied considerably amongst the different ethnic groups. Chinese requested a thinner and broth-like soup consistency, which contrasted significantly with the thicker, stew-like soups preferred by Māori and Pacific. However, chicken was identified as the favored soup ingredient across all ethnic groups. If soups contained a starchy component (i.e. potato or noodles), it was decided that bread should be optional and not compulsory. Māori fried bread was the preferred soup accompaniment for both Māori and Pacific participants. For those who anticipated choosing a sandwich on alternate days, it was difficult identifying a cultural sandwich filling that appealed to all three ethnic groups. However, pork rolls were favored by the majority of Māori and Pacific participants. Furthermore, it was suggested that sandwich fillings should be seasonal in order to both lower costs and ensure meal freshness (e.g. avocado and mayonnaise in summer). For the hot meal option, chicken

and beef stir-fries were the most popular amongst all participants, and only a few Pacific and all Māori participants selected hāngi. To accompany their stir-fries, rice was preferred by all ethnic groups, although Māori and Chinese participants anticipated choosing noodles on alternative days to mitigate menu fatigue and boredom.

In contrast, no unanimous decision was reached across all ethnic groups with regards to dinner options. Although participants were happy to receive soup (albeit as a side dish), it was difficult identifying a soup flavor that appealed to all three ethnicities. Soup was recognized as a cheaper way increase fish intake in hospital, primarily through fish soup (a Chinese favorite) or seafood chowder. Other preferred soup flavors included bacon hock and Supo Povi / Pisupo (*corned beef*), by Māori and Pacific respectively. Hot main options included boil up, fish of the day, stir-fry (*beef or chicken*), roast meat (*chicken, beef, pork*), stew (*chicken, beef, lamb*) or chop suey, with a variety of options selected by participants. Once again, the need for more seafood options was highlighted, as everyone agreed that fish should be a regular option on the menu. Steamed fish was a particular favourite, as it was considered healthier than fried fish. In addition, most Māori and Pacific participants anticipated choosing boil up. Once Chinese participants understood what this was, they expressed an interest in ordering it in hospital too. Chop suey was also preferred by our Pacific and Chinese participants. However, Chinese participants were confused as to whether the Chinese version of chop suey resembled the traditional Pacific version or Chinese chow-mein. They also reported that their version of chop suey was prepared with wheat noodles and not vermicelli (*rice noodles*), as they were raised to believe that vermicelli is made out of plastic. Most of the carbohydrate options for the hot main meal (e.g. *rice, noodles, taro, kumara, potato*) appealed to everyone, but participants felt that it was inappropriate to select only one, as the majority of options were considered culturally appropriate across all ethnic groups. Instead, they suggested that the carbohydrate options should be alternated on different days. Furthermore, boiled vegetables were selected by all participants (with pumpkin as a further suggestion), as boiling renders them soft and chewable.

The same logic was applied to the dessert options listed. Participants agreed that the desserts lacked variety, and that they would not anticipate choosing the same option repetitively throughout hospitalisation. Nevertheless, everyone expressed an interest in

trying panikeke (*Pacific pancakes*). The majority of Māori and Pacific also requested that jelly and ice-cream remain a staple hospital dessert option, as it was thoroughly enjoyed by both groups. In addition, a small group of Chinese and Pacific participants opted for stewed and fresh fruit respectively and for yoghurt to be offered daily. Māori participants also anticipated choosing steamed pudding or apple pie with custard or vanilla ice-cream every alternate day in hospital.

With regards to the limited drinks menu, Koko Samoa was the only cultural drink suggested within the individual focus groups. Although not discussed in detail, drink temperature was frequently mentioned in all three groups, with particular emphasis on hot drinks being served hot and not lukewarm / cold. All participants also requested that the small orange and fruit juice cartons should remain on the menu. Nevertheless, according to participants, these drinks should be clearly identified as an option, as not all of them were aware of its availability. Only Chinese participants opted for non-caFFEinated options, including warm milk and milo.

Similar to dinner, it was difficult reaching a general consensus on culturally appropriate snack options across all three ethnic groups. Instead, offering snacks to all patients and alternating these on a daily basis to improve patient satiety was a frequently reported theme. All participants anticipated ordering all the snacks listed at any point in time. Furthermore, it was suggested that mid-morning and afternoon snacks could be sent on breakfast and lunch trays to ease the burden on hospital foodservice personnel.

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## Chapter 5: Discussion

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The purpose of this exploratory, mixed-method framework theory study was to explore the cultural meal preferences when unwell of indigenous Māori and migrant Pacific and Chinese participants residing in NZ, along with their most recent hospital food experience. This information was necessary to compile a list of culturally appropriate meals and dietary practices suitable for use within NZ hospital foodservices. In this chapter, the general patient experiences of these populations will be discussed, followed by their ethnic food traditions and beliefs. This chapter will conclude with the suggested improvements made by Māori, Pacific and Chinese participants, regarding service and food provision in NZ public hospitals.

### 5.1 General patient experience of Māori, Pacific and Chinese people residing in NZ

In this section, the general patient and foodservice experiences outlined by participants in the exploratory survey and focus groups are primarily discussed. The overall hospital experience, although generally positive for Pacific participants, was negative for our Māori population. For these participants, the foreign environment and lack of access to cultural support systems left our indigenous population feeling voiceless. This reflects the hospital experiences of other ethnic minority and indigenous populations around the world, including Māori in NZ from other studies, African women giving birth in Brisbane and Inuit patients in Canada, who describe feelings of fear, disorientation and isolation (Degrie et al., 2017; Houkamau, 2016; Russell et al., 2013; Wilson & Barton, 2012; Wong, 2015). Furthermore, family support was identified as an integral component of recovery and wellbeing for Māori, Pacific and Chinese populations during hospitalisation. This is supported by Degrie et al. (2017), who determined that most ethnic minority patients highly value family support in hospital, as they are seen as informal care providers. In this study, support was primarily shown through the provision of meals, homemade or store-bought (*families come in with food*). This was validated by 50% of Māori, 35% of Pacific and 38% of Chinese participants receiving family meals throughout their hospitalisation. Furthermore, as participants often

reported being hungry in hospital, family meals helped increase patient satiety. This result is similar to that of Naithani et al. (2008), who reported that patients often relied on the food supplied by family members to improve satiety whilst in hospital.

Meal provision in hospital varied amongst participants. For most MPC participants (57%, 77% and 69% respectively), all their meals were supplied by the hospital, with Māori reporting the lowest hospital meal provision. This differs slightly to the literature, which suggests that approximately 80 - 100% of patients solely rely on the hospital food provided (Scottish Government, 2008). Furthermore, only 50%, 47% and 62% of Māori, Pacific and Chinese participants respectively ate at least half of all their hospital meals, and only one participant of Pacific and Chinese ethnicity finished all their hospital meals. Participants in this study consumed less hospital food in comparison to those in the study of Kim et al. (2008). In Kim's study, participants from three different general hospitals in South Korea consumed 72%, 69% and 68% of their rice, soup and side dishes respectively. The hospital food consumption pattern of participants in this present study also differs to that of Aminuddin et al. (2018), who found that 11% of patients finished their meals in hospitals in Eastern Malaysia.

Over the years, food quality has been established as a significant determinant of foodservice satisfaction (Messina et al., 2013; Ncube & Letsoalo, 2019; Ncube & Nesamvuni, 2019; Wright, Connelly & Capra, 2006; Wright et al., 2003). In this study, food quality was considered satisfactory by 43% of participants, with 7% not enjoying the food at all. This outcome is better than that found by Miyoba & Ogada (2019), where 64% of their patients were dissatisfied with overall food quality, and Aminuddin et al. (2018) who reported hospital food quality as receiving the lowest satisfaction score. Jessri et al. (2011) also found that the majority of patients from four different hospitals in Tehran were dissatisfied with the quality of the food received. However, the food satisfaction results of this present study are similar to that of Naithani et al. (2008), where 58% of patients were satisfied with the quality of the meals received. These results also conflict with the high rates of food quality satisfaction reported by studies investigating hospital foodservice satisfaction in NZ (Lowerson, 2017; McLachlan, 2018). However, one reason for these conflicting results with other NZ hospital

foodservice satisfaction studies may be a result of the different study populations, as this present study solely investigating MPC populations groups.

For all three population groups, the inconsistency of hospital meals was of great concern, particularly with regards to food portion sizes and serving temperature. For participants of MPC ethnicity, the portions were considered inappropriate, with 79%, 41% and 31% of Māori, Pacific and Chinese respectively finding the hospital food portions too small. This was inconsistent with El-Sherbiny et al. (2017), Miyoba & Ogada (2019), Hartwell (2004) and Ncube & Nesamvuni (2019), all of whom reported that 45%, 67.3%, 92% and 92.6% of their participants respectively were pleased / satisfied with hospital food portions received. Furthermore, the participants in Hartwell's (2004) study reported that the portion size received matched their expectation. The small portions experienced by participants in this study also conflicts with the participants of Wright et al. (2006), whose participants reported receiving such large portions, that they were unable to finish their food. However, in the South Korean study of Kim et al. (2008), inappropriate food portions were also identified as a significant hospital foodservice quality issue across all three hospital sites. In this study, the issue was a result of foodservice staff not conforming to the specified portion sizes of the hospital menu. Cold food temperatures were another issue for MPC populations in this study, with participants often receiving lukewarm or cold meals (e.g. cold soup). These results are consistent with the literature, which acknowledges the importance of food temperatures in patient foodservice satisfaction, and identifies it as often having the lowest satisfaction ratings (Capra et al., 2005; Dall'Oglio et al., 2015; Troutner, Gregoire, Lafferty, & Stone, 2012; Wright, Connelly, Capra & Hendrikz, 2013; Wright et al., 2003). However, these results conflict with Myoba & Ogada's study (2018) conducted in Zambia, which found that almost 100% of their patients (94.7%) were satisfied with temperatures of their hospital meals.

For participants from all three ethnic groups, the hospital menu was found to be repetitive with minimal variety. Sixty-four percent of MPC participants found the menu to have *enough* options to select from. However, 36% felt that the menu had *limited* options. These results are consistent with the literature reporting hospital menus as being repetitive with minimal variety and a lack of options (Aminuddin et al., 2018; El-Sherbiny et al., 2017; Kim et al., 2010; Kim et al., 2008; Wright et al., 2003). One reason for this could be that patient empowerment

and perceived control through menu selection are significant influencers of patient foodservice satisfaction, as identified by Hartwell (2004). This present study also found that it is important for patients to understand the terminology used within the hospital menus presented to them, particularly for those of Pacific and Chinese ethnicity. Menu misunderstanding was frequently experienced by both population groups, particularly with regards to the language used to name or describe meals listed in the menu. Similarly, 35% percent of participants in one study conducted in Malaysia, reported having difficulty in understanding the hospital menu, which impacted their food choices and overall patient satisfaction (El-Sherbiny et al., 2017). Menu misunderstanding was also reported by Naithani et al. (2008), Hartwell et al. (2006) and Ncube & Letsoalo (2019), where patients often complained about being unable to understand the menu and whether additional options were available. All of this negatively impacted on their foodservice satisfaction levels. Furthermore, this present study found the hospital menu to be predominantly western and catered towards the general European population of NZ. The menu was considered culturally inappropriate by the majority of MPC participants (50%, 53% and 62% of Māori, Pacific and Chinese participants respectively), due to the lack of fresh, flavoursome and traditional foods, food temperature and texture, and the excessive amount of western meals on offer. These findings mirror the findings of Lum (2019), Mohamad Shahir (2019), Payne et al. (2008) and Hamdan (1994), all of whom explored the opinion of ethnic minority groups in NZ, the UK and Australia respectively, and found the hospital menu deficient in culturally appropriate foods. These results highlight the need for cautious menu planning, as it is one of the most important control points in the foodservice system (Dall'Oglio et al., 2015).

## 5.2 General food preferences of Māori, Pacific and Chinese people residing in NZ when well and unwell

In this section, the findings from phase-1 (exploratory survey) of this study are primarily discussed, as participants were free-living and from the wider community. It was observed that Pacific and Chinese participants retained some of their traditional eating habits and dietary practices, despite now residing in NZ. Similarly, indigenous Māori, despite the effects of colonization on their dietary acculturation, also retain some of their traditional eating

habits and dietary practices. However, this was primarily observed in the food preferences of Pacific and Chinese groups when unwell.

When well, the food preferences of Māori and Pacific participants were often traditional. These included foods of the *seafood* (e.g. fish, mussels, kinnas, prawns, oysters, pauas) and *vegetable* (e.g. taro, kumara, pumpkin, potatoes) variety. However, when unwell, their food preferences expanded to a combination of traditional and western foods, including Weetbix, scrambled eggs and spaghetti for breakfast, subway sandwiches, pasta and salads for lunch, and dinner rolls and roast meats for dinner. Chinese participants preferred *other* foods (e.g. fast-food and international cuisines such as Indian and Thai-style curries) and *vegetables* (e.g. leafy greens, ginger, garlic) when well. However, when unwell, traditional liquid-based foods (e.g. congee, chicken noodle soup) were solely preferred. These findings are consistent with the literature, which reports that indigenous Māori and Pacific people's diets have acculturated to the western food paradigm to a greater degree than those of Chinese populations (Deng et al., 2013; DiBello et al., 2009; Lv & Cason, 2004; McKerchar et al., 2015; Metcalf et al., 2008; Morrell, 2010; Whiu et al., 2014; Wu-Tso et al., 1995). These results and the strong preference of Chinese participants for traditional foods when unwell are also consistent with the literature documenting Chinese immigrant dietary acculturation and their faithful retainment of dietary and TCM practices post-migration, particularly amongst first-generation populations (Chan et al., 2010; Lum, 2019; Payne et al., 2008; Wu & Liang, 2018). Nevertheless, these results also demonstrate how Chinese populations tend to layer western eating practices over their traditional dietary practices in their new host countries, such as increasing their intake of fat, sugar and refined grains, whilst maintaining a high intake of fruit and vegetables and having congee for breakfast (Deng et al., 2013; Lv & Cason, 2004; Payne et al., 2008; Satia et al., 2001; Shu et al., 2015; Tseng et al., 2015; Wu-Tso et al., 1995). Nevertheless, until Lum's study conducted in 2019, no comprehensive investigations in NZ have been conducted on the dietary habits of Chinese people. The degree of indigenous Māori dietary acculturation was also validated by 57% of this study population identifying their diet as being predominantly western. This was reflected in the bulk of western foods selected for consumption when unwell, including vegetables (e.g. potatoes, pumpkin), stews, casseroles, chicken-based dishes and eggs. This is in line with the claims of Whiu et al. (2014) and other Māori dietary acculturation studies documenting the adoption of post-colonial



foods into their traditional diet (e.g. potatoes, pumpkin, pork), and the ensuing westernization of their modern diet today (Bowers et al., 2009; Cambie & Ferguson, 2003; Metcalf et al., 2008; Ministry of Health, 2012b). These results are consistent with other studies, including the most recent NZANS conducted in 2008, which highlight their higher intake of seafood (traditional food), meat and eggs (post-colonial foods) in comparison to other population groups in NZ (Ministry of Health, 2012). The majority of Pacific participants identified their diet as equally traditional and western (63%) and this was reflected in their food preferences when unwell (e.g. raw fish in coconut cream, baked green bananas, fresh fruit, sandwiches). These findings coincide with other Pacific acculturation studies, demonstrating how despite retaining traditional food practices post-migration, western foods have been gradually incorporated within their diet (Ahio, 2011; DiBello et al., 2009; Shintani & Hughes, 1994; Veatupu et al., 2019). A possible explanation for this could be an increase in the ease of access to western foods, both on their native islands and following migration to NZ (Ahio, 2011; DiBello et al., 2009; Veatupu et al., 2019). Furthermore, the results of this present study align with the literature exploring the food intake of Pacific in NZ, which identifies their higher intake of traditional foods including fish, fruit, coconut cream, as well as other western foods in comparison to non-Pacific (Metcalf et al., 2008; Ministry of Health, 2012c).

### 5.3 Ethnic food preferences, traditions and beliefs

In this section, the cultural food values and food-related health beliefs specific to each population and how these impact upon food preferences will be discussed. This study found that cultural foods and dietary practices unique to each ethnic group were of great importance to them when unwell, particularly for Chinese participants.

#### 5.3.1 Māori

For our indigenous Māori population, cultural foods were seen as having a strong connection to their culture, land and tangata whenua (people of the land) and identified as having a significant role in their health and wellbeing. A lack of access to these foods was believed to negatively impact on Māori health and wellbeing. These

findings are consistent with the research of Whiu et al. (2014) and others exploring Māori food culture, who identify the significance of traditional kai as a connection to their land, whakapapa, and as a key contributor to their health and wellbeing (McKerchar et al., 2015; Philips et al., 2016; Whiu et al., 2014). Furthermore, following a traditional diet was deemed healthier, and emphasis was placed on consuming foods sourced directly from the land, sea and sky and decreasing the intake of processed foods. These foods included rewena bread, boil-up, fresh seafood and vegetables. These results build on the existing knowledge concerning the beneficial healthiness of foods that Māori can whakapapa (lineage, trace) back to their original sources, and the unhealthiness of foods that Māori cannot whakapapa back to their original source (e.g. sugar, caffeine) (Heke, 2017).

### 5.3.2 Pacific

For Pacific participants, their strong cultural identity was embodied in their traditional foods and dietary practices. Therefore, cultural foods were thought to bring comfort to ill patients in hospital, and the lack of these foods were found to accentuate the foreignness of the hospital environment. This is consistent with the literature which identifies food as having a significant role in the culture and lives of Pacific people, and as a means of affirming one's identity, connections and place (Ahio, 2011; King et al., 2012; Rush, 2009; Skudder, 2014). Similar to Māori, traditional foods were preferred when unwell, as they were sourced from the land, sea and sky, and thus considered fresher. This confirms that despite NZ residence, increased exposure to western dietary patterns and the documented acculturation of their diet, Pacific groups still prefer, enjoy and consume cultural foods, such as taro, breadfruit, cassava, yam, chop suey and oka. This is consistent with findings of other Pacific acculturation studies, which highlight that despite the adoption of western foods into their diet (e.g. refined grains, sugar, fast-food), Pacific peoples fiercely retain their traditional eating practices (Ahio, 2011; King et al., 2012; McCubbin et al., 2017; Rush, 2009). Pacific populations also partake of their traditional food practices whilst residing in NZ, such as holding cultural feasts on Sundays following church services, a practice observed by Skudder (2014) and Rush (2009). This was also observed in this present study, when participants acknowledged that cultural meals are

predominantly consumed on Sundays after church. This present study also found that the cooking methods of traditional foods were of importance to Pacific, as this contributed to the overall appeal of their cultural meals. This is consistent with findings from Skudder (2014), who reported that the traditional Pacific earth oven (umu) was the preferred cooking method for her Pacific participants residing in NZ. As food is steamed in the earth oven, Pacific (and Māori) participants felt that steamed foods would closely resemble food cooked in an umu or hāngi. These steamed foods would appeal to them greatly, particularly when unwell. This reflects the findings of Lum (2019), who found that Chinese and Filipino participants preferred meals cooked with traditional preparation methods. This was particularly seen with the white rice served in hospital, which remained unaccepted by the majority of Chinese patients, as it had been prepared with western cooking methods (Lum, 2019). This highlights the importance of not only offering cultural foods in NZ hospitals, but ensuring that these foods are cooked in certain ways in order to ensure that if offered in hospital, they are accepted and consumed by these population groups.

### 5.3.3 Chinese

Chinese participants reported that caffeine, spicy foods (e.g. spicy curries), dry-textured foods, and cold food and drink are strictly prohibited when unwell. For this population, these fundamental taste, texture and temperature rules governing their diets when unwell, underpin the fundamental aspects of TCM. This includes the belief that cold foods alter the yin-yang balance, and that hot foods are required to restore balance to the body (Chan et al., 2010; Patwardhan et al., 2005; Payne et al., 2008; Wu & Liang, 2018; Xue et al., 2010). Participants admit to frequently following TCM practices when unwell, and this reflects the findings of studies revealing how Chinese populations tend to retain these practices post-immigration, as they consider it an effective complement to western medicine (Chung et al., 2014; Deng et al., 2013; Lai & Chappell, 2007; Payne et al., 2008; Wu & Liang, 2018). This was the only population of this present study to fully ascribe to traditional dietary habits and practices when unwell, as observed in their cultural suggestions for the menu. This population trait may reflect their slower rate of cultural adaptation, or the strength of their TCM habits.

## 5.4 Suggested improvements regarding food provision and service in NZ hospitals

In order to draw up a list of culturally appropriate food and drink suitable for NZ hospital menu incorporation, the cultural suggestions extracted from phase-2 to phase-4 had to undergo a stringent process.

These suggestions were identified and collated from phase-2 (exploratory survey) and compiled into a table (**see chapter 4; Table 15**), organised by ethnicity and main food group. These were then presented to the single-ethnic focus groups in phase-3 to gauge their cultural acceptability of these suggestions, and to extract any further suggestions for the menu. However, phase-2 foods were not always fully discussed in their associated focus group and some foods were missed entirely (e.g. lu sipi was not discussed in the Pacific focus group). Nevertheless, other cultural food suggestions were obtained from the single-ethnic focus groups. Many of the cultural food suggestions that arose out of these groups were considered less traditional and more western than the original cultural suggestions extracted from phase-2 (**see chapter 4; Table 18**). The western suggestions included food items such as bacon, mushrooms and hash-browns for breakfast, sandwiches for lunch, roast meals for dinner and cheesecake for dessert. These non-traditional suggestions made it difficult in determining what specific cultural foods should be incorporated within the proposed hospital menu to be presented to Māori, Pacific and Chinese participants in phase-4. Nevertheless, the majority of the cultural food and drink suggestions were incorporated into the proposed menu, and the foods considered too western (e.g. hash-browns, lasagne, smoothies) were not included. Following phase-4, a list of foods that appealed across ethnic groups were identified and these are presented in **Table 19** below.

Table 19: Cultural foods that appealed across Māori, Pacific and Chinese populations in the combined-ethnic focus group (phase-4)

Food Group	Food Group Subcategories	Traditional Foods
Breakfast		
<i>Cereals &amp; Grains</i> <i>Bread</i> <i>Fruit</i>		Congee, cocoa rice, porridge
		Fresh bread / toast ( <i>optional</i> )
		Stewed fruit
Lunch		
<i>Cereals &amp; Grains</i>		Rice
		Noodles
<i>Breads</i>		Māori fried bread
		Toast ( <i>optional</i> )
		Pork rolls
		Egg / avocado & mayonnaise sandwiches
<i>Meats</i>	<i>Red meat</i>	Beef stir fry
		Hāngi
<i>Soups</i>	<i>Poultry &amp; Eggs</i>	Chicken stir fry
		Chicken noodle
		Chicken and vegetable
Dinner		
<i>Cereals &amp; Grains</i> <i>Breads</i>		Noodles
		Māori fried bread
<i>Meats</i>		Toast ( <i>optional</i> )
	<i>Red meat</i>	Boil up
		Chop suey
		Beef stir fry
	<i>Poultry &amp; Eggs</i>	Chicken stir fry

<b>Soups</b>	<i>Seafood</i>	Fish of the day ( <i>steamed</i> )
		Chicken noodle soup
		Chicken and vegetable soup
		Fish soup
		Seafood chowder
<b>Vegetables</b>	<i>Starchy</i>	Taro
		Kumara
		Roast potatoes
	<i>Non-starchy</i>	Boiled vegetables ( <i>variety</i> )
		Pumpkin
<b>Fruit</b>		-
<b>Snacks</b>		
<b>Cereals &amp; Grains</b>		Crackers
		Mini chip packets
<b>Breads</b>		Flavoured muffins
<b>Fruit</b>		General fresh fruit
<b>Desserts</b>		
Jelly & ice-cream		
Panikeke		
Steamed pudding and custard / ice-cream		
Apple pie & custard / ice-cream		
Fresh fruit & yoghurt		
<b>Drinks</b>		
Warm milk		
Fresh fruit / orange juice		
Hot tea / coffee / milo		
<b>-Not discussed</b>		

From this table, it can be seen that the final cultural suggestions incorporate both cultural and western food and drink. Therefore, it seemed logical to adapt the list and integrate the traditional foods originally suggested in Phase-2, along with the suggestions from Phases-3 to 4. This was done in order to create a more comprehensive and detailed list of culturally appropriate foods across all three ethnic groups. In the other study exploring the cultural food preferences of Chinese groups in NZ, Lum (2019) determined that Chinese people preferred hot temperature meals and drinks, large portions of vegetables, fresh fruit, white rice, clear soup, fish and congee to be served in hospital. This reflects some of the food preferences listed in the table above (e.g. congee, fish, hot drinks).

In addition to the cultural food and drink suggestions gleaned, a variety of improvements regarding general hospital foodservice were obtained. Predominantly, participants were concerned with portion sizes, the temperature of the food received and the possibility of serving cultural foods on specific days in hospital. One clear suggestion was to offer cultural meals (or Pacific meals) on Sundays, as this day is synonymous with traditional cultural feasts shared amongst Pacific populations following Sunday services. Participants also suggested improving portion sizes and ensuring that they remained consistent with regular staff training or further food portion standards development. Furthermore, as participants were generally hungry during their hospital stay, they suggested incorporating morning and afternoon snack options into the menu.

This discussion strengthens awareness of the differences between the food preferences of MPC populations and that of the general NZ European population when they are unwell and throughout hospitalisation. It also reinforces the need for culturally appropriate menu options for these ethnic minority groups in NZ, in order to improve their hospital experience and the quality of care received.

*“The recovery of the people is tied to the recovery of food, since food itself is medicine: not only for the body, but for the soul ...”*

- *Winona La Duke* (La Duke, 2005)

## Chapter 6. Conclusion

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### 6.1 Overview of the research

This research provides a glimpse into the innate food preferences of Māori, Pacific and Chinese (MPC) groups residing in NZ and reflects part of the flourishing cultural diversity of Aotearoa. Little is known about the cultural food preferences and hospital foodservice experiences of MPC population groups within the context of food provision guidelines, specifically to meet objectives regarding patient satisfaction and reducing ethnic healthcare disparities in New Zealand. The aim of this study was to explore the cultural foods preferred by different cultural groups (i.e. MPC) during hospital admission. From Phase-2 (quantitative analysis), breakfast was the most disliked meal across all three ethnic groups, at least one third of all participants had meals supplied by family and friends because they either disliked the hospital food or found it too different from the food eaten at home, and at least half of all participants found the hospital menu culturally inappropriate. From Phase 4 (qualitative analysis), participants across all three ethnic groups found the hospital menu culturally restrictive and predominantly western, which made it particularly difficult for our migrant Pacific and Chinese groups to enjoy their hospital foodservice experience as they craved cultural foods when unwell. Furthermore, Māori and Pacific participants would enjoy having a greater selection of seafood on the menu, whilst Chinese participants, who continue to follow TCM practices when unwell, would appreciate being offered warm, liquid-based foods (e.g. congee and clear soups) for all three meals. This present study explored the cultural food preferences of MPC population groups when unwell and identified specific culturally appropriate meals and practices for further exploration and potential future consideration within the NZ HFS setting.

### 6.2 Main findings

The findings will be presented according to the objectives of this study, as set out in chapter 1.



The first objective of this study was to *explore the types of foods and / or meals preferred by MPC population groups*. Although cultural foods were of significant importance across all ethnic groups, the exploratory questionnaire designed for this study identified the acculturation of MPC diets to varying degrees, predominantly for those of Māori and Pacific ethnicity. This was seen in the variety of western foods preferred by these populations, including Weetbix, bacon and hash-browns for breakfast, sandwiches and pasta for lunch, roast meals for dinner, and muffins and crackers for snacks. Despite this, all three ethnicities expressed a preference for eating some traditional foods when unwell and during hospitalisation. While both Māori and Pacific participants preferred seafood (e.g. fish, mussel, kina) and starchy vegetables (e.g. taro, kumara, potato), Māori also highlighted preferences for other traditional foods such as rewena bread, stew or boil-up with doughboys and other non-starchy vegetables, including pumpkin and puha. Pacific participants favoured a variety of cereal and grain foods, including Niuean porridge, vaisalo and cocoa rice, other starchy foods, such as breadfruit and baked green bananas, as well as chop suey and Supo Povi. This study found that Chinese participants follow distinct eating habits and practices stemming from Traditional Chinese Medicine (TCM) when unwell. For example, they avoided cold food and drink, and preferred hot meals that were easy to chew and swallow. This included sweet / savoury congee, chicken soup, clear broth and rice.

The second study objective was to *investigate the reasons for the specific preferences, likes and dislikes regarding food choices and eating habits for MPC populations*. Through the use of the questionnaire and the focus groups conducted, it became apparent that cultural foods form an integral part of life for these ethnic groups and have a vital role in their health and wellbeing. Māori participants identified their traditional diet as most appropriate for their health, as they are able to whakapapa these cultural foods directly back to their natural sources; the land, sea and sky. Furthermore, traditional Māori foods were also a form of cultural support during their stay in a foreign hospital environment. For Pacific participants, their cultural foods form an intrinsic part of their identity. Pacific cultural foods prepared with fresh ingredients and via traditional methods were of significant importance, as the consumption of these foods impacted their holistic wellbeing by providing a link to their cultural identity, to their families and community groups. Additionally, traditional foods and

dietary patterns of Chinese participants when unwell, were also found to be significantly influenced by their TCM dietary practices. This included trying to avoid cold, dry-textured foods and caffeinated drinks (e.g. toast and coffee), and striving to incorporate warmer, liquid-based meals (e.g. chicken soup).

*The third objective of this study was to explore participants' opinion of the meals offered during their most recent hospital stay.* This was also accomplished using both the questionnaire and focus groups. Although participants often ate the food provided by hospitals, predominantly out of a sense of gratefulness and a desire to not waste food, similar shared experiences regarding certain aspects of hospital foodservices were revealed. This included inconsistent meal quality, particularly with regards to small food portions and food temperatures. All three ethnic groups struggled with the small portions of the meals received, which often left them hungry and reliant on family-supplied meals during hospitalisation. Although cold food temperatures were an issue for all participants, it was a significant issue for our Chinese population. Eating and drinking cold food was believed to bring disbalance to their yin-yang energy. Therefore, Chinese participants struggled with the temperature of the hospital food served, particularly at breakfast (i.e. cold cereal and toast). Although soups were culturally appropriate for this group when unwell, participants sometimes struggled with these in hospital, as they were often received lukewarm or cold. Furthermore, the menu was deemed culturally inappropriate by the majority of participants across all three ethnic groups. Māori felt that this was due to the lack of fresh foods, small food portions and the lack of traditional foods such as rewena bread and boil-up. For Pacific participants, the menu was considered to be too *Western* and catered more for the taste, nutrition and food portion preferences of the general European population. Chinese participants found the cold food temperatures culturally inappropriate and the menu consisting of unfamiliar *Kiwi / European* foods. The lack of cultural foods in hospitals was found to not only impact MPC populations holistically, but also exacerbate the foreignness of the hospital environment and deprive individuals of the important social, filial and cultural links that traditional foods provide. However, MPC participants generally did not expect their cultural foods to be offered in NZ hospitals.

The fourth objective of this study was *to make recommendations regarding potential cultural foods, meals or practices suitable for incorporation within the national NZ Hospital Menu.*

From the questionnaire through to the focus groups, a selection of potential foods (e.g. Māori fried bread, taro and noodle-based soups) and dietary practices (e.g. cultural meals on specific days) were discussed and accepted across all ethnic groups for hospital menu incorporation. Breakfast items that were acceptable to all included congee and cocoa rice. Lunch and dinner items that were acceptable across ethnicities included chop suey, chicken and beef stir fry, boiled vegetables, a selection of starchy vegetables including kumara and taro, and Māori fried bread. Furthermore, several dietary practices which appealed to our MPC population groups were identified, including the serving of cultural foods on specific days of the week (e.g. Sunday) and adding menu descriptions in the languages of other ethnic minority groups residing in NZ.

### 6.3 Use of findings

The results of this investigation provide new insight into the cultural food preferences of Māori and Pacific when unwell and build on the existing evidence of Chinese food preferences when unwell (Lum, 2019). As these populations are increasing, their use of health services, predominantly through hospital admissions, will continue to increase. NZ public hospital systems need to meet this increased need by implementing culturally appropriate services and standards of care, particularly through the foodservices provided. The cultural meals and dietary practices and their reported effects identified within this study may be considered by NZ public hospital foodservices for future menu development or improvement as they appeal across all three population groups. **Table 20** presents a comprehensive list of the traditional foods that appeal to MPC populations below, as determined through this study.

Table 20: Integrated list of specific cultural food suggestions of Māori, Pacific and Chinese ethnic groups suitable for NZ hospital menu incorporation.

Food Group	Food Group Subcategories	Traditional Foods
Breakfast		
<i>Cereals &amp; Grains</i>		Congee (sweet or savoury) Cocoa rice Niuean Porridge Vaisalo ( <i>coconut porridge</i> ) Suafa'i ( <i>banana pudding</i> )
	<i>Bread</i>	Fried Māori bread Rewena bread
	<i>Meat</i>	
	<i>Red meat</i>	Boil-up
	<i>Poultry &amp; Eggs</i>	Scrambled eggs
<i>Vegetables</i>	<i>Seafood</i>	Fish cooked in butter
	<i>Starchy</i>	-
	<i>Non-starchy</i>	-
<i>Fruit</i>		Stewed fruit Fresh fruit

Lunch		
<b>Cereals &amp; Grains</b>		Noodles Fried rice Rice Congee Stir fry noodles
	<b>Breads</b>	Māori fried bread Dumplings Wontons
	<b>Meats</b>	
	<i>Red meat</i>	Hāngi ( <i>traditional underground Māori cooking</i> ) Boil-up ( <i>Māori stew</i> ) Chop suey Beef stir fry Pisupo ( <i>corned beef</i> )
	<i>Poultry &amp; Eggs</i>	Chicken stir fry
	<i>Seafood</i>	Steamed fish with salad Faiai elegi ( <i>raw fish in coconut cream</i> ) Mussel Kina Paua

<b><i>Soups</i></b>		Hearty chicken and vegetable soup Bacon hock soup Vegetable soup Seafood chowder Chicken noodle soup Chicken and vegetable soup Clear chicken soup Broth with chicken and vegetables Supo povi / pisupo soup ( <i>corned beef soup</i> )
<b><i>Vegetables</i></b>	<i>Starchy</i>	-
	<i>Non-starchy</i>	-
<b><i>Fruit</i></b>		-
<b>Dinner</b>		
<b><i>Cereals &amp; Grains</i></b>		General rice dishes Fried rice Plain rice Stir fry noodles
<b><i>Breads</i></b>		Māori fried bread Dumplings

<b>Meats</b>	<i>Red meat</i>	Boil-up with dough boys Chop suey Lu sipi ( <i>meat and coconut cream wrapped in taro leaves</i> ) Mutton flap and corned beef stew Stir fried noodles with meat and vegetables
	<i>Poultry &amp; Eggs</i>	Stir fried chicken with noodles and vegetables Sweet and sour chicken
	<i>Seafood</i>	Fish with coconut cream Steamed fish of the day Kina Mussel Oysters Prawns Creamed paua
<b>Soups</b>		Seafood chowder Supo povi / pisupo soup ( <i>corned beef soup</i> ) Chicken soup Fish soup Wonton soup Broth
<b>Vegetables</b>	<i>Starchy</i>	Taro Kumara (steamed) Cassava Yam Green banana Jacket potatoes

<i>Fruit</i>	<i>Non-starchy</i>	Puha Pumpkin Carrots Boiled general vegetables
		-
<b>Snacks</b>		
<i>Cereals &amp; Grains</i>		Honey-roasted peanuts Crackers Mini chip packets Banana / taro chips
		Banana bread
	<i>Red meat</i>	-
	<i>Poultry &amp; eggs</i>	-
<i>Meats</i>	<i>Seafood</i>	-
	<i>Starchy</i>	Slices of cooked taro
	<i>Non-starchy</i>	-
<i>Vegetables</i>		Fresh fruit Stewed fruit



## Desserts

Steamed pudding with custard  
Apple pie with custard  
Panikeke (*traditional Pacific donut*)  
Fresh fruit  
Stewed fruit

## Drinks

Warm milk  
Koko Samoa (*Samoan drinking chocolate*)  
Kawakawa tea  
Otai (*fresh fruit drink with coconut milk*)

-Not discussed and no specific requirements given.

**Table 21** provides general suggestions for further service improvement of hospital foodservices in NZ. These suggestions may be further explored and researched by hospital services to test their viability for menu incorporation and development.

**Table 21: Dietary practice suggestions for NZ hospital foodservices**

Dietary Practice	Purpose
Serve cultural foods on specific days of the week.	Provide a strong link to culture, home and family. <ul style="list-style-type: none"> <li>● To improve menu variety.</li> <li>● Enable patients to keep track of the days spent in hospital.</li> </ul>
Incorporate cultural foods as a side dish (e.g. taro, cassava, dumplings).	<ul style="list-style-type: none"> <li>● To improve patient satisfaction.</li> </ul>
Offer congee at all three main meals.	<ul style="list-style-type: none"> <li>● To support Chinese patients in following their TCM practices during hospitalization.</li> </ul>
Alternatively offer a selection of different Pacific foods for breakfast (e.g. cocoa rice, vaisalo, Suafa'i)	<ul style="list-style-type: none"> <li>● Ensure Pacific have access to traditionally simple breakfast meals.</li> </ul>
Incorporate more dishes with a seafood element (e.g. seafood chowder).	
Incorporate Māori fried bread as another carbohydrate / alternative bread option.	<ul style="list-style-type: none"> <li>● To ensure Māori and Pacific patients have access to a key component of their traditional diets.</li> </ul>
Ensure that foods served are not dry-textured and are able to be swallowed easily.	
Offer hot meal options at lunch (e.g. thick, hearty soups), not just cold sandwiches.	<ul style="list-style-type: none"> <li>● To provide all patients with easy-to-chew and easy-to-swallow meals</li> </ul>

Offer warm desserts following main meals (e.g. steamed pudding with custard, panikeke stewed fruit).	<ul style="list-style-type: none"> <li>• To ensure that patients have access to hot meals throughout the day.</li> </ul>
Expand the selection of drinks to include other non-caffeinated options (e.g. Koko Samoa, Kawakawa herbal tea).	
Offer Chinese-styled noodles, Māori bread and other starchy vegetables as an alternative to rice / pasta for lunch and dinner.	<ul style="list-style-type: none"> <li>• To improve the cultural appropriateness of the drink menu.</li> </ul>
Offer double portion sizes. Standardize portion sizes across all meals.	<ul style="list-style-type: none"> <li>• To improve patient satiety</li> <li>• To reduce reliance on family members to bring additional food.</li> </ul>
Improve food delivery methods to improve food temperatures when meals are received.	<ul style="list-style-type: none"> <li>• To ensure all food is received hot</li> </ul>
Implement morning and afternoon snacks for all general patients in all wards (e.g. crackers, banana bread, fresh fruit).	<ul style="list-style-type: none"> <li>• To improve satiety</li> </ul>
Provide hospital menus in the languages of ethnic minority groups.	<ul style="list-style-type: none"> <li>• To enable patients in making informed decisions about the meals they select.</li> <li>• To prevent menu misunderstanding.</li> </ul>

Implementing any of these foods or dietary practices within hospital foodservices would improve the foodservice experience and quality of care for MPC groups, as well as other ethnic groups residing in NZ. It may also enable hospitals to more competently meet the ethnic needs of the diverse populations residing in NZ and further strengthen the cultural competence of healthcare services provided in NZ.

Furthermore, a more comprehensive list of the traditional foods suggested in the questionnaire responses but not as aptly explored in the focus groups can be found in sections 4.2.6 and 4.6. These may be further explored and researched by hospital services to test their viability for menu incorporation.

## 6.4 Study strengths

One key strength of this study is the mixed-methodology study approach used to explore the extensive nature of cultural food preferences and hospital foodservice experiences of three ethnic minority groups. This provided insight into the preferred cultural food and drink of these population groups when unwell or during hospitalisation, and their links to specific cultural beliefs.

The use of the framework method for qualitative data analysis is another key strength, as this method added depth and robustness to data analysis by ensuring the data was systematically analysed (Smith & Firth, 2011). Furthermore, this analysis approach is increasingly used in qualitative research and has been used to provide evidence for governmental policies (Smith & Firth, 2011).

Another study strength is that, to the best of our knowledge, this is the first study to explore the food preferences and foodservice experiences of Māori and Pacific groups residing in NZ when unwell and in hospital. Therefore, this exploratory study both provides baseline data that can be utilized for further research for either indigenous Māori and migrant Pacific groups (including other ethnic minorities) and it contributes to the existing baseline knowledge of Chinese groups residing in NZ (Lum, 2019).

## 6.5 Limitations

One of our study limitations was the inclusion / exclusion criteria selecting for participants hospitalized within the past year with a length of stay greater than 1 day. This may have negatively impacted recruitment success and resulted in our smaller study cohort.

Another limitation was the small sample size of Chinese participants recruited for their ethnic-specific focus group (n=2). Although four participants were recruited and attended the session, two participants identified as of both Chinese and Burmese descent. Future researchers should consider utilizing appropriate screening methods to determine the primary ethnicity of participants.

Furthermore, only one focus group per ethnicity was conducted, which may not have enabled appropriate data saturation. As this study was conducted outside of the hospital setting and for other reasons unknown, it proved difficult recruiting participants for the focus group sessions, despite the incentives provided. A larger study with participants recruited from a hospital setting may provide a larger and more appropriate pool from which to recruit for focus groups.

Participant recruitment from the community and not directly from the hospital (i.e. during patient hospitalisation) was another limitation. Community recruitment resulted in variable time lags between the most recent participant hospitalisation and their survey completion. This contributed to memory bias (predominantly within the focus group sessions), as sometimes, participants were unable to remember what they had eaten or what had been offered to them in hospital.

Another limitation was that participant NZ residency length was not noted in the survey. Knowing the residency length of participants would enable researchers to determine the degree of dietary acculturation as a result of years spent in a host country, as well as the importance of traditional foods for the holistic wellbeing of ethnic minorities.

Furthermore, language barriers were not fully addressed in this study, as participants were not screened for their ability to speak English, nor were translators present at any of the focus groups.

The feasibility of incorporating some of the cultural suggestions made by MPC groups into the HFS menu may prove difficult. An example of this would offering cultural meals to Pacific groups on Sundays, a day where generally fewer staff are on site.

Our final limitations concern the investigation of the NZ Pacific population as a whole. However, in NZ, 'Pacific peoples' is a broad term used to refer to those whose origins stem from one of the 22 Pacific Island nations, and often refers to the four largest Pacific groups in NZ; Samoan, Cook Island Māori, Tongan and Niuean (Ataera-Minster & Trowland, 2018). Although this study may have enabled a broad understanding of the cultural food preferences across the different nations to be grasped, it did not allow for an in-depth investigation into the individual nations. Furthermore, since this was a cross-sectional study with a small cohort, our findings cannot be extrapolated to all Pacific peoples, as it is necessary to have a representative sample for a representative study outcome. However, although this was beyond the scope of this present study, the information gleaned from this project may provide baseline data for future studies investigating individual Pacific nations and their cultural food preferences.

## 6.6 Recommendations with regards to future research

Based on these conclusions, further research is needed to determine the differences between the cultural food preferences of different Pacific nations. Furthermore, to better understand the implications of these results and ensure other research projects in this field are systematic and more in-depth with their data capture, future studies could:

- Investigate individual or defined groups of Pacific nations, in particular, the major Pacific nations residing in NZ, including Samoa, Tonga, the Cook Islands and Niue.
- Note the residency length of all participants within study context.
- Recruit participants directly from the hospital, enabling the capture of current experiences and information to reduce the risk of memory bias,
- Recruit more participants to ensure the participant pool for focus group recruitment remains large and viable and to ensure data saturation.
- Ensure that participants are able to speak English or that translators are present at focus groups if non-English speakers wish to participate in the study.

- Expand this research to other cultural groups residing in NZ in order to determine a more comprehensive list of the cultural food preferences of the ethnic minorities who have made NZ their home.
  - Conduct this research for all ethnicities in order for data to be pooled together for the identification of similarities and differences across the different ethnic groups residing in NZ.
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## Appendix

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### Appendix 1: Ethics

 Review Group

Ethics Notification Number: 4000018990

Title: An Exploration of the Cultural Foods preferred by Maori, Pacific and Chinese communities during recent hospitalization. A Pilot Study in New Zealand.

Thank you for your notification which you have assessed as Low Risk.

Your project has been recorded in our system which is reported in the Annual Report of the Massey University Human Ethics Committee.

The low risk notification for this project is valid for a maximum of three years.

Please note that travel undertaken by students must be approved by the supervisor and the relevant Pro Vice-Chancellor and be in accordance with the Policy and Procedures for Course-Related Student Travel Overseas. In addition, the supervisor must advise the University's Insurance Officer.

A reminder to include the following statement on all public documents:

"This project has been evaluated by peer review and judged to be low risk. Consequently it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named in this document are responsible for the ethical conduct of this research.

If you have any concerns about the conduct of this research that you want to raise with someone other than the researcher(s), please contact Dr Brian Finch, Director (Research Ethics), email [humanethics@massey.ac.nz](mailto:humanethics@massey.ac.nz)."

Please note that if a sponsoring organisation, funding authority or a journal in which you wish to publish require evidence of committee approval (with an approval number), you will have to complete the application form again answering yes to the publication question to provide more information to go before one of the University's Human Ethics Committees. You should also note that such an approval can only be provided prior to the commencement of the research.

You are reminded that staff researchers and supervisors are fully responsible for ensuring that the information in the low risk notification has met the requirements and guidelines for submission of a low risk notification.

If you wish to print an official copy of this letter, please login to the RIMS system, and under the Reporting section, View Reports you will find a link to run the LR Report.

Yours sincerely

Dr Brian Finch  
Chair, Human Ethics Chairs' Committee and  
Director (Research Ethics)



## Appendix 2: Participant Study Information



# Cultural Meals in Hospital

## INFORMATION SHEET

### Kia ora! Talofa lava! Nǐ Hǎo!

My name is Kim Esau and I'm studying a Master of Science (Nutrition and Dietetics) degree at Massey University, here in Auckland, NZ.

My supervisors (Dr. Marilize Richter, Associate Professor Rozanne Kruger and Compass Manager Laura Mash) and I want to find out more about **Māori, Pasifika and Chinese** culture's food choices and experiences with hospital meals. These findings may be used to improve future hospital menus.

We will be trying to find out:

- What you think about the current menu at Auckland City, Counties Manukau, North Shore or Waitākere Hospitals.
- The kinds of traditional / cultural foods that you like to eat when you are sick.

### What you will need to do

If you are interested and decide to join us, then you will need to:

- Fill out an online survey, and
- If you are willing, to come and join us at a small focus group meeting to talk about the cultural foods you would like to be on the Hospital Menu.

#### **If you are asked to attend a small focus group meeting, you will:**

- **Qualify for a \$20 voucher for travel costs**
- **Receive free tea, coffee and snacks at the meeting!**

The information from this project will be used for research purposes only. All of the data collected will be safely stored by Massey University and will be kept confidential and anonymous. Only your email address will be used to contact you to schedule a group session and to send you the results of this study.

## Benefits for Participating

You will be helping to improve the cultural profile of our hospital menu here in NZ!

## Who Can Participate?

Anyone that:

- Is older than 18 years
- Are of either Māori, Pasifika or Chinese ethnicity
- Has been admitted to hospital within the last year

We warmly invite you to join us in this exciting project and help us try to improve our hospital menu for the better!

**Please continue to check your emails once you have signed up!**

## Your rights

If you decide to join this project, you have the right to:

- Ask any questions at any time (about this study).
- Withdraw from the study at any time.
- Give information knowing that your name will not be used in any of the results.
- A summary of the main findings will be sent to you at the end of the study if you would like to see it.

Please feel free to contact any of us below if you have any questions about this project.

Kim Esau:

Email: [myculture.myplate@gmail.com](mailto:myculture.myplate@gmail.com)

Website: [www.massey.ac.nz/myculturemyplate](http://www.massey.ac.nz/myculturemyplate)

*You're more than welcome to follow us on Facebook if email is inconvenient*

<https://www.facebook.com/MyCultureMyPlate/>

Dr. ~~Marilize~~ Richter:

Email: [m.richter@massey.ac.nz](mailto:m.richter@massey.ac.nz)

Phone: +649 213 6659

Thank you!

This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named above are responsible for the ethical conduct of this research. If you have any concerns about the conduct of this research that you wish to raise with someone other than the researcher(s), please contact A/Prof Tracy Riley, Acting Director, Research Ethics, telephone 06 356 9099 x 84408, email [humanethics@massey.ac.nz](mailto:humanethics@massey.ac.nz).

## Appendix 3: Survey

### MY CULTURE MY PLATE SURVEY

If you have consented and wish to continue with the survey please answer the following questions.

This survey should take about 10 minutes of your time.

The kinds of traditional / cultural foods that you like to eat when you are sick as well as your experience with the hospital menu during a recent Hospital stay.

- 1. Please enter your name

- 2. Please enter your study ID (that was sent to you in the email, for example 650390)

### Background Information, Culture and Food

3. Date of Birth (DD/MM/YYYY)

4. Gender:

☐

Female

☐

Male

5. Which ethnicities do you identify with? (*You can choose more than one*)

☐

Māori

☐

Samoan

☐

Tongan

☐

Niuean

☐

Cook Islands Māori

☐

Chinese

☐

Other

6. If you **chose more than one** ethnicity above, please tell us which ethnicity you identify with **the most**.

☐

Māori

☐

Samoan

☐

Tongan

☐

Niuean

☐

Cook Islands Māori

☐

Chinese

☐

Other

6. Please rank all the options below to indicate which factor is your most important reason for eating food.

*Rank them from 1 (most important) to 4 (least important).*

	Enjoyment
	Health
	Social
	Hunger

6. Generally, how important is it for you to eat foods that you enjoy? Please insert a mark or cross on the scale below to show us your answer.

Not Very Important

Very Important



7. What types of foods do you enjoy?  
Please list a few below

1:

2:

3:

8. Do you consider your diet as being traditional to your culture or westernised?

Completely  
Traditional

Equally Traditional  
and Westernized

Completely  
Westernized



**The following questions relate to when you are sick:**

9. What do you like to eat when you are sick?

*Please list at least 3*

1	
2	
3	
4	
5	

10. What do you like to drink when you are sick?

1	
2	
3	

11. How important is it for you to have traditional foods, meals or drinks when you are sick?

Not Very Important

Very Important



12. Could you please list your favourite traditional / cultural foods, dishes or drinks that you like to have when you are sick:

Breakfast

Lunch

Dinner

Snacks

13. Please list any foods / drinks that you **DISLIKE** when you are sick?

1	
2	
3	

14. Why?

--

**Hospital: Please answer the following questions related to your most recent hospital stay.**

15. When was your last hospital stay? If you cannot remember the exact day, please use the 1st of the Month.

Date

DD/MM/YYYY
------------

16. Which hospital did you stay at?

- ☐ Auckland City Hospital
- ☐ Middlemore Hospital
- ☐ North Shore Hospital
- ☐ Waitākere Hospital

17. How long were you in hospital for?

- ☐ < 1 day
- ☐ 1 – 3 days
- ☐ 4 – 7 days
- ☐ > 7 days

18. My main source of meals while in hospital were? I ate:

*Please tick all options that apply:*

- ☐ All meals: breakfast, lunch and dinner from hospital supplied meals and drinks
- ☐ Most meals from hospital supplied meals and drinks (*skipped 1 meal a day*)
- ☐ Some meals from hospital supplied meals and drinks (*skipped 2 meals per day*)
- ☐ No hospital meals
- ☐ Meals brought in by family / friends to replace hospital meals
- ☐ Take-aways or purchased food to replace hospital meals

19. How much of each hospital meal did you **USUALLY** eat?



20. Why did you choose the answer above? Please tick all options that apply


- ☐ I did not have an appetite
- ☐ I was out for scans / tests / procedures during meal times
- ☐ I was nil by mouth for procedures
- ☐ I did not like the hospital meals served
- ☐ The food was different than what I am used to eating at home
- ☐ I received meals from home
- ☐ I was too sick to eat (pain, fever, nausea, vomiting, medication effects etc.)
- ☐ Other (please specify)



21. If you received meals from family / friends, **please list at least three meals** that you ate while you were in hospital.

1	
2	
3	
4	
5	

22. How much did you enjoy the food served in hospital?

<b>Not at all</b>	<b>It was OK</b>	<b>Very Much</b>
		

23. Which mealtime did you **ENJOY THE MOST** while you were in hospital?

- ☐ Breakfast
- ☐ Lunch
- ☐ Dinner
- ☐ Snacks

24. Give two examples of the meals that you **enjoyed the MOST** while you were in hospital:

1	
2	


25. Which mealtime did you **ENJOY THE LEAST** while you were in hospital?

- ☐ Breakfast
- ☐ Lunch
- ☐ Dinner
- ☐ Snacks

26. Give two examples of the meals that you **enjoyed the LEAST** while you were in hospital:

1	
2	

27. How much did you enjoy the variety of options on the hospital menu?

<b>Limited options</b>	<b>Enough options</b>	<b>Too many options</b>
		

28. Considering the hospital meals overall, the portion sizes were:

*Please tick all the options that you have experienced while in hospital.*

- ☐ Too small
- ☐ Too large
- ☐ Inconsistent
- ☐ Just right

29. Considering the hospital meals overall, the timing of the meals were:  
*Please tick all the options that you have experienced while in hospital.*

- ☐ Acceptable
- ☐ Well timed
- ☐ Too early
- ☐ Too late
- ☐ Too close together
- ☐ Too far apart
- ☐ Inconsistent timing of meals

30. Do you think the hospital food was culturally appropriate for you?

- ☐ Yes
- ☐ No

31. Briefly explain your answer.

32. Are there any foods that you would like to be offered in hospital for the following:

Breakfast	<input type="text"/>
Lunch	<input type="text"/>
Dinner	<input type="text"/>
Snacks	<input type="text"/>
Drinks	<input type="text"/>

## Appendix 4: Participant Consent Form



MASSEY UNIVERSITY  
COLLEGE OF HEALTH  
TE KURA HAUORA TANGATA



### My Culture My Plate Study Consent Form for Participants

I have read the Information Sheet\* and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

☐ Tick here if you accept

I agree to participate in this study under the conditions set out in the Information Sheet\*. This consent form will be held for a period of ten (10) years.

☐ Tick here if you accept

I am willing to be contacted at a later date to attend a focus group meeting in my local community to further discuss aspects of the Study

☐ Tick here if you accept

*\*Please see the study Information Sheet for more details*

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Full name (printed): \_\_\_\_\_

Email: \_\_\_\_\_

This project has been evaluated by peer review and judged to be low risk. Consequently it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named in this document are responsible for the ethical conduct of this research.  
If you have any concerns about the conduct of this research that you want to raise with someone other than the researcher(s), please contact Dr Brian Finch, Director (Research Ethics), email [humanethics@massey.ac.nz](mailto:humanethics@massey.ac.nz).

School of Sport Exercise and Nutrition  
Massey University  
Private Bag 102-904, North Shore Mail Centre  
Auckland, New Zealand T: 09 414 0800 F: 09 443 9640

## Appendix 5: Focus Group Questions Overview and Structure

### 5a: Focus Group Questions: Overview

Focus Group Guide Overview		
Areas of Inquiry		Questions
<b>Hospital Foodservice</b>	<i>Food</i>	<p>What do you think about the food you were served in hospital?</p> <ul style="list-style-type: none"> <li>Prompt for enjoyment, satisfaction, appeal, taste, appearance, smell, texture, portions.</li> </ul>
	<i>Food Supply and Consumption</i>	<p>Did you consume hospital food while in hospital?</p> <ul style="list-style-type: none"> <li>Prompt for reasons why</li> </ul> <p>Did your family bring in food for you when you were in hospital?</p> <ul style="list-style-type: none"> <li>Prompt for reasons why, the foods brought in, hospital or family food preference, reliance on family meals.</li> </ul> <p>What were some of the barriers to eating hospital food?</p> <ul style="list-style-type: none"> <li>Prompt for degree of health in hospital, side-effects impacting on food consumption, inappropriate portion sizes.</li> </ul>
	<i>Menu</i>	<p>What are some of your thoughts on the hospital menu?</p> <ul style="list-style-type: none"> <li>Prompt for appropriate option availability</li> </ul> <p>How did you feel about the options available?</p> <ul style="list-style-type: none"> <li>Prompt for cultural point-of-view</li> </ul>
<b>Cultural Opinion</b>	<i>Menu</i>	<p>How would you change the menu?</p> <ul style="list-style-type: none"> <li>Prompt for suggestions, reasons why, similar meals consumed at home, culturally appropriate for when unwell.</li> </ul> <p>Are there any other things that you would do to make the hospital menu more appealing to you and others of your ethnicity?</p> <ul style="list-style-type: none"> <li>Prompt for further menu ideas, temperature, portions, textures.</li> </ul> <p>Would you choose / prefer those <u>cultural suggestions</u> if hospitalized?</p> <ul style="list-style-type: none"> <li>Prompt for opinion on cultural meal incorporation in hospital, potential consumption frequency of meals in hospital.</li> </ul>

## 5b. Focus Group Questions: Structure

### **FOCUS GROUP SESSION STRUCTURE**

*Leave refreshments on the table*

*Set up tea and coffee and juice station*

*Have envelopes assembled with thank you note and petrol voucher*

1. Welcome everybody (in their traditional greeting)
    - a. Chinese: Nǐ hǎo
    - b. Maori: Kia Ora
    - c. Pacific Island
      - i. Samoan: Talofa lava / Malo lava
      - ii. Tongan: Mālō e lelei
      - iii. Niuean: Fakaalofa atu
      - iv. Fijian: Bula
      - v. Cook Island Maori: Kia Orana
  2. Thank participants for coming
  3. Tell them about what's going to happen (i.e. informal discussion about the hospital menu, the meals and what participants would like to see on the menu, no right or wrong answers – we just want to hear what you have to say).
  4. **Key Questions**
    - a. What are some of your thoughts about the hospital menu?
      - i. Were you happy with the options available?
        1. Why?
    - b. What do you think about the food you were served in hospital?
      - i. Probes
        1. The taste
        2. The appearance
        3. The smell
        4. Portions
    - c. Did you like the food in hospital?
      - i. What about it?
      - ii. Why?
      - iii. Why not?
    - d. Did you eat the hospital food while you were in hospital?
      - i. Yes – why?
      - ii. No – Why?
    - e. What were some barriers to you eating the hospital food?
      - i. Were you feeling well enough to eat?
      - ii. Were the portions too big?
      - iii. Did the sight or smell of the food put you off?
      - iv. Were you familiar with the meals offered on the menu?
        1. Did they appeal to you? Why?
    - f. How did you feel about the meals you were offered? From a cultural point of view?
    - g. Should the hospital menu change?
      - i. Why?
      - ii. How?
    - h. How would you change the menu?
      - i. What would you add?
      - ii. What cultural meals would you add? (Food and Drinks)
      - iii. Why?
-

1. Do you have those meals at home?
  2. Do you have those meals when you're not feeling well? Why?
  3. What other food or drink would you like to add in?
- i. Do your family bring food in for you when you're in hospital?
    - i. Why?
    - ii. What kind of food
    - iii. Do you find yourself eating more of those foods than the hospital food?
    - iv. How much do you rely on those foods whilst in hospital?
  - j. Are there any other things you would do to make the hospital menu more appealing to you and others of your ethnicity?
    - i. Menu ideas
    - ii. Temperature
    - iii. Portions
  - k. If you were hospitalized for any reason, and offered the foods you all just mentioned, would you chose those meal ideas?
    - i. How would you feel if you were offered those meals?
    - ii. Would you eat those meals?
  - l. Is there anything else you'd like to say before we wind up?

#### **Probes**

- Can you say more about that?
- Can you give an example?
- Jane says X. how about the rest of you? What do you think?
  - How do you feel?
- How about you John?
- Does anyone else have any thoughts on that?

5. Thank everyone for their time
6. Hand out the envelopes
7. Close off the meeting
8. Tidy up

## Appendix 6: Proposed Cultural Hospital Menu Options

### Proposed Menu

*Below is a suggested menu.*

*If you see this symbol ( / ), please circle which option you prefer.*

Name: \_\_\_\_\_

Ethnicity: \_\_\_\_\_

#### Breakfast

Please choose either **1 hot OR cold** option for your:

- ☐ Porridge:
- ☐ Main:
  - ☐ Eggs: *Choose 1*
  - ☐ Meat: *Choose 1*
- ☐ Fruit:

*If you want yoghurt, please.* ☐

	HOT	COLD
Cereal / Grains	<input type="checkbox"/> Congee (meat + veggies) <input type="checkbox"/> Creamy porridge <input type="checkbox"/> Suafa'i <input type="checkbox"/> Cocoa Rice	<input type="checkbox"/> Cornflakes <input type="checkbox"/> Weetbix <input type="checkbox"/> Rice bubbles
Main <input type="checkbox"/> Dairy <input type="checkbox"/> Egg  <input type="checkbox"/> Meat  <input type="checkbox"/> Veg	<input type="checkbox"/> Scrambled / Poached eggs + toast  <input type="checkbox"/> Bacon/Ham/Sausage  <input type="checkbox"/> Tomatoes / onions / mushrooms	<input type="checkbox"/> Yoghurt <input type="checkbox"/> Boiled egg + toast  <input type="checkbox"/> Ham  <input type="checkbox"/> Tomatoes
Bread		<input type="checkbox"/> Toast
Fruit	<input type="checkbox"/> Stewed fruit	<input type="checkbox"/> Fresh fruit



## Lunch

Please choose 1 of the following:

- ☐ Hot Soup + Bread/Toast (choose 1 of each) **OR**
- ☐ Sandwich + Salad (choose 1 of each) **OR**
- ☐ Beef / Chicken Stir Fry + rice / noodles (choose 1 of each)
  - *All stir fries made with veggies.*

Please choose either **a hot or cold** dessert

Soup	<input type="checkbox"/> Chunky Veggie Soup <input type="checkbox"/> Chicken Noodle Soup <input type="checkbox"/> Bacon Hoc Soup <input type="checkbox"/> Chicken + Veggie Soup <input type="checkbox"/> Pisupo soup (Corned Beef and tomato soup) <input type="checkbox"/> Boil Up	<input type="checkbox"/> Fresh bread <input type="checkbox"/> Toast <input type="checkbox"/> Māori Bread
Sandwich	<input type="checkbox"/> Egg + mayonnaise <input type="checkbox"/> Ham + cheese <input type="checkbox"/> Tomato + cheese <input type="checkbox"/> Tuna + tomato + lettuce <input type="checkbox"/> Pork rolls	<input type="checkbox"/> Garden salad <input type="checkbox"/> Daily salad
Hot / Fried	<input type="checkbox"/> Chicken stir fry <input type="checkbox"/> Beef stir fry <input type="checkbox"/> Vegetarian stir fry <input type="checkbox"/> Hāngi	<input type="checkbox"/> Rice <input type="checkbox"/> Noodles

Dessert	<input type="checkbox"/> Apple Pie + Custard <input type="checkbox"/> Steamed pudding <input type="checkbox"/> Panikeke <input type="checkbox"/> Fresh fruit	<input type="checkbox"/> Jelly and Ice-cream <input type="checkbox"/> Vanilla custard <input type="checkbox"/> Fruit + yoghurt
---------	---	--

## **Dinner**

Please choose **1 item from each column** for your:

- Soup
- Main (*all mains served with veggies*)

Please choose either a **hot or cold** dessert, a **drink** and a **snack**.

<b>Soup</b>	<input type="checkbox"/> Chunky Veggie Soup <input type="checkbox"/> Chicken Noodle Soup <input type="checkbox"/> Bacon Hoc Soup <input type="checkbox"/> Chicken + Veggie Soup <input type="checkbox"/> Corned Beef and tomato soup <input type="checkbox"/> Fish soup <input type="checkbox"/> Seafood chowder <input type="checkbox"/> Boil Up	<input type="checkbox"/> Fresh bread <input type="checkbox"/> Toast <input type="checkbox"/> Māori Bread
<b>Main</b>	<input type="checkbox"/> Boil Up + with/without doughboys <input type="checkbox"/> Fish of the day (fried/baked/steamed) <input type="checkbox"/> Chicken/Beef stir-fry <input type="checkbox"/> Roast chicken/pork/beef <input type="checkbox"/> Chicken/beef/lamb stew	<input type="checkbox"/> Rice <input type="checkbox"/> Taro <input type="checkbox"/> Noodles <input type="checkbox"/> Kumara <input type="checkbox"/> Potato

	<input type="checkbox"/> Chop Suey	AND  <input type="checkbox"/> Roast veggies  <input type="checkbox"/> Boiled veggies
<b>Dessert</b>	<input type="checkbox"/> Apple Pie + Custard  <input type="checkbox"/> Steamed pudding  <input type="checkbox"/> Panikeke  <input type="checkbox"/> Fresh fruit	<input type="checkbox"/> Jelly and Ice-cream  <input type="checkbox"/> Vanilla custard  <input type="checkbox"/> Fruit + yoghurt
<b>Drinks</b>	<input type="checkbox"/> Koko Samoa <input type="checkbox"/> Warm milk <input type="checkbox"/> Milo	
<b>Snacks</b>	<input type="checkbox"/> Banana / taro chips <input type="checkbox"/> Crackers <input type="checkbox"/> Fruit <input type="checkbox"/> Baked goods	

### **General**

Would you like snacks to be regularly offered in hospital?  <i>Why?</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No
Would you like cultural meals to be served on certain days of the week? <i>(e.g. on Sundays)</i>  <i>Why?</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No
What do you think about hospital food portions?  How can they be improved?	
What do you think about hospital food temperatures?  How can they be improved?	

## Appendix 7: Demographic and Visual Scale-Categories

\*~~Strikethrough~~: Collapsed categories

<b>Appendix 7: Demographic and Visual Scale Categories used for data processing</b>		
<b>Question</b>	<b>Group</b>	<b>Category</b>
†Ethnicity	Māori	1
	Chinese	2
	Pasifika	3
†Age	< 40	1
	>40	2
†Gender	Male	1
	Female	2
†Hospital	ACH	1
	MH	2
	NSH	3
	WH	4
†Length of Stay	>1 day	1
	1 – 3 days	2
	4 – 7 days	3
	>7 days	4
Time between hospital stay and survey completion	< 1 month	1
	1 – 3 months	2
	4 – 6 months	3
	7 – 9 months	4
	10 – 12 months	5
(6)	Not very important	0
How important to eat foods that you enjoy?	<del>Slightly important</del>	<del>1 – 25</del>
	Important	26 – 50
	Fairly important	51 – 75
	Very important	76 – 100

(8)	Completely traditional	<20
Traditional or Western diet?	Mostly traditional, slightly western	20 – 40
	Equally traditional - western	40 – 60
	Mostly western, slightly traditional	60 – 80
	Completely western	80 – 100
(11)	Not very important	0
How important to have traditional foods when sick?	Slightly important	1 – 25
	Important	26 – 50
	Fairly important	51 – 75
	Very important	76 – 100
(18) Main source of meals in hospital?	All hospital meals	1
	Most hospital meals (skip 1)	2
	Some hospital meals (skip 2)	3
	No hospital meals	4
	Family / friend-supplied meals	5
	Takeaways / bought-food	6
(19)	All	1
How much of each hospital meal did you usually eat?	$\geq \frac{1}{2}$	2
	$\frac{1}{2}$	3
	$< \frac{1}{2}$	4
	None	5
(20)	No appetite	1
Why?	Scans / tests / procedures during meal times	2
	NBM	3
	Food different to home	4
	Received homemade meals	5
	Too sick to eat	6
	Other (specify)	7
		8

(22)	Not at all	1
How much did you enjoy hospital food?	Less than OK	2
	OK	3
	Slightly more than OK	4
	Very much	5
(23)	Breakfast	1
Most enjoyed meal?	Lunch	2
	Dinner	3
	Snacks	4
(25)	Breakfast	1
Least enjoyed meal?	Lunch	2
	Dinner	3
	Snacks	4
(27)	Limited options	1
Enjoy the hospital menu options?	<del>Less than enough options</del>	2
	Enough options	3
	More than enough options	4
	<del>Too many emotions</del>	5
(28)	Too small	1
Meal portions were....	Too large	2
	Inconsistent	3
	Just right	4
(29)	Acceptable	1
Meal timing was ...	Well-timed	2
	Too early	3
	Too late	4
	Too close together	5
	Too far apart	6
	Inconsistent timing	7
(30)	Yes	1
	No	2

Was the hospital food culturally appropriate?		
<sup>†</sup> <i>Demographic questions</i> <i>ACH: Auckland City Hospital</i> <i>MH: Middlemore Hospital</i> <i>NSH: North Shore Hospital</i> <i>WH: Waitakere Hospital</i> <del>Strikethrough</del> : <i>Collapsed categories</i>		

## Appendix 8: Food Categories

### Initial food and drink categories

Group	Examples
Cereal grains	Rice, oats, grains, congee, crackers, porridge
Bread	White/wholemeal/whole grain bread, buns, fried bread, Māori bread, crumpets, sandwiches, burgers, rewena bread
Noodles / Pasta	Noodles, rice noodles, pasta, lasagne, fettucine
Pastry / Dough	Wontons, dumplings,
Fruit	Apples, bananas, oranges, mandarins, mango
Vegetables	Kumara, taro, green banana, capsicum, green leafy vegetables, puha, mashed potatoes, avocado
SSCC*	Chicken soup, cabbage soup, supo povi/pisupo soup, beef stew, chicken casserole, Thai curry, Indian curry, butter chicken, boil-up, corned beef stew,
Stir-fry	Chicken, beef, tofu, vegetarian stir-fries
Seafood	Fish, kinnas, paua, mussels, oysters, prawns
Red Meat	Beef, steak, lamb, bacon, pork, pork rinds, lu sipi, pisupo
Poultry + Products	Roast chicken, scrambled, fried, poached eggs
Dessert / Sweets	Cakes, muffins, donuts, ice-cream, jelly, heavy desserts, lollies, bakery foods, custard, panikeke
Other	International cuisines, general fast-food including KFC, Subway, McDonalds, Wendy's, pizza, fish and chips, packaged chips, deep-fried meals  Broad foods listed as oily, bitter, strong, spicy food.  Creamy foods
Drinks	



Herbal	Green, lemon and honey, mint, ginger tea
Caffeinated / Hot	Tea, coffee, milo, hot chocolate, Koko Samoa
Juice	Apple, fruit, tropical, orange juice, otaí
Fizzy	Soft drinks, Coke, Fanta, Sprite, Lemonade, L n' P
Water	Tap, bottled, barley water, sparkling water, flavoured water
Other	Smoothies, slushies, thick shakes, milk

### Main food categories used for general and cultural food suggestions

Group	Sub-group	Examples
Cereal & Grains	-	<i>Cereal, rice, other grains</i>
Breads	-	<i>Breads, noodles, pasta, pastry, dough</i>
Meats	<ul style="list-style-type: none"> <li>• Red meat</li> <li>• Poultry &amp; eggs</li> <li>• Seafood</li> </ul>	<i>Roast, hāngi, beef, lamb, pork, pisupo</i>
Soups	-	<i>Boil-up, chicken soup/broth, cabbage soup, pisupo soup</i>
Vegetables	<ul style="list-style-type: none"> <li>• Starchy</li> <li>• Non-starchy</li> </ul>	Taro, kumara, yam, potato, breadfruit Pumpkin, puha,
Fruit	-	Bananas, oranges, mandarins

*\*SSCC: Soups, stews, casseroles, curries*

*-No subgroup used*

Māori cultural food examples: Māori bread, rewena bread, puha. hāngi, boil-up, kinnas, pauas

Pacific cultural food examples: Taro, kumara, cabbage soup, supo povi/ pisupo soup, lu sipi, panikeke, otaí

Chinese cultural foods examples: Congee, wontons, dumplings, chicken soup

# Appendix 9: Coding Matrix Excerpt (one per ethnicity)

## 9a: Māori Coding

Initial Themes	Initial Categories (Form initial themes)
Menu	HFS Drinks Menu Boredom Menu boredom Menu misunderstanding Menu ordering flexibility Menu ordering Words used 3 lunch options offered
Hunger	Lack of snacks increase risk of hunger Common in hospital Pts still hungry following a meal Influences meal consumption
Hospital Food Service	Inconsistent food quality Overcooked food Lack of special diet code / special diet availability Food Production ( <i>Cooking Methods</i> ) Meal Delivery Times Food transportation methods Lack of basic cooking skills ( <i>e.g. porridge</i> ) Differing menus across different hospitals Location (ward) specific menus Lack of variety Lack of snacks Ordering method Catering Associate (CA) lack of communication CA Role Staff training and skills Budget influences menu quality Meat quality Lack of appropriate food support Lack of staff / understaffed
Hospital Food Qualities	Hit and Miss Variability in quality of food received Portions: <ul style="list-style-type: none"> <li>• Smaller than normal</li> <li>• Different size standards across cultures</li> <li>• Small dessert portions</li> </ul>

## 9b: Pacific Coding

Initial Themes	Initial Categories (Form initial themes)
Menu	Menu fatigue Menu boredom Menu misunderstanding Menu miscommunication Menu processors miscommunication Lack of choice
Hunger	As a strong decision-making factor  Increased reliance on family meals  Automatic response to reach for leftover food <i>[despite satiety]</i>  Pts still hungry following a meal
Hospital Food Service	Incorrect meals sent to PI patients  Food supply shortage / inaccurate forecasting  Lack of appropriate food heating and delivery systems in hospital  Lack of variety  Lack of choice / autonomy  Lack of flavour <i>[influences plate waste]</i>  Food production & presentation: <i>sloppy / careless</i>  Lack of fresh produce / onsite production  Pre-packaged food use
Hospital Food Qualities	Portions <ul style="list-style-type: none"> <li>• Different size standards across cultures</li> <li>• Offer soups in breakfast sized bowls</li> <li>• "Prison-tray" portioning</li> <li>• Serving trays deceptively large</li> <li>• Influence emotional state of pt</li> </ul> Food Temperature <i>[warm / cold]</i>

## 9c: Chinese Coding

Initial Themes	Initial Categories (Form initial themes)
Menu	Menu / menu boredom Influencers of menu boredom (LOS) Menu repetition Lack of food variety Lack of choice / autonomy Inappropriate ordering times Menu misunderstanding
Hunger	Hunger Lack of satiety Fear of hunger
Hospital Food Service	Lack of interest in food / food service Lack of consistency in F/S Poor standards Food expectations not met Food Production Methods ( <i>changing</i> ) - effect on food Food Production: centralised cooking Food production logistics: <i>of traditional food</i> Lack of appropriate food heating and delivery systems in hospital Alternative food access Catering for the masses Difficulty in providing certain foods in hospital setting Lack of availability Logistics of providing cultural foods
Hospital Food Qualities	Portions - <i>too small</i> Standard food offered only Poor food quality Food flavours Food temperature ( <i>cold</i> ) Food texture Meal timing
Hospital Food Specifics	Breakfast foods: <ul style="list-style-type: none"> <li>• <i>Dry: muesli, cereal, not enjoyed</i></li> <li>• <i>Toast: Cold, dry, unappetizing</i></li> </ul> Eggs <ul style="list-style-type: none"> <li>• Enjoyed</li> </ul> Soups: <ul style="list-style-type: none"> <li>• Creamier (Western)</li> </ul>