FOOD FOR THOUGHT:

THE HEALTH OF PACIFIC ISLANDS

YOUNG PEOPLE IN NEW ZEALAND

An Analysis Of The Dietary And Lifestyle
Behaviours Of Pacific Islands Adolescents,
And The Potential Long-Term Effects Of These
Behaviours Upon Health

A thesis
submitted in partial fulfilment
of the requirements for the Degree
of
Master of Arts in Pacific Studies
by
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UNIVERSITY OF
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This thesis is dedicated to my mother Kay.
# ABBREVIATIONS

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<td>ALAC</td>
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<td>APHRU</td>
<td>Alcohol and Public Health Advisory Unit</td>
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<tr>
<td>BMI</td>
<td>Body Mass Index</td>
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<td>CHD</td>
<td>Coronary Heart Disease</td>
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<td>CHE</td>
<td>Crown Health Enterprises</td>
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<td>CPH</td>
<td>Crown Public Health</td>
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<tr>
<td>ERO</td>
<td>Education Review Office</td>
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<tr>
<td>HRC</td>
<td>Health Research Council of New Zealand</td>
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<tr>
<td>MinPac</td>
<td>Ministry of Pacific Island Affairs</td>
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<tr>
<td>MOH</td>
<td>Ministry of Health</td>
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<tr>
<td>MYA</td>
<td>Ministry of Youth Affairs</td>
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<td>NCD</td>
<td>Non-communicable Disease</td>
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<td>NIDDM</td>
<td>Non-insulin Dependant Diabetes Mellitus</td>
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<td>NHC</td>
<td>National Health Committee</td>
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<td>NZDep96</td>
<td>New Zealand Index of Deprivation Scale, 1996</td>
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<td>NZPA</td>
<td>New Zealand Press Association</td>
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<tr>
<td>PHC</td>
<td>Public Health Commission</td>
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<td>RDA</td>
<td>Recommended Daily Allowance</td>
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<td>RDI</td>
<td>Recommended Dietary Intake</td>
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<td>StatsNZ</td>
<td>Statistics New Zealand</td>
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<tr>
<td>W/H Ratio</td>
<td>Waist to Hip Ratio</td>
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<td>WHO</td>
<td>World Health Organisation</td>
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ABSTRACT

The aim of this thesis is to provide an overview of the health of Pacific Islands young people in New Zealand, with a particular emphasis on the effects of their dietary and lifestyle behaviours upon long-term health. This research is based on the observation that non-communicable, or life-style, diseases are the leading causes of morbidity and mortality for Pacific Islands people in New Zealand, that these diseases are invariably attributable to dietary and lifestyle habits, and that these habits become instilled during the adolescent period.

Three main methods were undertaken to achieve this aim. The first constituted a review of literature concerning the health of Pacific Islands people in New Zealand, including a discussion of what health means to Pacific Islands people, along with the main health issues that this population encounters. The importance of food to Pacific Islands people is also considered in this review, along with the influence of diet on Pacific Islands people’s disease patterns. Existing studies concerning the dietary habits of Pacific Islands youth are also detailed. The second stage of the research involved conducting research into the health of Pacific Islands young people in Christchurch, based in part on the methodology and findings of these previous studies. As the thesis will show, while Christchurch has the fourth largest Pacific Islands population in New Zealand, this population is considerably smaller than those in other main centres. This means that Pacific Islands people have less health resources and services available to them.

This research revealed that Pacific Islands young people in Christchurch, and in New Zealand in general, consume a diet that is high in fat and low in other nutrients. Research into the health of Pacific Islands young people is deemed necessary to help to counter the high incidence of lifestyle related diseases in the adult population. Further, by identifying potential health outlooks for the future generation of Pacific Islands adults, research in Christchurch will be useful in ensuring that services and resources to meet Pacific Islands people’s specific health needs.
CHAPTER 1

Introduction and Plan

This thesis examines the health of Pacific Islands young people in New Zealand, with particular reference to their diet and lifestyle behaviours. The 1996 Census of Population and Dwellings revealed that 3681546 people lived in New Zealand, and that 202236, or 5.49% of these people were of Pacific Islands descent (StatsNZ, 1997, 13). The Ministry of Health (1997a, 8; 1998a, 3) has determined that Pacific Islands people in New Zealand have poor health status; and Eleanor Morris (1993, 3) notes that many of the behaviours that become entrenched during adolescence have a long-term influence upon health. The health issues most commonly associated with Pacific Islands people in New Zealand include heart disease, non insulin dependant diabetes mellitus, high blood pressure, and strokes. These health conditions are known as 'lifestyle diseases' because they are almost always attributable to dietary and lifestyle behaviours, such as the consumption of foods high in fat and sodium but low in other nutrients; smoking, alcohol consumption and a sedentary lifestyle (Tiffany, 1992, 24).

This thesis contends that Pacific Islands people in New Zealand have a less nutritious diet than other New Zealanders, that their lifestyle includes a higher proportion of health damaging behaviours, and that these factors are largely accountable for the poor health status of Pacific Islands people in New Zealand. Furthermore, the behaviours affecting the health of Pacific Islands people are adopted during the period of adolescence. Therefore, in order to combat the incidence of non-communicable diseases in Pacific Islands people it is necessary to consider the dietary and lifestyle behaviours of Pacific Islands young people, along with ways of establishing healthy behavioural patterns during the period of youth.

The aim of Chapter One is to provide an overview of the research presented in this thesis. The Pacific Islands population in New Zealand is comprised of a range of people from different Pacific Islands countries, each with their own language, customs, and cultural identity. Therefore before the goals of the thesis can be attained it is necessary to define the parameters of the population included in this research. Following a definition of some key terms, the chapter provides an overview of the objectives of this research; an outline of the thesis contents; and a description of the reasons why research such as this is valid in the current New Zealand context.
1.1 Identifying the Research Population

This thesis will both provide an impression of the current health picture of Pacific Islands people in New Zealand, and consider the health of Pacific Islands young people specifically. Each of these terms in used to describe the members of a particular group within the New Zealand population, however both are somewhat difficult to define. Therefore this section of Chapter One will outline the terminology used to describe the population groups involved in this research.

1.1.1 Adolescents, Young People, and Youth

Neither the terminology used to describe the period between childhood and adulthood, nor the age parameters attributed to this period, are strictly defined. Adolescence, as determined by the WHO (1980) is the term given to the period between ten and nineteen years of age. However, some materials consider ten to fourteen year olds to be children, while in others they will be termed adolescents. Adolescence is also used to describe people within the period of physiological development which begins with the onset of puberty and ends when physical maturation is complete (MOH, 1998b, 3). In addition, it describes a psychological period of development, where individuals attain the ability to perform certain tasks (Maskill, 1991, 1; Sporle, 1993, 6). Behavioural tasks that are accomplished during the period of adolescence include: establishing an adult identity; developing adult friendships and relationships; leaving home and becoming independent from parents; completing and/or furthering education; and obtaining paid employment (Maskill, 1991, 1). Because physiological and psychological development may begin and/or end before the chronological ages attributed to the term adolescence, the definition of this term is considered problematic (Sporle, 1993, 6).

In 1985, the International Youth Year, youth were defined as people aged fifteen to twenty-four years (WHO, 1985, in Sporle, 1993, 5). In 1986 a third term, young people, was instigated to describe all people between the ages of ten and twenty-five, and thus encompassing all members of the groups adolescents and youth (Sporle, 1993, 6). This was to be a purely chronological term, allowing for physical, psychological and cultural differences. While useful in some ways, the wide range of developmental stages it incorporates means that it is ineffective in others. For example, while ten to twenty-four year olds are all likely to start making their own choices about which foods to eat and when, a ten year old is unlikely to be responsible for providing and preparing food, whereas someone in their twenties typically would. Once again, the parameters attributed to this term vary between reference materials with some using the ages named above (10-24 years) and others considering young people to be fifteen to twenty-four year olds. The Ministry of Health
resources included in this research provide statistical information on 15-24 year olds under the terms young people and youth (MOH, 1997a; 1997b; 1998a; also Bathgate et al., 1994). Given the inherent discrepancies in the terms used to describe people in this period of life, it is generally accepted that all of the terms are relevant.

The participants of the research for this thesis were aged between thirteen and seventeen years, while those referred to in supporting references ranged from ten to twenty-five years of age. Thus in this thesis the terms adolescence, young people, and youth are used interchangeably to encompass all people aged from ten to twenty-four years, and as a way of avoiding repetition within the text.

1.1.2 Pacific Islands People

*Pacific Island Ethnic Group:* The term used by the Department of Statistics in reports of the 1991 Census of Population and Dwellings to cover "those persons who (at the time of the census) stated a Pacific Island ethnic groups as either their sole ethnic group, or as one of several ethnic groups" they belonged to (Bathgate et al., 1994, 209).

In this thesis the terms Pacific Islands and Pacific Islands people are used in an attempt to acknowledge the diversity of ethnic affiliations inherent among Pacific Islands people in New Zealand. Pilato et al., (1998, 26) note that the term Pacific Islands is commonly accepted as including all islands in the Pacific Ocean, collectively referred to as Melanesia, Micronesia and Polynesia. In line with the above definition, Bedford & Didham (2001, 21) define Pacific Islands people as "people who claim some ethnic affiliation with indigenous populations of the Pacific Islands". When people from all Pacific Islands countries are combined, Pacific Islands people comprise the third largest ethnic group within New Zealand. Pacific people, Islanders and Pacific Islanders are some other terms used in resource materials to refer to people belonging to Pacific Islands ethnic groups. 'Pacific people' has been rejected as a term because it diminishes the size of each respective country, and the terms 'Islanders' and 'Pacific Islanders' have negative connotations which date back to the time of the 1970s dawn raids (Anae, 1997, 129-130).

The use of the term Pacific Islands people has been criticised because people with Pacific Islands ethnicity in New Zealand are not a homogenous group, but in fact come from a number of different Pacific Islands countries, each with their own language, traditions and culture (Bathgate et al., 1994, 19; Anae, 1997, 129; Pilato et al., 1998, 26). Further, this term has been imposed upon Pacific Islands people in New Zealand, while Pacific Islands people identify primarily with their own ethnic group.
"The term Pacific Islands people has been used outside the islands themselves, mainly in New Zealand and Australia, to refer to people who have a Pacific Islands background" (MOH, 1997c, 11).

"Pacific Islanders" only exist in New Zealand: I am called a Pacific Islander when I arrive at Auckland airport. Elsewhere I am Samoan" (research participant, quoted in Anae, 1997, 128).

Anae (1997, 132) also notes that Pacific Islands people are identified by their country of birth, and that while government imposes the term Pacific Islands people, the NZ-born/Islands born label is a distinction that Pacific Islands people also make. Furthermore:

"NZ-born Samoans and other NZ-born Pacific Islanders may feel a greater commonality with one another than their island-born [sic] elders feel with those born in other islands – hence island-born elders resentment at being considered Pacific Islander may not be shared by their children who have gone to school and work with NZ-borns with other Pacific ancestries".

This quotation indicates that Pacific Islands people born outside of New Zealand are often uncomfortable being called a ‘Pacific Islander’ or ‘Pacific Islands person’; and that young Pacific Islands people born in New Zealand may feel more comfortable being categorised under this term, as it allows them to feel united with other Pacific Islands people within the New Zealand context, as well as with their Pacific Islands culture.

For the purposes of statistics, and other research, the grouping of Pacific Islands people and use of this term is acceptable because Pacific Islands people are a population group with characteristics distinct from other groups including Māori and New Zealand Europeans. These characteristics include social, economic and cultural variables, ethnic features (for example, the terms New Zealand-born and Islands-born are terms used with Pacific Islands people but not with Māori or European New Zealanders), and in terms of health. It is important to remember that the classifications Māori, Asian and European are not homogenous either, but refer to people with varying ethnic backgrounds (Bedford & Didham, 2001, 22).

The terminology used in this thesis matches that found in most reference materials, particularly more recent resources, including those issued by the Ministry of Health, the Ministry of Pacific Islands Affairs and the Public Health Commission. These references acknowledge that while an ethnic breakdown by countries is useful, the small numbers of people in each of these groups mean that studies of specific Pacific Islands populations rarely provide a significant amount of information. Thus by combining Pacific Islands statistical

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1 Anae (1997) refers to Pacific Islanders, whereas Pacific Islands people is the terminology selected for this research.
information, a much larger population group is recognised, and a array of useful information can be attained. Ane (1997, 129) concedes that Pacific Islands people do not object to being grouped under the term Pacific Islands people when it comes to health, as it has a positive outcome for Pacific Islands people in terms of the funding and resources that the larger group will be provided. The research presented in this thesis adheres to this principle, and so unless a study refers to a specific Pacific Islands population, all will be referred to as Pacific Islands people.

1.1.3 Pacific Islands Young People

Based on the terms defined above, the people considered in this research are primarily New Zealanders aged between ten and twenty-four years of age, who have Pacific Islands ethnicity. Sporle (1993, 6) notes that applying terms such as adolescence to Māori and Pacific Islands young people in New Zealand is difficult, as these cultures do not recognise the period between childhood and adulthood as a distinct stage. Baker (1986, 154) concurs, stating that in traditional Samoa there were only three stages of life: infancy, childhood, and adulthood. During childhood people were prepared to become adults by learning the skills and tasks that they would be required to perform as adults; and adulthood began when the child started to undertake these tasks within their community, and take on an adult role. This usually happened at around thirteen years of age (ibid, 154):

"Traditionally youngsters of 13 and older are considered part of the labor [sic] force and begin the process of practicing and perfecting the sex-specific household, subsistence, and ritual skills of adults in traditional society" (Baker, 1986, 154).

Therefore Samoans, and potentially many other Pacific Islands groups, "regard young men and women as adults from the time of adolescence" (Baker, 1986, 156).

In the New Zealand context Pacific Islands children are typically raised like other New Zealand young people, whereby the period of childhood corresponds with primary school, and high school students are termed adolescents. Thirteen to seventeen year olds, including those of Pacific Islands descent are expected to attend school and usually do not take on adult roles. This thesis will show that the behaviours of Pacific Islands teens during this period match those of other New Zealand teens, and thus the term ‘adolescence’ can in fact be attributed to Pacific Islands young people in this age period. Further, Pacific Islands adolescents have distinctive health behaviours and problems which are different from those of both Pacific Islands children and adults.

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2 With Māori this would refer to the iwi affiliation
3 For example, several works cited in this thesis refer to Samoans, as the studies dealt only with Samoan participants (Fuamatu et al., 1996; Ane, 1997; and studies involving C. Bell and associates).
Therefore, despite the possible cultural inadequacy of the terms adolescents and young people, for the research purposes Pacific Islands young people in New Zealand can be held as a distinct population group, and thus they are a viable population for research.

1.1.4 Palagi
Pronounced pa-langi, this term is a derivative of the Samoan word papalangi. It is now widely used by Pacific Islands New Zealanders to refer to Europeans. In this thesis New Zealanders of European descent are at times referred to as Europeans/Palagi.

1.2 Identifying the Research Objectives
By establishing that Pacific Islands young people comprise a significant population within New Zealand, it is then possible to determine different features of this population in the New Zealand context. This thesis deals specifically with Pacific Islands young people’s health. The principal aim of this thesis is to provide a comprehensive overview of the health of Pacific Islands young people in New Zealand, with particular reference to their diet and lifestyle behaviours.

The Ministry of Health (1997a, 23) has acknowledged that: “[s]ignificant adult obesity appears earlier in those [Pacific Islands] people who grow up in New Zealand”. Further: “[t]here are few dietary data available specifically on Pacific Islands youth in New Zealand” (Vainikolo et al., 1993, 6). Nite Fuamatu, who conducted research into the diets of Samoan young people in Auckland, supports this finding, adding that there “is no literature about the lifestyle and dietary intake of young Samoans in New Zealand” (Fuamatu, 1997, 6). Thus one of the primary aims of this thesis is to consider all existing materials dealing with Pacific Islands youth health, with particular reference to those studies dealing specifically with diet and lifestyle behaviours; and following this background study, to attempt to fill a gap in the existing literature, as identified by Fuamatu above.

A related aim is based on the assertion that “food is the meaning of all things” (Kahn & Sexton, 1998, 6) for Pacific Islands people. This research aims to show that despite being raised in New Zealand, Pacific Islands young people attribute a special significance to food. Thus the thesis will show that the cultural significance of food contributes to rates of obesity and lifestyle-related diseases in the Pacific Islands population in New Zealand.

Based on the review of existing studies into the health of Pacific Islands young people in New Zealand, a study into the health of Pacific Islands young people in Christchurch was carried out. The intent of this study was to consider the health-related behaviours of Christchurch
Pacific Islands young people specifically, as well as to provide supporting evidence to prior claims that Pacific Islands adolescents follow unhealthy diet and lifestyle behaviours which may have long-term consequences for their health (Bell et al., 1995, 125; Bell & Parnell, 1996, 435; Fuamatu, 1997, 6). Such research is interesting because while Pacific Islands young people have recognised nutrition as a health issue significant to them (Gray, 1994, 30), and non-communicable diseases are the most prevalent causes of morbidity and mortality for Pacific Islands people in New Zealand (Bathgate et al., 1994, 108; MOH, 1997a, 23; MinPac, 1999, 30), mainstream health providers have not yet acknowledged that the nutrition is a significant health issue for Pacific Islands youth. This research contends that a poor quality diet during adolescence will lead to poor long-term health among Pacific Islands adults, and is therefore a significant area for research.

Fuamatu (1997, 6) also states that: "[t]here is a need to monitor the dietary intake of Samoan teenagers to address ensuing health problems such as diabetes and high blood pressure already prevalent in the older population". The information presented in this thesis is also intended to be useful for this purpose, that is, for assessing and, if required, monitoring the dietary intake of Pacific Islands young people in New Zealand – in this case, in Christchurch.

After documenting the results of this research project, an additional aim of this thesis was to consider ways in which non-communicable diseases can potentially be reduced among the members of the Pacific Islands adult population by changing the negative health behaviours of Pacific Islands youth.

1.3 Thesis Outline: A Description of the Progression By Chapters
As previously stated, the aim of this thesis is to provide an overview of the health of Pacific Islands young people in New Zealand, concentrating on their dietary and lifestyle behaviours and the influence that these will have upon long-term health. In order to achieve this aim the Pacific Islands population of New Zealand must be considered, and a picture of the health of Pacific Islands people in the New Zealand context provided. As the thesis looks at health issues related to dietary and lifestyle behaviours, an overview of those behaviours typical of Pacific Islands people is also necessary, along with the features of the current eating habits of Pacific Islands youth. All of this information provides a basis on which research into the health of Pacific Islands young people in New Zealand, such as that undertaken for this thesis, can be conducted.

Chapter One has identified the key objectives of this research, provided a definition of the research population, and validated the need for research into the health of Pacific Islands
young people in New Zealand. Chapter Two complements section 1.1.2 of this chapter by looking at the composition of the Pacific Islands population in New Zealand. An ethnic breakdown of this population is provided, along with an outline of its age and geographical distribution. In the second section of this chapter socio-economic variables identified as commonly associated with Pacific Islands people are documented. As the following chapter will show, such variables have a direct bearing upon health.

Because the definitive aim of this thesis is to research 'health', the concept of health must first be explained. As Chapter Three will show, this is not an easy task because health means "different things to different people" (Senior & Viveash, 1998, 3). The chapter details both Western and Pacific Islands models of health, and explores the implications of these two outlooks on the health of Pacific Islands people in New Zealand. The Ministry of Health (1997a, 8; 1998a, 3) has determined that Pacific Islands people in New Zealand have a 'poor health status' in comparison to the population in general. Factors contributing to the health of Pacific Islands people in New Zealand include levels of income and employment, standards of housing, and social and cultural variables. The socio-economic status of Pacific Islands people, and ways in which each of these variables feature in the Pacific Islands lifestyle, was described in Chapter Two. Chapter Three looks at the ways in which these variables affect their health. Finally, Chapter Three briefly describes the age-specific health conditions attributed to groups of Pacific Islands people throughout the lifespan.

As shown in the final section of Chapter Three, Pacific Islands people have higher rates of infectious as well as non-communicable diseases than the New Zealand population in general. Health issues common among Pacific Islands people include asthma, meningococcal meningitis, type II diabetes, coronary heart disease, hypertension, high blood pressure, and gout. This chapter detailed the health concerns specific to different groups within the Pacific Islands population. Chapter Four acknowledges that the majority of the health concerns associated with Pacific Islands adults, and thus their leading causes of death, can be directly attributed to poor dietary habits. Thus the chapter considers the features of the Pacific Islands diet. The chapter maps the progression of Pacific Islands people's dietary and lifestyle habits from the pre-contact era until the modern day. As Odom (1998, 383) notes:

"[t]he traditional...diet of fresh, wholesome, minimally processed complex carbohydrates, vegetables, fruits and lean animal meats has largely been replaced by a diet high in kilocalories, fats, sodium, processed foods and chemicals. An active daily lifestyle, which included fishing, hunting, farming, water sports and much more, has been replaced by a sedentary lifestyle".
The chapter shows how the processes of Westernisation and modernisation have had an immense influence on the food choices of Pacific Islands people; as well as the enormity of the link between culture and food. Pacific Islands people living in a Western context (either in Pacific Islands urban centres, or in countries such as New Zealand, Australia and Hawai‘i) have been more exposed to a poor quality diet. The features of the diet of Pacific Islands people in New Zealand are documented in this chapter based on the findings of existing studies, and New Zealand dietary recommendations and guidelines. The influences of lifestyle factors including physical activity, smoking, and alcohol consumption are also considered, along with factors affecting the foods that Pacific Islands people choose. Finally in Chapter Four, those health problems introduced in Chapter Three which are specifically related to the dietary and lifestyle choices of Pacific Islands people in New Zealand are reiterated and discussed in detail.

Chapter Five considers specifically the health of Pacific Islands adolescents in the New Zealand context. Included in this chapter is an overview of health issues pertaining to Pacific Islands young people (aged approximately ten to twenty-five), and a description of prior studies into the diet and nutrition of Pacific Islands young people in New Zealand. This Chapter is significant to this thesis as it provides a platform on which the research can be based; and also because it highlights the fact that there is a lack of literature and existing studies dealing with the topic of Pacific Islands young people’s health. Those studies which are presented in this chapter, in particular that of Fuamatu et al. (1996) will be referred to for information and comparison throughout Chapters Six and Seven of this thesis.

The research for this thesis took the format of a self-administered questionnaire, which was completed by students at two Christchurch High Schools. The questionnaire, entitled Adolescent Health and Well-being Survey, asked the students about their diet; their knowledge of nutrition-related health conditions; their exercise and leisure activities; use of cigarettes, alcohol and other drugs; and about help-seeking behaviours; as well as gathering a number of personal details including the participant’s age and ethnic background. The processes undertaken in formulating and conducting this research, along with the results of the Adolescent Health and Well-being Survey are documented in Chapter Six.

Chapter Seven discusses the results of the research, and compares these results with the findings of previous studies (in particular those detailed in Chapter Five), as well as placing them within the overall New Zealand context. The possible implications of these finding for the long-term health of Pacific Islands young people are re-iterated. As well as offering suggested ways in which the diet of Pacific Islands people could be improved, the chapter
explores potential avenues for promoting health to Pacific Islands young people and their families.

Chapter Eight provides a review of the thesis findings, and presents a conclusion to this research.

1.4 Pacific Islands Youth Health As Significant Research

As stated above, Pacific Islands people have poor health status, and Pacific Islands young people consume a diet which is high in fat and low in nutrient quality. Fuamatu has voiced a need for research into the health of Pacific Islands young people, implying that research such as this is valid. Furthermore, she contends that the “future health of Samoan people in New Zealand is dependant on the health status of young Samoans” (Fuamatu, 1997, 10). There are in fact a plethora of reasons why research into the health of Pacific Islands young people is necessary. The final task of Chapter One is to justify the need for research into the health of Pacific Islands adolescents, and into their dietary and lifestyle behaviours in particular. In this section several key questions regarding the validity of this research will be proposed, and then answered.

Why Research the Health of Young People?

The Department of Health (1991, 9) conceded that “popular belief holds that adolescents are a relatively health population”. However, various studies conducted in New Zealand have indicated that young people have health issues separate to those of both children and adults, and their own specific health needs (Morris, 1985; Maskill, 1991; Gray, 1994). Furthermore, “adolescence is a time when health habits and coping behaviours are learned, and young people begin to take responsibility for their health” (Rickwood, 1995, 685). Thus youth health research is valid.

The period between adolescence and childhood has been recognised as significant because during this time an individual develops both mentally and physically, and, in fact, changes from a child into an adult (Sporle, 1993, 12). Adolescents characteristically strive to assert their independence, and gain autonomy within their world. Autonomy is initially assumed when the adolescent begins making independent decisions about things such as which activities to participate in, which foods to eat and when they will eat them, and where to go for health information and services (Morris, 1985, 92; Maskill, 1991, 1). However, behaviours adopted during adolescence have a variety of consequences for health. Where some behaviours may enhance health (such as participating in regular physical activity),
others (such as taking up smoking) will be detrimental (Maskill, 1991, 3). Edwards & Chapman (2000, 206) state that:

"Behaviours that can lead to health problems in the long-term, such as adopting a high fat diet or taking up smoking, often begin during adolescence and may become firmly entrenched into adulthood. Short-term decisions made during adolescence, such as getting in a car with a drunk driver, can also have a significant impact on a person’s subsequent development and affect the choices available to them in the future”.

Finally, by developing an awareness of youth health issues, it is possible to implement health promotion programmes to improve a population’s long-term health prospects. Thus youth health research is justified because: “health promotion is particularly important in adolescence because healthy behaviour established at this stage affects the health of individuals later in life, as well as the health of future generations (Maskill, 1991, 26).

Given that all of the health issues mentioned earlier in this chapter occur during the adult period, why does the thesis deal with the diet of Pacific Islands youth?

“Because atherosclerosis begins on childhood or adolescence (Strong, 1983) and eventually causes more than half of all deaths (Kaplan & Stamler, 1983), there is a growing consensus that promoting heart healthy dietary and physical activity patterns in children and adolescents is essential...” (Sallis, 1993, 212).

While the Ministry of Health and similar agencies acknowledge that the health issues most often affecting Pacific Islands people in New Zealand are lifestyle-related non-communicable diseases, they have not determined nutrition to be a youth health issue, despite the fact that behaviours associated with non-communicable diseases including coronary heart disease and diabetes become established during the adolescent period, and these diseases often begin around this time.

This research is largely based on the premise that:

“a person cannot be termed truly healthy unless his or her health-related behaviours, including diet and physical activity, are consistent with a low risk of the major causes of morbidity and mortality. Thus, with the choices they make concerning their dietary and physical activity behaviours, adolescents are laying the foundation for their health over a lifetime” (Matarazzo, 1980, cited in Sallis, 1993, 212).

This quotation addresses two key themes integral to this thesis. Firstly, poor dietary choices and lifestyle behaviours have a bearing on health. For example, a poor diet is directly related

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4 Artherosclerosis is the accumulation of lipids and other materials in the arteries (Whitney & Rolfes, 1999, 563)
to those non-communicable diseases listed above. As this thesis will show such diseases are among the leading causes of morbidity and mortality for Pacific Islands people in New Zealand. Therefore, the research for this thesis is based on the assumption that poor diet and lifestyle behaviours are having a negative affect of Pacific Islands people's health. Secondly, although these health concerns are mainly associated with adults, the behaviours which cause them are adopted and become established during the adolescent period. "[d]ietary habits and food preferences which affect energy consumption and nutrient intake, are generally developed over a period of time and particularly during adolescence" (MOH, 1998b, 2).

Edwards & Chapman (2000, 206) claim that "...lifestyle and behaviour and choices made during this period can have serious implications for future health". Morris (1993, 3) asserts that "during teenage years many behaviour patterns which may remain throughout adulthood are developed". These include behaviours related to nutrition and the selection of foods (Sallis, 1993, 212). Therefore, because dietary and lifestyle behaviours are established during adolescence, researching dietary and lifestyle behaviours (including smoking, alcohol and drug use, and exercise) is relevant. An understanding of these behaviours in young people may allow for better health opportunities to be provided.

Is the Health of Pacific Islands Young People Unique, Justifying Separate Research?

"The Pacific population in New Zealand has a very youthful age structure due to recent immigration history and high fertility rates. These young people constitute an important national resource. A major challenge for the Government is to build and foster favourable environments for the well being and growth of youth" (MOH, 1997a, 33).

Because the Pacific Islands population in New Zealand is youthful, the number of Pacific Islands adults in New Zealand is set to increase. If current disease patterns continue, it is to be expected that a much higher proportion of Pacific Islands people in the New Zealand population will suffer from a lifestyle-related disease. Thus the current dietary and lifestyle behaviours of Pacific Islands young people are likely to diminish both the quality and the length of their lives. As Fuamatu (1997, 6) has stated, there is a need for research into the health of Pacific Islands young people. This research acknowledges and attempts to address this need.

Fuamatu (1997, 9) also notes that Pacific Islands youth are unique in that Pacific Islands people attribute a special significance to food. "Food represents a vehicle for teaching traditions and aspects of Fa’a Samoa, and recognises kin and social relations" (ibid, 9). This
thesis will show that the reasons contributing to Pacific Islands food choices, even the choice of poor quality foods such as takeaways, are determined by Pacific Islands cultural standards. Therefore research into Pacific Islands young people must bear in mind the cultural significance that Pacific Islands people attribute to food. Research and resources that do not acknowledge this significance will likely be inappropriate, and/or unable to benefit the health of Pacific Islands young people.

Pacific Islands people in New Zealand have consistently higher rates of non-communicable diseases than the population in general. Given the fact that the dietary and lifestyle habits which cause these diseases are adopted during childhood and adolescence, research which considers the health of Pacific Islands young people as separate from that of young New Zealanders in general is necessary. Such research enables behaviours which may be unique to this population, and which are likely to influence long-term health, to be recognised. This in turn allows for intervention and health promotion programmes to be implemented.

Caroline Maskill (1991, 26) writes that “health promotion is particularly important in adolescence because healthy behaviour established at this stage affects the health of individuals later in life, as well as the health of future generations”. Therefore by acknowledging that Pacific Islands young people consume an unhealthy diet, and the influence that this diet will have on the health of the adult population in the future, culturally appropriate steps can be instigated to protect the health of the Pacific Islands population in New Zealand. In showing dietary and lifestyle behaviours which are detrimental to health, and supporting the findings of similar research, this research can potentially be of assistance to people concerned with improving Pacific Islands people’s health.

*Studies such as this have been carried out in Auckland. Why is it necessary to research Pacific Islands young people in Christchurch?*

Given that the population in Christchurch is smaller than that of Auckland and Wellington, there have as yet been no studies which consider the specific health needs of Pacific Islands young people in this city. Further, the findings of Auckland studies cannot be automatically attributed to the Christchurch population because the environment is very different. For example, Pacific Islands people in Christchurch have less access to Pacific Islands foods, particularly at affordable prices. Furthermore, the small size of this population means that there are fewer health services which cater specifically to meet the health needs of Pacific Islands people.
Health is an important issue for Pacific Islands people in Christchurch, both because the already sizeable population is increasing, and because if Pacific Islands people in Christchurch have poor long-term health prospects then they will require health services and resources which may exist in other centres, but are not currently available in Christchurch. Research into the specific health needs of Pacific Islands people in Christchurch is justified, as it may allow for the provision of appropriate health resources and services for both adolescents and therefore the upcoming generation of adults.

1.5 Chapter Summary

Chapter One has provided an overview of the objectives of this research, and provided an outline of the path that the work presented here will take. As shown in this chapter the dietary and lifestyle behaviours of Pacific Islands people in New Zealand have an important influence on their health status. Furthermore, these behaviours become ingrained in adolescence. Thus if current patterns of illness are to be halted, it is necessary to look at the characteristics of the Pacific Islands population as a whole, along with what Pacific Islands young people are eating and why. This information will be presented in the remainder of this thesis.
CHAPTER 2

Population Profile: Pacific Islands People, Where, and How They Live

As stated in Chapter One, the aim of this thesis is to explore the health of Pacific Islands young people in Christchurch, and to judge from their health and lifestyle related behaviours, their predisposition to poor long-term health outcomes. In order to successfully study the health of the adolescent Pacific Islands population in Christchurch, it is necessary to first describe this population within the context of the New Zealand Pacific Islands population as a whole.

The term Pacific Islands people is used in various New Zealand resources to refer to all people who identify with one or more Pacific Islands ethnic groups (Bathgate et al., 1994, 19). This allows for a greater amount of statistical information as data is seldom collected on specific ethnic groups. However, in grouping all Pacific Islands people under one label, their ethnic and cultural diversity is potentially compromised. This chapter begins by providing an ethnic breakdown of the Pacific Islands population in New Zealand, as well as a description of their geographical and age distribution. The information presented is in part a summary of the Pacific Islands statistical information from the 1996 Census of Population and Dwellings, along with details from subsequent reports. The chapter will provide a more detailed picture of the Pacific Islands population in New Zealand to complement the use of more generalised terminology in the remainder of this thesis.

Directly related to both the characteristics of a population and its health status is the concept of socio-economic status. Socio-economic status is a complex issue, taking into account a wide range of factors such as income levels, employment, family structures, and health. Both socio-economic status and the New Zealand system of measuring deprivation are discussed in the latter section of Chapter Two. Along with Māori, Pacific Islands people in New Zealand are “over-represented at the bottom end of the socio-economic scale” (MinPac, 1999, 8). As socio-economic status is directly related to and reliant upon health status, the information given in the final section of this chapter is relevant in the wider context of this thesis. Therefore in Chapter Two the diversity of the Pacific Islands population in New Zealand will be explored, along with the characteristics of this population which have a direct bearing on the health status of Pacific Islands people living in the contemporary New Zealand environment.
2.1 Pacific Islands Population Profile

Pacific Islands people make up New Zealand’s third largest ethnic population group. The members of this population come from at least twenty different Polynesian, Micronesian and Melanesian cultures (MinPac, 1999, 5). The most recent complete profile of the Pacific Islands population in New Zealand can be taken from the 1996 Census of Population and Dwellings (StatsNZ, 1998). At the time of this Census there were 202,236 Pacific Islands people in New Zealand (ibid, 19). Fifty percent of the Pacific Islands population consists of Samoans, 22.5% are Cook Island Māori, 15.5% are Tongan, 9% are Nuiean, 2% are Fijian, and 1% are Tokelauan. Only these six largest groups are consistently recognised in research statistics. Figure 2.1 shows the ethnic distribution of the Pacific Islands population in New Zealand.

![Figure 2.1: Pacific Islands People’s Ethnic Groups in New Zealand](image)


Often grouped under the label ‘other Pacific Islanders’ people from countries such as Papua New Guinea, the Solomons Islands, Vanuatu and Kiribati make up the remaining one percent (Fakahau, 1998, 2; StatsNZ, 1998, 19; MinPac, 1999, 5).

Almost all of the Pacific Islands people living in New Zealand in 1996 were born either in New Zealand (41%) or in the Pacific Islands (58%). Different ethnic groups have different rates of birth in New Zealand. For example, only 47% of Fijians are born here as opposed to almost 70% of Cook Islanders (StatsNZ, 1998, 19). Pacific Islands people born outside of

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5 Fakahau only includes the statistics for the six largest Pacific Islands population groups.
New Zealand have a median age of 35.6 years, while those born in New Zealand have a median age of 11.4 years. 61% of Pacific Islands people born in the Pacific Islands have lived here for ten years or longer (ibid, 19).

The large numbers of Pacific Islands people with multiple ethnicity (those who are Pacific-European, Pacific-Māori, or identify with two or more Pacific ethnicities), along with the distinctions between those born in New Zealand and in the Pacific Islands contribute to the heterogeneity of the Pacific Islands population group (Bathgate et al., 1994, 19).

2.1.1 Population Growth
Recognised as one of New Zealand’s fastest growing population groups, the Pacific Islands population increased by fifty-five percent in the ten year period from 1986 to 1996, compared to a growth rate of just eleven percent for the New Zealand population as a whole (StatsNZ, 1998, 19). Although currently comprising just six percent of the New Zealand population, this rapid growth rate means that the Pacific Islands population is expected to make up twelve percent of the total population by the year 2051 (MinPac, 1999, 5). Several factors including migration, a youthful age structure, increased mortality, and changing ethnic identification account for Pacific Islands population growth.

Migration
Although ethnically diverse, Pacific Islands people share a common migration history. The four main reasons accounting for the migration of Pacific Islands people to New Zealand are employment, education, social factors, and access to specialised medical care. People from the Cook Islands, Nuie and Tokelau are considered New Zealand citizens and have free entry to this country (Krishnan et al., 1994, 16). Although migrations from other Pacific countries such as Tonga and Fiji are more heavily regulated, a quota system implemented in 1962 allows around 1000 Samoan immigrants into New Zealand each year (ibid, 17).

Following World War II New Zealand underwent a period of rapid economic growth. The high migration of Pacific Islands people to New Zealand during the 1960s and 1970s reflected the high demand for labourers during this time (Bathgate et al., 1994, 19; Krishnan et al., 1994, 14; MinPac, 1999, 7). Since the 1960s and 1970s migration has slowed, but continued due to the perceived economic benefits associated with New Zealand. Social factors (that is, the potential to reunite with family and friends) have become a significant cause of migration to New Zealand. Younger Pacific Islands people migrating to New Zealand are more likely to be enticed by educational opportunities.
Many Pacific Islands immigrants return to their home country after a short period of time, while others remain for a long period or permanently. Thus the total annual population increase due to net migration is a measure of the excess of Pacific Islands people arriving in New Zealand over those departing (Bathgate et al., 1994, 43; Krishnan et al., 1994, 28).

**Youthful Age Structure**

Since its peak in the 1950s migration has slowed, while the number of Pacific Islands people born in New Zealand has continued to grow (Krishnan et al., 1994, 15). In 1996 41% of all Pacific Islands people were born in New Zealand and 58% were born in Pacific Islands countries (StatsNZ, 1998, 20). Those born in the Pacific Islands tended to have lived in New Zealand for more than ten years, and had a median age of 35.6 years. In contrast, those born on New Zealand had a median age of 11.4 years (ibid, 20). In 1996 the median age for all Pacific Islands men was 19.46 years, while the median age for females was 21.32 years. The combined median age was 20.4 years, which is considerably less than the 32.3 year median age for the New Zealand population as a whole (ibid, 19). Figure 2.2 shows the age structure of the Pacific Islands and total population in New Zealand. Note that Pacific Islands people are over-represented between the ages of zero and nineteen, and under-represented in all of the older age categories.

**Figure 2.2**

Age-sex Pyramids for Pacific and Total New Zealand Populations, 1996 Census

*Source: Cook et al., 1999, 9.*
Although, like all New Zealanders, Pacific Islands people are ageing, one of the most defining characteristics of this population is its relative youth (PHC, 1994, 53; Fakahau, 1998, 2). As shown in Figure 2.2, over half of all Pacific Islands people in New Zealand are under twenty-five years of age, compared with 38% of the population as a whole. With a high proportion of Pacific Islands people found in the main reproductive age groups, birth rates are to Pacific Islands parents are high (Krishnan et al., 1994, 28; MinPac, 1999, 10). Combined with the high fertility of Pacific Islands females, the relative youth of the Pacific Islands population ensures continued population growth. (Bathgate et al., 1994, 43; Krishnan et al., 1994, 28).

**Increased Mortality**

A decrease in infectious diseases, and improved access to health services mean that Pacific Islands people are living longer. An excess of births over deaths in the resident population is therefore another factor accountable for Pacific Islands population growth.

**Ethnic Identification**

Ethnicity is a concept that is open to a variety of interpretations. In New Zealand not all Pacific Islands people would have been registered as such at the time of the 1996 Census of Population and Dwellings. There are a few reasons for this. Firstly, Pacific Islands people are increasingly producing children of mixed ethnicity. Where one parent is Pacific Islands and the other European the child fits the New Zealand government categorisation of Pacific Islands. However whether or not they are counted as Pacific Islands is subjective, and may depend, for example, upon the culture of the Pacific Islands parent, and whether ethnicity is measured through maternal or paternal lines. Similarly when the parents are from two different Pacific Islands backgrounds the paternity or maternity should dictate the child’s ethnicity. In the 1996 Census if one parent was New Zealand Māori and the second Pacific Islands then children were counted as Māori. When such children grow up and come to identify with a particular ethnic group, their 1996 ethnicity may change. Finally, the New Zealand Census is not currently open to measuring people of mixed ethnic identity, however this is how many Pacific Islands New Zealanders define themselves.

Changing ethnic identification, along with net migration, and natural increase due to high fertility rates, and increased mortality is a major factor contributing to the growth of the Pacific Islands population in New Zealand. The youthful age structure of the population means that high birth rates are expected to continue for several decades, and the Pacific Islands population is projected to double within fifty years. Going by these projected population increase rates the Pacific Islands population in New Zealand at present will
already be considerable larger than that measured in 1996. Another Census was conducted this year (2001).

2.1.2 Geographical Distribution
Figure 2.3 shows the geographical distribution of Pacific Islands people in New Zealand.

![Pacific Islands Population Distribution](image)


Ninety-seven percent of Pacific Islands people live in urban centres with a population of 30,000 people or more (StatsNZ, 1998, 19). The urban geographical settlement of Pacific Islands people is influenced by several factors. In the 1960s-1970s the industries employing Pacific Islands immigrants were largely concentrated in South Auckland and the Hutt Valley. Thus large settlements of Pacific Islands people were established in these areas (Krishnan et al., 1994, 16). New immigrants tend to make their homes near their relatives and/or existing Pacific Islands communities. This allows them to maintain social support networks along with
a cultural identity, and accounts for the continuing growth of the Pacific Islands populations in these two regions. Employment and education opportunities will also influence where a person or family chooses to live (Krishnan et al., 1994, 37; Cook et al., 1999, 9).

Table 2.1 depicts the geographical distribution of the different Pacific Islands ethnic groups. As shown in the table, 65.2% of all Pacific Islands population live in Auckland. Often dubbed the 'Polynesian Capital of the World', 11% of the population of Auckland is made up of Pacific Islands people. There are also significant Pacific Islands settlements in Wellington, Waikato, Manawatu-Wanganui and Canterbury (Krishnan et al., 1994, 85; Fakahau, 1998, 3).

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Auckland Region</th>
<th>Rest of North Island</th>
<th>South Island</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percentage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Samoan</td>
<td>65.8</td>
<td>27.2</td>
<td>7.0</td>
</tr>
<tr>
<td>Cook Islands</td>
<td>57.3</td>
<td>36.3</td>
<td>6.3</td>
</tr>
<tr>
<td>Tongan</td>
<td>79.2</td>
<td>16.4</td>
<td>4.4</td>
</tr>
<tr>
<td>Nuean</td>
<td>78.6</td>
<td>16.9</td>
<td>4.5</td>
</tr>
<tr>
<td>Tokelauan</td>
<td>22.8</td>
<td>73.9</td>
<td>3.2</td>
</tr>
<tr>
<td>Fijian</td>
<td>59.5</td>
<td>28.4</td>
<td>6.4</td>
</tr>
<tr>
<td><strong>Total Pacific</strong></td>
<td><strong>65.2</strong></td>
<td><strong>28.4</strong></td>
<td><strong>6.4</strong></td>
</tr>
<tr>
<td>NZ Māori</td>
<td>24.2</td>
<td>63.8</td>
<td>12.4</td>
</tr>
<tr>
<td><strong>Total New Zealand</strong></td>
<td><strong>29.5</strong></td>
<td><strong>45.6</strong></td>
<td><strong>24.9</strong></td>
</tr>
</tbody>
</table>

*Source: Cook et al., 1999, 10.*

2.1.2.1 Pacific Islands People in Canterbury

As shown in Figure 2.3, Canterbury is home to 3.8% of Pacific Islands people in New Zealand, which gives it the fourth largest population after Auckland, Waikato and Wellington, and the only significant population in the South Island. The distribution of the Pacific Islands population in Christchurch roughly follows that of the total Pacific Islands population in New Zealand, although the proportions of Samoans and Fijians are slightly higher than the national rate. Figure 2.4 (overleaf), shows that 62.3% (4866 out of 7809) of the Pacific Islands people in Christchurch are Samoan, 16.7% (1308) are Cook Islands Māori, 9.6% (747) are Tongan, 6.3% (489) are Nuean, 4.5% (348) are Fijian, and 0.7% (51) are Tokelauan (Siataga et al., 1999, p11-12).
Figure 2.4
Ethnicity of Pacific Islands People in Christchurch

Source: Siataga et al., 1999, 11-12.

2.1.2.2 Pacific Islands Young People in Christchurch

At the time of the 1996 Census, 6.8% of the total population of New Zealand (3,618,306 people) resided in Canterbury (StatsNZ, 1997, 29). 798,927 people living in New Zealand were between ten and twenty-five years of age. 102,264 young people (aged 10-19) lived in Canterbury, with 70,956 of them residing in Christchurch (ibid, 38). 1506 of these young people (2.1%) were Pacific Islands in ethnicity (Siataga et al., 1999, 12).

In total, 67% of Canterbury’s Pacific Islands population is under 25 years of age, and 21.5% are aged between 14 and 25. The distribution of Pacific Islands young people in Canterbury by ethnicity and gender is shown in Table 2.2 and Figure 2.5.

Table 2.2

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Samoan</td>
<td>492</td>
<td>495</td>
<td>987</td>
</tr>
<tr>
<td>Cook Islands Māori</td>
<td>126</td>
<td>120</td>
<td>246</td>
</tr>
<tr>
<td>Tongan</td>
<td>69</td>
<td>57</td>
<td>126</td>
</tr>
<tr>
<td>Niuean</td>
<td>45</td>
<td>36</td>
<td>81</td>
</tr>
<tr>
<td>Fijian</td>
<td>33</td>
<td>24</td>
<td>57</td>
</tr>
<tr>
<td>Tokelauan</td>
<td>6</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>771</td>
<td>735</td>
<td>1506</td>
</tr>
</tbody>
</table>

Source: Siataga et al., 1999.
2.2 Degrees of Deprivation in New Zealand

Although New Zealand has no official measure of socio-economic status, measures of deprivation have been developed and used during the past three decades (Crampton, et al., 2000, 13).

"Deprivation takes the view that people have material, social, cultural and spiritual needs that are linked to the norms of their society and culture, and that it is possible to be deprived in one or more respects. Deprivation has been defined as a state if observable and demonstrable disadvantage relative to the local community or nation to which an individual, family or group belongs" (Townsend, 1987, cited in Crampton et al., 2000, 13).

The NZDep96 Index of Deprivation was created from data taken from the 1996 Census. According to this index nine variable contribute to deprivation. These variables are depicted on the next page in table 2.3.
Table 2.3
NZDep96: Deprivation Variables

<table>
<thead>
<tr>
<th>Deprivation Type</th>
<th>Description: proportions in small areas of people</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication</td>
<td>With no access to a telephone</td>
</tr>
<tr>
<td>Income</td>
<td>Aged 18-59 years receiving a means-tested benefit</td>
</tr>
<tr>
<td>Employment</td>
<td>Aged 18-59 years unemployed</td>
</tr>
<tr>
<td>Income</td>
<td>Living in households with equivalised(^6) income below an income threshold</td>
</tr>
<tr>
<td>Transport</td>
<td>With no access to a car</td>
</tr>
<tr>
<td>Support</td>
<td>Aged less than 60 years living in a single-parent family</td>
</tr>
<tr>
<td>Qualifications</td>
<td>Aged 18-59 years without any qualifications</td>
</tr>
<tr>
<td>Owned home</td>
<td>Not living in own home</td>
</tr>
<tr>
<td>Living space</td>
<td>Living in households above equivalised bedroom occupancy threshold</td>
</tr>
</tbody>
</table>

Source: Crampton et al., 2000, 15.

While the term socio-economic status is used in this thesis, and the variables of socio-economic status rather than deprivation are described, the Index of Deprivation is useful in that it allows for the different areas of New Zealand where social and economic hardship is common to be recognised. Maps depicting all regions of New Zealand, and the levels of deprivation in different suburbs and regions, are provided in the Crampton publication (Crampton et al., 2000). The map depicting Christchurch is provided in Appendix Four.

2.3 The Social and Economic Status of Pacific Islands People in New Zealand

The New Zealand Index of Deprivation provides an indication of socio-economic status by showing the level of deprivation of a particular area. For example, Ilam, the site of the University of Canterbury, has a deprivation rating of 3 (ibid, 111). This figure represents a relatively low level of deprivation. Based on information provided by the New Zealand Index of Deprivation, the socio-economic status of Pacific Islands people in New Zealand has been revealed to typically be poor: “Māori and Pacific Islands people are disproportionately represented in the more deprived areas of the country” (Crampton et al., 2000, 21). That is, Pacific Islands and Māori people are typically living in areas with a low NZDep96 rating. Otara in Auckland, Porirua in Wellington, and Aranui in Christchurch all have a deprivation rating of 10 (Crampton et al., 2000, 111). Figure 2.6 reveals the different levels of deprivation experienced by New Zealand Europeans, Māori, and Pacific Islands people.

\(^6\) Equivalisation refers to methods used to control for household composition (Crampton et al., 2000, 15).
Figure 2.6
Deprivation Profile of NZ Europeans, Māori, and Pacific Islands People

Figure 7: Deprivation profile of the Māori ethnic group

Figure 8: Deprivation profile of the Pacific Island ethnic group

Source: Crampton et al., 2000, 22.
For the remainder of this thesis the term low socio-economic status will be applied to people who experience high levels of deprivation, and live in neighbourhoods with a high NZDep96 rating.

The features accounting for the poor socio-economic status of Pacific Islands people include: low income levels, high rates of unemployment, high criminal offending, poor health status and low levels of academic achievement (Krishnan et al., 1994, 84; MinPac, 1999, 6). These variables, along with other factors, which contribute to socio-economic status (such as cultural identification and social cohesion), are explored in the remainder of Chapter Two.

2.3.1 Educational Achievement

"Educational status is strongly influenced by socio-economic circumstances" (MinPac, 1999, 33).

"Children who do well in education are much more likely to make healthier choices in adult life about the health related habits of diet, alcohol consumption, smoking and exercise" (Wadsworth 1997, in NHC, 1998, 28).

Education is a key component of socio-economic status in that high educational achievement allows for a wider range of employment opportunities, and increased economic potential. Thus, as well as being an indicator of status on its own, education is a means to attaining other socio-economic indicators such as occupation, income and health (MinPac, 1999, 33).

Educational achievement by Pacific Islands people in New Zealand has steadily increased since the post-war migration period, but still lags behind the achievement levels of the total population, especially that of Europeans. The 1996 Census revealed that 50% of all Pacific Islands people aged fifteen years and older held some form of educational qualification. Pacific Islands people were revealed to be under-represented in both the pre-school sector and in tertiary educational institutions, although rates of participation in both areas is increasing (MinPac, 1999, 33). For example, in 1996 384 Pacific Islands people graduated from New Zealand universities, in comparison with just 151 graduates in 1991 (Fakahau, 1998, 3).

Figure 2.7 (overleaf) shows the levels of educational achievement by Pacific Islands people in New Zealand. For 33% their highest qualification was a school qualification, while 19% held some kind of post-school award. Pacific Islands people most often leave school with school certificate, sixth form certificate or higher school certificate. Few go on to gain bursary, and less go on to higher forms of education and training (MinPac, 1999, 38). As shown in the figure, the most common post-school academic achievement was a vocational qualification. It is possible that the choice Pacific Islands students make to work rather than continue their
education reflects a responsibility to increase the household’s income, by contributing to living expenses and the education of younger household members (ibid, 39).

**Figure 2.7**

Highest Qualification of Pacific Islands People in New Zealand

![Bar chart showing percentage of NZ born and overseas born by qualification level.]

*Source: Cook, 2000, 1.*

In 1997, 7.3% of primary and secondary school students in New Zealand were of Pacific Islands descent. This equates to almost one in ten pupils, a number set to double by the year 2051 (Fakahau, 1998, 3; MinPac, 1999, 33). As shown in the figure, New Zealand born Pacific Islands people have higher educational qualifications than those born overseas. Younger Pacific Islands people are also more likely to hold a post-school academic qualification (Bathgate et al., 1994, 19; MOH, 1997a, 9; MinPac, 1999, 40). Because the Pacific Islands population is youthful, levels of educational achievement are expected to rise as younger generations move through the schooling system. Increased academic achievement by upcoming generations will have an impact upon Pacific Islands future economic well-being and growth (Cook et al., 1999, 17).
2.3.2 Income and Employment

"Occupation can be considered an outcome of educational achievements, which in turn can largely determine the income that people can earn" (Howden-Chapman & Cram, 1998, 23).

In New Zealand Pacific Islands people have lower than average rates of achievement in the education sector, and are therefore most likely to be employed in jobs that do not require a high level of education and training. The New Zealand Vice-Chancellor's Committee (NZVCC) observed that even when Pacific Islands people do graduate from university they are more likely to be unemployed than Māori and European graduates (quoted in MinPac, 1999, 41).

Figure 2.8 shows that Pacific Islands males and females are most likely to be employed in elementary operations, as plant and machinery operators and assemblers, or in service and clerical positions (Krishnan et al., 1994, 16; StatsNZ, 1998, 20; MinPac, 1999, 24).

![Figure 2.8](image)

Source: Cook et al., 1999, 16.

Along with low levels of achievement in education, several additional factors account for the employment disadvantage of Pacific Islands people.

(i) In New Zealand Pacific Islands people are often stereotyped as “only good for manual labour” (Krishnan et al., 1994, 22). This perception dates back to the post-
war migration period when Pacific Islands people migrated to New Zealand for employment in the industrial sector. Since this period Pacific Islands people, especially men have been disproportionately represented in the working class (Krishnan et al., 1994, 16; Cook et al., 1999, 15).

(ii) The over-representation of Pacific Islands people in elementary occupations affects their employment status in that such occupations are most vulnerable to changes in global industry and to technological change (Krishnan et al., 1994, 84; Cook et al., 1999, 15). Such changes have led to a restructuring of the manufacturing economy in New Zealand, and, between 1986 and 1996, the percentage of the Pacific Islands population employed in manufacturing jobs decreased from 52.9% to 30.7% as a result of this change (MinPac, 1999, 23).

(iii) In New Zealand 15-24 year olds are more likely than any other age-specific population group to be unemployed. The youthful age structure of the Pacific Islands population means that Pacific Islands people are more vulnerable than the general population to the overall rise in unemployment. In New Zealand Pacific Islands youth have the highest unemployment rates of any population group (Cook et al., 1999, 14-15).

(iv) Pacific Islands women have followed an overall trend from full to part-time employment. Increasingly employed in the service sector, women are likely to be in jobs that are less secure, with worse wages and working conditions than those of men (Krishnan et al., 1994, 84).

(v) Pacific Islands people have a very low level of involvement in the business sector. Businesses owned by Pacific Islands people have a minimal size and function, and are usually in the areas of retail, service or manufacturing. These are often sustained by the contributions of family members (MinPac, 1999, 27).

"The main factor determining adequate income is participation in paid employment" (NHC, 1998, 26).

Overall, 64% of Pacific Islands people aged fifteen years and over participate in the workforce, either by working or looking for work (StatsNZ, 1998, 20). This is slightly higher than the national average for participation in the New Zealand workforce (Cook et al., 1999, 13). While wages and salaries are the primary source of income for Pacific Islands New Zealanders, they also have a higher than average reliance of government benefits, in particular the unemployment and domestic purposes benefits. In total, 36.7% of Pacific Islands people received a benefit in 1997 as opposed to 29.7% of the New Zealand population. This rate was higher than that of all other ethnic groups except Māori (MinPac, 1999, 20). The kind of jobs
that Pacific Islands people are most often employed in and the declining numbers of such jobs, mean that Pacific Islands people have one of the lowest income levels, and the highest rate of unemployment, in New Zealand today.

The main sources of income for Pacific Islands people are shown in figure 2.9.

Figure 2.9
Sources of Income for Pacific Islands People and the Total New Zealand Population

<table>
<thead>
<tr>
<th>Type of Income</th>
<th>Total Population</th>
<th>Pacific Peoples</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Source of Income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Gov. Benefits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student Allowance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In-lieu Benefit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sis., Benefit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DPB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unemp. Benefits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Superannuation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interest, Dividends</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self Employment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wages, Salaries</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


High rates of unemployment and poor employment status limit the earning potential of Pacific Islands individuals and families in New Zealand. In New Zealand Pacific Islands people have the lowest weekly income of all the ethnic groups (MinPac, 1999, 19). According to the Ministry of Pacific Island Affairs report, the average weekly income in is $302 per week, while the national average is $408. Table 2.4 shows the average personal income per annum for Pacific Islands males and females in New Zealand (see next page).
Table 2.4
Average Personal Income Per Annum: Pacific Islands People

<table>
<thead>
<tr>
<th>Age</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-24</td>
<td>$15 022</td>
<td>$13 007</td>
</tr>
<tr>
<td>25-34</td>
<td>$21 014</td>
<td>$13 815</td>
</tr>
<tr>
<td>35-44</td>
<td>$22 851</td>
<td>$14 227</td>
</tr>
<tr>
<td>45-54</td>
<td>$20 451</td>
<td>$13 567</td>
</tr>
<tr>
<td>55-64</td>
<td>$11 864</td>
<td>$9 416</td>
</tr>
<tr>
<td>65+</td>
<td>$8 830</td>
<td>$8 949</td>
</tr>
<tr>
<td>Total</td>
<td>$14 987</td>
<td>$10 725</td>
</tr>
</tbody>
</table>

*Source: MinPac, 1999, 17-18.*

The average income of Pacific Islands people is improving slowly. Where the 1991 Census showed that 47.3% of Pacific Islanders earned less than $10 000, in 1996 this number had dropped to 43.2%. However, Pacific Islands people continue to earn considerably less than the New Zealand population in general. In addition, relative poverty has increased as gaps between the income of Pacific Islands people and other New Zealanders have widened (NHC, 1998, 26). Where the national median income for a New Zealand household is $41 862, Pacific Islands people have a median family income well below this. As shown in Figure 2.10, Tongans have the lowest personal and household incomes of all Pacific Islands ethnic groups.

Figure 2.10
Personal and Household Median Income – By Ethnic Group

*Source: MinPac, 1999, 16.*
Cook et al. (1999, 16) also note that "in every age group, the New Zealand-born component has a much higher income than the overseas-born component". As New Zealand-born Pacific Islands people are likely to have higher levels of educational attainment (see 2.2.1), there is an obvious link between education and employment.

2.3.3 Families and Households

"Regardless of actual living arrangements, 'family' to Pacific people usually means 'extended family' and includes an integration of family networks" (MOH, 1997a, 7).

The concept of the extended family, with its associated obligations of reciprocity, is central to Pacific Islands cultures, behaviours and beliefs. For Pacific people, the family is the "main unit in which children learn and grow, and the only support structure for older people" (MOH, 1997a, 7). Lay (1996, 37) further describes the concept of family for Pacific Islands people:

"[t]he extended family – the aiga (Samoa), kainga (Tongan), oputangata (Cook Islands) and magafaoa (Niuean) is the most powerful and resilient force in Polynesian society. Grandparents commonly live with the younger members of the family, so there are often three generations in one New Zealand Pacific Island household" (Lay, 1996, 37).

Pilato et al. (1998, 27) add that the "preservation of family unity, integrity and credibility is of paramount importance to Pacific Islands people", and further, that it is "the prevailing belief of Pacific Islands people that individual achievements are directly related to the nurturing and support of the family". Thus the family is intrinsically linked to the socio-economic status of Pacific Islands people. Families provide Pacific Islands people with access to a variety of resources, including accommodation, social support, and money. This both positively and negatively impacts upon their socio-economic well-being. Social and financial support in times of need are a positive attribute of Pacific Islands families, while an obligation to send money to relatives in the Pacific Islands, and/or to accommodate visitors from overseas can be a substantial financial drain.

In New Zealand, Pacific Islands people most often live in housing conditions which are poor (Fakahau, 1998, 4). The main housing problems faced are: high costs, inadequate home designs, poor housing quality, and overcrowding (StatsNZ, 1998, 22; MinPac, 1999, 45). Poverty, poor health status, and low levels of educational achievement are all associated with poor housing conditions and overcrowded homes, and thus housing is both a cause and a consequence of poor socio-economic status. Within the Pacific Islands context the structure and obligations of the family are intrinsically linked to the housing problems faced. For example, the accommodation, often for extended periods, of visiting relatives is partially responsible for the over-crowding common in Pacific Islands households. In 1996, 34% of
overcrowded homes in New Zealand housed Pacific Islands people. This was more than double the number of European New Zealanders in crowded living situations, but slightly less than the amount of Māori (MinPac, 1999, 45). Pacific Islands homes have an average of 4.27 occupants, while the total New Zealand population has only 2.8 people in every home (Cook et al., 1999, 12; MinPac, 1999, 42). This number increased slightly between 1986 and 1996. In 1996 96% of Pacific Islands people were living in a family household, and 42% lived in a household than contained more than one family and/or other individuals (MinPac, 1999, 42). In comparison only 17% of the total New Zealand population were sharing their accommodation with other families.

In 1991 the costs of rental accommodation rose sharply with the introduction of market rentals for State housing (NHC, 1998, 31). As shown in Figure 2.11, Pacific Islands people are less likely than other New Zealanders to own their own homes. In New Zealand 54% of Pacific Islands people live in rented homes (MinPac, 1999, 42). Along with Māori, people of Pacific Islands ethnicities were the most severely affected by the 1991 law change. According to the NHC (1998, 32), "one response by people affected [by increased rents] has been for families to share accommodation to offset the financial effect of the increase in rents". Therefore the adoption of market rentals is a second factor responsible for overcrowding in Pacific Islands homes. This legislation was also responsible for a decrease in the standard of housing for those already in the most socio-economically disadvantaged groups. Thus Pacific Islands people are most likely to live in physically inadequate houses in the least wealthy neighbourhoods in New Zealand.

**Figure 2.11**

**Housing Tenure By Ethnic Group (NZ Adults), 1996**

![Diagram showing housing tenure by ethnic group](image)

*Source: Cook, 2000, 1*
In New Zealand Pacific Islands households are the least likely to have a telephone. As telephones are directly related to affordability, this indicates a relatively poor level of socio-economic status. Similarly, they are less likely to own a car. Only 22% of the households in Otara (a South Auckland suburb where over half the population is Pacific Islands in ethnicity) own a car, in comparison with 88% ownership in the entire Northern New Zealand region (MOH, 1997a, 9).

2.3.4 Criminal Offending

"Pacific people are over-represented in all areas the justice statistics"  
(MinPac, 1999, 53).

In New Zealand Pacific Islands people comprise around four percent of the total population, yet they accounted for nine percent of all convictions in 1997. Most often, Pacific Islands people were convicted for violent offences (MinPac, 1999, 54). Pacific Islands young people are considered to be at risk of committing crimes, and becoming involved with the justice system. McClellan and Warren (1996, 10) note the characteristics associated with 'at risk' young people. These include: parental substance and alcohol abuse, inter-generational and long-term unemployment, depressed economic circumstances, poor parenting skills, child abuse and high geographical mobility. Pacific Islands young people are most often convicted for crimes involving dishonesty (burglary, theft, car conversion), drugs, violence, property, and drugs. Pacific Islands young people who commit crimes are also considered more likely than European offenders to come to the attention of the police. Thus "ethnic differences in offending rates can be explained as being largely due to the combined effects of the socially disadvantaged status of Pacific children and the bias of police contact status" (Fergusson et al. 1993, quoted in MinPac, 1999, 51).

2.3.5 Cultural Identity and Social Cohesion

"Culture in its broadest sense refers to accepted patterns and norms of behaviours within identifiable groups in society. The most obvious cultural groups are those based on ethnic identity..." (NHC, 1998, 32-33).

Krishnan et al. (1994, 85) note that poor socio-economic status can have a "profoundly negative effect" on the social well-being of a population group: welfare dependency increases, perception of self-worth diminishes, overall standards of health (both physical and psychological) and living decline, and cultural dislocation ensues. For Pacific Islands New Zealanders the post World War II migration period was a period of great upheaval with vast changes to lifestyles, household composition, identity and cultural life. However, these changes were compensated by relatively large incomes, which gave Pacific Islands people a
sense of importance in that they were able to provide for families and communities back home.

"When the purchasing power of wages was high and jobs were plentiful, cultural dislocation could be endured. Pacific Islands people in New Zealand had a sense of importance and value because through their hard work and self sacrifice they were able to build houses for families back in the Islands, provide for their elderly parents and relatives in need, sponsor emigrant relatives seeking jobs, build churches in New Zealand and back in the Islands, and often to save the down payment for homes of their own in New Zealand" (Krishnan et al., 1994, 85).

Since this period the relative worth of this income has decreased, while social marginalisation and unemployment continues to rise. Therefore social cohesion among Pacific Islands has lowered (Krishnan et al., 1994, 85).

Although varying in different neighbourhoods and between different ethnic groups, social cohesion among Pacific Islands people in New Zealand is generally deemed to be low. This conclusion is drawn from rates of participation in education and employment, as well as the over-representation of Pacific Islands people in the country’s jails. The components listed below also influence the socio-economic status of Pacific Islands people in New Zealand.

**Language and Literacy**

Both literacy and language are a crucial components of socio-economic status as the language resources of a community are a key link between education, the skill base of community members, cultural cohesion, and economic potential (Cook et al., 1999, 18). Where language provides self-identity through a cultural link, literacy is required to meet the demands of everyday life (NHC, 1998, 28). Studies show that 60% of Pacific Islands, Māori and people from other ethnic minorities have a level of literacy below that necessary to function in New Zealand society (NHC, 1998, 28). While the 1996 Census found that 48% of Pacific Islands people speak two or more languages, younger generations are more likely to speak English, and to have lost this link to their Pacific Islands heritage. Although nearly two thirds of Pacific Islands young people are bilingual to some extent, their overall language ability is lower than the average for all New Zealanders (Cook, 1999, 18; MinPac, 1999, 14). This suggests a loss of language between the generations, meaning that information and knowledge can not be successfully passed down through the family. This loss of communication is compounded by the fact that Pacific Islands young people growing up in New Zealand society are exposed to the often conflicting values of their parents and their environment.
**Religion**

Religion plays a major role in Pacific Islands communities (MinPac, 1999, 14). As shown in Figure 2.12, religious affiliation is higher than that for all New Zealanders. 72% of the total population and 89% of Pacific Islands people belong to a religious group (MinPac, 1999, 14). Religious affiliation and church membership indicates social cohesion as it allows people of a particular culture to come together on a regular basis. Pacific Islands people born in New Zealand have lower rates of religious participation and affiliation.

**Figure 2.12**

Pacific Islands Religious Affiliation by Ethnicity, 1996

![Graph showing religious affiliation by ethnicity](image)

*Source: MinPac, 1999, 14.*

**On a Positive Note: Youth Culture**

According to the Ministry of Pacific Islands Affairs report, a prosperous Youth Culture is having a very positive effect on the socio-economic status of Pacific Islands people in New Zealand. Pacific Islands young people have begun to take hold of many aspects of their cultural heritage, and redefine them for the New Zealand environment (MinPac, 1999, 8). This is most evident in the areas of performing arts, arts and fashion. To date the impact of Youth Culture on socio-economic status cannot be measured, but such ventures may help to counter the loss of language and cultural identity mentioned above, allow the upcoming generation of Pacific Islands young people to establish a place for themselves in New Zealand society, and in the long-term could potentially have a positive socio-economic effect.
2.3.6 Health

"Good health is one of the factors which enables people to participate more fully in society" (Sen, 1992) cited in Howden-Chapman & Cram, 1998, 4).

As with income, education and other socio-economic indicators, health both accounts for and contributes to the socio-economic status of a given community. The health of Pacific Islands people in New Zealand, and the effects of the aforementioned socio-economic determinants upon their health status are described in detail in Chapter Three.

2.4 Chapter Summary

In this chapter several characteristics of New Zealand's Pacific Islands population have been outlined, including the size, ethnic and geographical distribution within this country. The youthful age structure of this population was discussed in detail as these young people are both the focus of this thesis and the next generation of adults to encounter health problems and require health services and resources. The health problems that these young people face, along with how the aforementioned social and economic circumstances make them susceptible to these problems, are discussed in Chapter Three.
CHAPTER 3
The Health of Pacific Islands People in New Zealand

The aim of this thesis, as stated in Chapter One, is to consider the health of Pacific Islands young people in New Zealand, and whether their current diet and lifestyle habits will have long-term consequences for their health. Given this aim it is essential to first consider the health of Pacific Islands people within the New Zealand context.

The health of Pacific Islands people in New Zealand is classed as poor (MOH, 1998b, 3). Western health professionals, trained in Western models of health, which are dominant in New Zealand society, are responsible for the categorisation of Pacific Islands health status. Pacific Islands concepts of health, which are holistic in nature, have a very different method of classifying health and illness. Chapter Three begins by analysing the World Health Organisation’s definition of health. The Western Biomedical Approach to health is then considered, along with Pacific Islands definitions of health. A juxtaposition of these two models in New Zealand determines the health status of Pacific Islands people.

Other factors contributing to Pacific Islands health, including socio-economic and cultural factors, are described in the second section of this chapter. This section shows the significant influence of social factors on health, and thus that the health status of Pacific Islands people in New Zealand is largely determined by factors outside of the immediate control of the individual or family. Finally in this chapter, the health issues relevant to Pacific Islands people are detailed.

3.1 Defining Health

“The meaning of the words “health” and “illness” cannot be taken for granted as they mean different things to different people” (Senior & Viveash, 1998, 3).

The World Health Organisation (WHO) defines health as “not merely the absence of disease, but a complete state of mental, physical and social well-being” (WHO 1986, quoted in Crown Public Health Ltd, 1998, 1). This definition was devised as a way of showing that health is a concept with many facets, and that to achieve a state of health, “an individual or group must be able to identify and realise aspirations, to satisfy needs, and to change or cope with the environment” (Crown Public Health Ltd, 1998, 1). Thus health is not a static condition, but is reliant on various conditions present in the environment, such as exposure to infectious diseases, or violence in the community or home; and the ability of the individual to deal with
such risks. The WHO holds health as health is “a positive concept emphasising social and personal resources, as well as physical capabilities” (Crown Public Health Ltd, 1998, 1).

The WHO definition of health was devised to counter the dominance in Western countries of the Biomedical Approach to medicine, otherwise known as the Medical Model. Although there are several well-known theories of health and illness, over the last century the Medical Model has been most dominant. According to this model, the body is viewed as a machine, and illness is seen as a malfunction of a part of this machine (Senior & Viveash, 1998, 3; Tamm, 1993, 216). This model views health in purely ‘laboratory terms’, observing the arrangement and function of the parts, and categorising illnesses based on these observations (Tamm, 1993, 216). The five main principles of the Biomedical Model are as follows:

i. Illness has an identifiable cause - bacteria, genes, virus or accident,
ii. Illness can be objectively identified and classified,
iii. Illness is identified by medical officials,
iv. Diagnosis is objective, and
v. Illness can be treated and cured (by removing the cause) (Senior & Viveash, 1998, 10).

“The strength of the Medical Model is that it attempts to research the cause of each illness” (Senior & Viveash, 1998, 12). For example, the Medical Model has allowed health professionals to identify smoking as a precursor for diseases in the heart and lungs. This knowledge can in turn be used in the prevention of illness and disease. Although most dominant in Western societies, the Biomedical Approach is a universally accepted body of knowledge which is used across a variety of different countries and cultures. However, despite the success of the Medical Model, and its relevance to our everyday lives, it has several limitations. Firstly, it allows medical professionals complete control over health and illness. Doctors (or medical professionals) are trained to control pathology (that is, mechanical dysfunction) and repair the body. Medical training allows doctors to “control health”, and this is one of the drawbacks of the Medical Model. Navarro (1979, quoted in Senior & Viveash, 1998, 13) claims that “the modern health care system evolved in the late nineteenth century so that the ruling class could ensure that sick workers were made fit for work, thus enabling the bourgeoisie to benefit from a more healthy workforce”. Even today, “doctors make the decision about whether someone is fit or unfit to work” (Jones, 1994, 63). The Medical Model has also led to the “medicalisation” of certain human conditions (for example, worry is now the medical condition anxiety), thus creating a demand for medical treatment (Senior & Viveash, 1998, 14).
The Medical Model is considered a reductionist model of health in that it relies on "finding the fault" of an illness within the individual (Senior & Viveash, 1998, 23). Once the fault is detected and treated the individual can return to a normal state. In breaking down the body to focus on the malfunction of a specific part, the Medical Model does not allow for the influence of external factors on health, such as those present in the social or physical environment of the individual concerned. Social factors affecting health may include stress caused by a lack of income, whereas qualities of the physical environment which impact negatively on health may include poor housing design or violence within the community. Thus critics of the Medical Model believe "improving living standards (for example cleaner water, more nutritious food, better sewage systems, and better quality housing) and imparting a better knowledge of hygiene have a far larger impact on health" (Senior & Viveash, 1998, 3-4).

The fact that the Medical Model excludes the psychological, social and ecological factors that influence an individual's general state of health and well-being (Tamm, 1993, 217) has also led critics of this approach to illness and disease to believe that although the model is successful in preventing, treating and curing many kinds of illness, it is most influential on infectious diseases. Because Western disease patterns are changing, and non-communicable diseases are now the most prolific in Western Society, a much more interdisciplinary approach to health is needed. Thus health and disease today "need to be seen as products of an ongoing and complicated interaction between body, mind, spirit and environment".

The MOH (1997a, 5) notes that "in some cultures, a particular physical, social, mental or spiritual state will be defined as an illness, while in another culture will not be seen as abnormal". The WHO definition of health tries to take into account both the universal knowledge basis of the Medical Model, and the definitions of health of less dominant cultures. It is considered to represent both a positive and holistic model of health. In contrast to the Medical Model, this definition is positive in that it allows an individual to be healthy despite a malfunction of some part of the machine. Thus a person in a wheelchair is allowed to be healthy despite the inability to walk, as might be someone with a serious disease. According to this definition, the individual, not the medical professional, is allowed to determine subjectively their level of health. Holistic models of health require the factors named by the WHO definition (that is, the mind, body and environment) to be in balance. A disturbance to any of the elements of health can limit an individual's ability to participate fully in society, and thus contribute to their poor health status. A person's health is therefore seen as being related to a variety of elements in their lifestyle, and pain and disease provide information about areas where problems are occurring or change may be necessary.
Therefore, Western medicine “is not the only yardstick for measuring the effectiveness of all healing practices. The ultimate yardstick is the ability of a health service to restore function and enable individuals to fulfil their obligations to themselves, each other and society” (MOH, 1997a, 6).

In New Zealand, the best known holistic model of health is *Te Whare Tapa Wha* which has been attributed with a specific relevance in the area of Māori health. According to this model, *Te Taha Hinengaro* (the mind), *Te Taha Wairua* (the spirit), *Te Taha Tinana* (the body), and *Te Taha Whanau* (the family) are all equally relevant to the health of an individual (Durie, 1998, 69). This model allows for the health of Māori to be placed in the wider cultural context of the family and the community, and represents an attempt by health professionals to allow for the influence of all of these factors on Māori health, and in based on traditional concepts. The qualities of *Te Whare Tapa Wha* are depicted below in Table 3.1.

**Table 3.1**

<table>
<thead>
<tr>
<th>Focus</th>
<th>Taha Wairua</th>
<th>Taha Hinengaro</th>
<th>Taha Tinana</th>
<th>Taha Whanau</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key Aspects</td>
<td>Spiritual</td>
<td>Mental</td>
<td>Physical</td>
<td>Extended Family</td>
</tr>
<tr>
<td>Themes</td>
<td>The capacity for faith and wider communion</td>
<td>The capacity to communicate, think and feel</td>
<td>The capacity for physical growth and development</td>
<td>The capacity to belong, to care, and to share</td>
</tr>
<tr>
<td></td>
<td>Health is related to unseen and unspoken energies</td>
<td>Mind and body are inseparable</td>
<td>Good physical health is necessary for optimal development</td>
<td>Individuals are part of wider social systems</td>
</tr>
</tbody>
</table>

*Source: Durie, 1998, 69.*

### 3.1.1 Pacific Islands Definitions of Health

As already stated in this chapter, the words “health” and “illness” mean different things to different people (Senior & Viveash, 1998, 3). To Pacific Islands people health traditionally occurred when there was balance between the physical, mental, social and spiritual aspects of life. In a manner similar to Māori, Pacific Islands people viewed health *holistically*, with an emphasis on the total well-being of the individual, and their relationships with their family and their community (MOH, 1997a, 5). For example, the general word that Cook Islanders use for health is *ora’anga*, where *ora’anga kopapa* is the physical aspect of health (the health
of the body), *ora'anga waerua* is the spiritual, and *ora’anga o te nguture* refers to the health of the household (Laing & Mitaera, 1994, 208). Therefore ill*ness* occurred when there was “a disturbance in the relationship between an individual and another person, the land, or a supernatural being (MOH, 1997a, 6). In traditional terms, a Pacific Islands person is considered ill “if they believe, and their society generally agrees, that they are unable to perform their usual activities (MOH, 1997a, 5).

Patricia Laing and Jean Mitaera studied Samoan and Cook Islanders’ perspectives of health, and found that for Pacific Islands people the physical symptoms of illness “are not a sign of mechanical failure, but rather of the potential, and frequently real, sickness of the spirit” (Laing & Mitaera, 1994, 208). Therefore where the Western Medical Model views illness as a malfunction of the machine, which is “problematic and not an integral part of life” (ibid, 209), Pacific Islands people consider sickness “as inevitable, unpredictable, and a powerful discontinuity in the flow of life, a disruption of the social order which is kin based” (ibid, 208). This disruption is manifested within an individual as the physical symptoms of illness. Specifically, Pacific Islands people believe that their health is reliant on a central essence that resides in the abdomen. When a disruption occurs to one of the four facets of health listed above, this essence (named *to’ala* in Samoan) will be displaced. Restoring health is equated to returning the *to’ala* to its rightful place, and is often achieved through massage (Kinloch, 1985, 17; Howard, 1986, 409; Laing & Mitaera, 1994, 211). In addition, for Pacific Islands people “health, illness and healing are a family affair, where the decisions about what combination of traditional healers and Western medicine to use” are made. Thus “healing is the process of seeking to re-establish the spiritual wholeness, not just of the sick person but of the whole family through a process of caring for and curing the sick person” (Kinloch, 1985, 15).

Pacific Islands people in New Zealand are in a unique position in terms of health in that their definitions of health are based on both their traditional belief system and the dominant Western view of health, as held by New Zealand society as a whole. Although still bound by their cultures, Pacific Islands people both in the Pacific Islands and New Zealand are largely influenced by the Western world. Thus traditional Pacific Islands views of health have adapted over time to incorporate Western practices and views. There has been an acceptance of Western methods of diagnosing illness, and of Western healing and treatments. In Pacific Islands countries, and among Pacific Islands people in New Zealand, an illness will often be treated within the family first, with medical treatment sought if initial treatments do not work (Howard, 1986, 408-409). Often, a combination of medical professionals and traditional healers are consulted. This increases the range of potential cures, and often the treatments are
combined to best suit the family and the individual. It also allows for the influence of Pacific Islands culture on the healing process, rather than limiting this to merely Western techniques (ibid, 409).

Howard (1986, 409), notes that the Pacific Islands practices of making decisions within the family may be detrimental to health in a Western context as the individual only has access to the services that the family members are aware of. Howard adds that keeping up affiliations with their own culture, and with traditional healing methods, is a way of coping with stress and illness in a Western environment. In New Zealand Pacific Islands people will often travel long distances to visit traditional healers, or will see healers of a different Pacific Islands ethnic background if necessary (Laing & Mitaera, 1994, 214). This helps them to maintain a cultural tie, and broadens the knowledge base available. However, Pacific Islands healers and healing practices (such as massage) are seldom accepted by Western health professionals. As will be shown in the next sections of this chapter, along with socio-economic variables, the health of Pacific Islands people in New Zealand is often compromised by the failure of New Zealand health professionals to acknowledge the importance of culture to the health of Pacific Islands people.

3.2 The Determinants of Pacific Islands Health Status

It is widely acknowledged (Bathgate et al., 1994, 26; MOH, 1997a, 7; MOH, 1998a, 4; NHC, 1998, 3; MinPac, 1999, 29) that there is a discrepancy between the health status of Pacific Islands and European/Palagi New Zealanders. Along with that of Māori, and for many of the same reasons, the health status of Pacific Islands people can be considered poor. This categorisation is due to higher rates of a variety of health problems. Possibly the inability of Western health professionals to acknowledge the different context in which Pacific Islands people view their health also contributes to both the classification of ‘poor health status’ and the high rates of both infectious and non-communicable diseases among Pacific Islands people in New Zealand. This section of Chapter Three considers the term health status, and why the health of Pacific Islands people is considered to be poor. The many socio-economic determinants contributing to the poor health of Pacific Islands people are then outlined. These include: “income and poverty, employment and occupation, education, housing, population-based services, social cohesion and culture and ethnicity” (NHC, 1998, 3). Cultural factors largely account for the failure of Pacific Islands people to utilise mainstream health services in New Zealand, and for these services to meet Pacific Islands health needs. These factors are described separately in section 3.2.3.
3.2.1 Defining Poor Health Status

Health status is the term used to describe “a set of measurements which reflect the health of populations”. The measurements may include physical function, emotional wellbeing, activities of daily living and so on (MOH, 1997a, 54). Over recent years the health of Pacific Islands people has shown improvements, however it is still below that of European/Palagi New Zealanders. Thus the health status of Pacific Islands people in New Zealand is considered to be poor. There are numerous reasons accounting for the health status of Pacific Islands people in New Zealand, including: “the nature of the illnesses, lack of access to appropriate services, delay in seeking treatment and a lack of follow-up and support to manage the illness or necessary treatment, the influence of cultural and religious issues and the low socio-economic status of Pacific people” (MOH, 1997a, 8). Higher rates of infant mortality, unintentional injuries, and infectious diseases are all characteristic of a population with poor health status. These health issues all affect Pacific Islands people more than Europeans/Palagi.

The National Health Committee (1998, 45) notes that “health damaging behaviours are more common among people in lower socio-economic groups in New Zealand”. Behaviours such as eating a poor diet, smoking, excessive alcohol consumption, sexual behaviour and more risk taking in general are characteristic of people in lower socio-economic circumstances. Thus “the low socio-economic status of Pacific people explains much of their comparatively poor health status” (NHC, 1998, 42).

3.2.2 Socio-economic Determinants of Pacific Islands Health Status

Both individual factors (such as smoking, eating healthy foods, and drinking alcohol) and societal factors have an affect on health (Howden-Chapman & Cram, 1998, 10). Societal factors include living conditions, levels of education, employment and income, and the various other economic and demographic characteristics that distinguish a population group. Howden-Chapman & Cram (1998, 22) state that “health is also affected by social and community influences, living and working conditions and broad socioeconomic [sic], cultural and environmental conditions. A clean and safe environment, adequate income, meaningful roles in society, good housing, population-based services and utilities, affordable nutritious food, education and social support within communities all contribute towards good health.”

Aside from culture, the socio-economic factors with the biggest effect on the health of Pacific Islands New Zealanders are education, income and employment, housing, and levels of social cohesion and support.
3.2.2.1 Education

"There is good evidence that a low level of education is associated with poor health status. Educational attainment is strongly related to subsequent occupation and income level, and poor social circumstances in early life are associated with significant chances of low educational attainment" (NHC, 1998, 28).

As mentioned in Chapter Two, "educational opportunities are socially and economically determined" (Howden-Chapman & Cram, 1998, 23). The National Health Committee report into the determinants of health in New Zealand found that "...education is critical in determining people's social and economic position and thus their health" (NHC, 1998, 28). The level of education of parents affects the health of children (for example, the nutrition knowledge of adults affects the nutritional adequacy of their children’s diets), and the level of education that they in turn receive. Furthermore, "[c]hildren who do well in education are much more likely to make healthier choices in adult life about the health-related habits of diet, alcohol consumption, smoking and exercise" (Wadsworth 1997, in NHC, 1998, 28).

As shown in section 3.2.2.2, education affects the health of Pacific Islands people in New Zealand in that people who are less educated are less likely to be employed in high-paying jobs. They are also less likely to live in areas which expose them to a range of useful health-related services and resources. For example, people who are unable to read, or unable to read English, will not be able to decipher printed health materials distributed by doctors, or in supermarkets and play-centres.

3.2.2.2 Mahi Ka Ora – Work Brings Health

Howden-Chapman & Cram (1998, 23) state that "income is the single-most important determinant of health", and that "deprivation leads to poor health". Chapter Two of this thesis revealed that Pacific Islands people in New Zealand have among the highest levels of unemployment in New Zealand, or tend to be employed in trade or elementary occupations. As a result both individual and family incomes tend to be low. Employment affects health not only in the income it provides, but because the conditions in which people work can provide a risk to health (Howden-Chapman & Cram, 1998, 29). In New Zealand, "those in the professional classes have lower morbidity and longer life-spans than those in unskilled jobs" (ibid, 30). Environmental risks associated with certain jobs, for example factory positions and manual labour, can inhibit good health. It is common for Pacific Islands people to be exposed to health risks because they are employed in these kinds of jobs.
"In addition to providing income, employment enhances social status and improves self-esteem, provides social contact and a way of participating in community life, and enhances opportunities for regular activities which all help enhance individual health and well-being" (NHC, 1998, 26).

As Howden-Chapman & Cram (1998, 31) state, "the importance of earning a living far exceeds the financial returns". By providing income, employment also increases the ability of an individual and family to access both health information and services. Employment may either provide direct access to health services, or information about where these are; or indirectly improve health and health service access as it provides people with social networks through which health-related information can be gleaned. Employment also enhances health in that it provides a sense of self-worth, and allows people to meet their financial requirements, thus reducing the stress associated with not being able to 'pay the bills'.

An adequate income is important in the provision of health for individuals and families. Barnett & Coyle (1998, 66) state that income is one of the key factors prohibiting poor people in New Zealand from using health services. The high rate of use of free clinics indicates that health services are required, but not used due to the costs involved. The National Health Committee report (1998, 47) states that "low family income affects health directly by precluding the purchase of adequate basic necessities such as adequate shelter, food and warmth, and limiting people's ability to participate in society".

Nutrition

An adequate, nutritious diet throughout the life-span is one of the factors contributing to the good health of an individual (Howden-Chapman & Cram, 1998, 8). However, "when money is scarce families often economise by buying foods which are high in calories, but low in nutrition" (Leather 1992, in Howden-Chapman & Cram, 1998, 22). The participants of a focus group discussion related to this topic stated "[w]e only eat things that fill up the kids. Lots of bread and noodles. There is no point in buying things that they wont eat" (Reid 1997, quoted in Howden-Chapman & Cram, 1998, 22). Chapter Four of this thesis explores the impact of a low income on the Pacific Islands diet.

Housing

"Housing involves both a site (dwelling) and a situation (neighbourhood). The location, physical quality, level of overcrowding and the cost of housing all impact directly on health" (NHC, 1998, 30).
A Christchurch study (Jamieson 1998, cited in NHC, 1998, 31) found that accommodation costs were “probably the issue having the biggest direct and indirect impact on the ability of limited income people to meet their basic needs”. In most New Zealand households accommodation costs take a substantial portion of the weekly budget, and must be paid before provisions can be made for things such as health service use and a nutritious diet. The affects of housing expenses are worst for low income families who are then left with little disposable income to meet these other needs.

Poor housing design affects health as it is associated with increased accidents in the home, while overcrowding encourages the spread of infectious diseases (Howden-Chapman & Cram, 1998, 21; MinPac, 199, 45). Housing affects the health of Pacific Islands people in a variety of ways, with the most significant health problems directly linked to the overcrowding of Pacific Islands homes. In crowded environments it is easy for infections to spread, and thus overcrowded houses are associated with high rates of diseases. South Auckland, an area with a high proportion of Pacific Islands people, is known for its alarming rates of infectious diseases such as measles, tuberculosis, respiratory infections and meningococcal disease (NHC 1998, 31; 47). Accommodation which is poorly designed also impacts upon Pacific peoples' health, by leading, for example, to a higher number of falls and accidents in the home. Finally, people in cold or damp houses are more likely to suffer from asthma, and unprotected heating can lead to burns (NHC, 1998, 47). The health of children is often the most compromised by these risks (MOH, 1997a, 33).

"In some areas, the health impact of poor quality housing is combined with neighbourhood problems such as substandard community services, high levels of unemployment, inadequate public transport and recreational facilities, environmental hazards and violence" (NHC, 1998, 30).

Howden-Chapman & Cram (1998) describe the effects of environmental/neighbourhood conditions on health. These are described below.

- People in poorer areas are exposed to a restricted range of opportunities (ibid, 16). For example, people living in the inner cities may not exercise because they have no outdoor areas in which to do so, or do not feel safe.

- Certain areas may be more toxic, and threaten health by exposing people to violence and/or industrial emissions or waste (ibid, 37).
Children from ethnic minorities are more likely to walk to school, and are thus associated with higher rates of pedestrian injuries (ibid, 36).

Lower socio-economic areas are less likely to provide a range of public services including transport, schools, and health services (ibid, 37).

Finally, "The impact of living in some areas appear to have a cumulative effect on health, over and above the individual attitudes of the residents" (ibid, 35). The above conditions are often present simultaneously, and will effect the mental and/or physical health of the individual and family over a period of time.

Such effects can best be seen in the poor (largely African American and/or Hispanic) neighbourhoods in the United States. In New Zealand they can be seen in areas with a high proportion of Māori and Pacific Islands people, for example Aranui or South Auckland.

High hospital admissions, increasing mental health problems, violence and overall poor health are increasing concerns in Māori and Pacific neighbourhoods in New Zealand. The Ministry of Health describes the relationship between housing and health as a two-way process. "Most obviously poor housing can lead to, or worsen, physical and mental health problems. As well, those with poorer health, particularly poor mental health, are likely to end up in the worst housing" (Public Health Association of New Zealand, quoted in MOH, 1997a, 9).

**Transport**

People in poorer neighbourhoods are less likely to own a car, and more likely reliant on public transport. This affects their health in two ways. The direct impact of not having transport is the resulting limitations on access to both primary (preventative) and secondary (treatment) health services. A less direct impact is the diminished access to social support networks (MOH, 1997a, 9). This impact is particularly relevant within the Pacific Islands context, where family and other social networks are crucial to maintaining health. The next section of this chapter shows how social isolation can have a negative effect on health.

**3.2.2.3 Social Cohesion and Support**

As stated in Chapter Two of this thesis, factors contributing to social cohesion include strong ties with family, and a safe environment which provides appropriate housing, good public services (including health and transport), access to social networks, and a
sense of community identity (NHC, 1998, 35). Thus “social problems such as poor housing, unemployment or poorly paid and dangerous work, fear of crime, a degraded environment, and social isolation due to inadequate transport all contribute to poor social cohesion” (ibid, 35). Kawachi et al. (1996, quoted in NHC, 1998, 34-35) found evidence that “the level of social cohesion or “connectedness” in society is related to the health of individuals and communities”. Strong social networks create healthier conditions in a number of ways. For example, they allow for the social control of antisocial or illegal activities such as substance abuse and domestic violence. They are instrumental in the socialisation of young people; and they provide employment and access to health care (Wallace 1993, cited in NHC, 1998, 35).

People who are vulnerable to social isolation include the unemployed, single parent families, older people, and ethnic minorities. Access to telephones are private transport reduce the risk of social isolation by providing communication networks and easy access to employment and leisure activities. Pacific Islands people are less likely to own both a telephone and a car (see Chapter Two), and a therefore more at risk of becoming socially isolated. A lack of employment will increase this risk.

In terms of social support, the family, which is the most important element of Pacific Islands life, has the potential to both enhance or inhibit health. According to the NHC report (1998, 50), the “integrity of the family unit is...important for the health of children and older people in Pacific communities”. While the stress associated with Pacific Islands familial obligations can be detrimental to health, a strong family unit provides a sense of belonging, a platform for resolving conflict, and a safe place to attempt new things (Howard, 1986, 200). Family and community networks, religious affiliation, and living around people of the same Pacific Islands ethnic group, can enhance the health of Pacific Islands people by providing a sense of connectedness and social support. When life is affected by problems such as bereavement, marital conflict, or unemployment, the social support provided by the above conditions can act to “buffer the adverse health effects of [these] stressors” (Franks et al. 1992, in NHC, 1998, 50).

Figure 3.1 (see page 51) summarises the determinants described in this section, and shows that each of the factors is interrelated, with the health of both communities and individuals linked to structural features in society.
Figure 3.1
Model Of The Social and Economic Determinants of Health

Healthy community/ strong social capital

Healthy individual/family/whanau

Health related behaviours
- No smoking
- Moderate alcohol
- Regular exercise
- Adequate sleep
- Low-fat diet

Sufficient disposable income to afford:
- Stable adequate housing
- Nutritious diet
- Adequate health care
- Adequate educational opportunities

Psychological coherence
- Social support
- Spouse or confidante
- Strong ethnic identity

Structural features of society, economy and environment
- Low unemployment
- Clean, health environment
- Safe working conditions
- Low disparities in income and wealth
- Affordable, available education and health services
- Low crime
- Favourable economic conditions
- All ethnic groups feel able to participate in society
- Recognition of Treaty partnership

3.2.3 Culture and Health

As stated earlier in this chapter, the family is also the primary forum where Pacific Islands people make decisions about health and illness, including judging whether or not a person is ill, and when and where to seek help (Howard, 1986, 409). Kinloch (1980, 20) notes that Pacific Islands people are “reluctant to bring problems to the attention of outsiders until they are convinced they cannot be solved within the family”. Pacific Islands people are often considered ‘difficult’ by Western health professionals because they do not visit health services of their own accord (Howard, 1986, 408). The failure of Western trained health professionals to acknowledge Pacific concepts of health, means that they often fail to recognise their Pacific patients’ specific health needs. Therefore, in part the failings of Western health professionals can be held accountable for both the underutilization of health services by Pacific Islands people, and for the definition of ‘poor health status’ in general (Bathgate et al., 1994, 27).

Pacific Islands people, especially women, often state that they feel intimidated when talking to a nurse or doctor of a different ethnic origin. Within Pacific Islands societies personal/intimate health problems are not mentioned, and therefore Pacific Islands people certainly do not feel comfortable discussing these with health professionals. Howard (1986, 409) states that the “characteristic Polynesian response to these experiences is avoidance”. Because Pacific Islands people have a negative view of Western health services, and feel that the health professionals have a negative view of them, they will shun mainstream health services in New Zealand.

A range of other cultural factors contribute to the poor health status of Pacific Islands people in New Zealand by limiting their access to and use of mainstream health services (Bathgate et al., 1994, 27-28). For example, Pacific Islands people visiting non-Pacific Islands health professionals in New Zealand often encounter language barriers, meaning that they cannot accurately express their health concerns, or understand the medical advice given to them. Further, there is a lack of health information written in Pacific Islands languages. Language differences prohibit Pacific Islands people both from finding out where to go for health information and services, and from understanding the health-related information they receive (Bathgate et al., 1994, 27).

Bathgate et al. (1994, 28) found that Pacific Islands people often seek medical attention only when “their malady has reached an advanced form” because they “place personal health very low down in their list of priorities”. One reason given for this is a low self-esteem and concern for personal well-being. More often, “competing demands on household income”
account for the lower priority of health for Pacific Islands people. The 1992/1993 Manukau Quality of Life Survey revealed that monetary concerns would cause people to put-off visits to the dentist, the doctor, and the emergency room, as well as cause them not to have prescriptions filled (Manukau City, 1993, 1). Tukuitonga (1990, quoted in MOH, 1997a, 9) found that “Pacific children are admitted to hospitals more frequently than the children of other ethnic groups, often in a more severe state, because families cannot afford adequate primary medical care and primary care services are often not responsive to Pacific people”. As was shown in section 3.2.2, cost prevents Pacific Islands people from visiting health services and filling prescriptions. When a choice has to be made between housing, buying food, and visiting health services, the latter is generally seen as less of a concern.

3.3 The Health of Pacific Islands People in New Zealand

“Pacific peoples have clearly identifiable health problems, many of which are potentially preventable. These include the highest national rates for meningococcal disease, measles, rheumatic fever, rheumatic heart disease and obesity. Pacific peoples also have low immunisation rates, high rates of diabetes, tuberculosis, liver cancer in adults and sudden infant death syndrome (SIDS)” (MinPac, 1999, 29).

The Public Health Commission (Bathgate et al., 1994) and the Ministry of Health (1997a) list the key issues relevant to Pacific Islands Health. This section of Chapter Three briefly lists the health issues affecting Pacific Islands people of different ages.

3.3.1 Age-Specific Health Concerns of Pacific Islands People

Child Health: 0-14 years

The rate of hospitalisation for Pacific Islands infants (0 to 1 year olds) and children (2 to 14 year olds) are nine percent and three percent higher than the national rate respectively (MinPac, 1999, 31). Pacific Islands parents are less likely to immunise their children, or to have a complete course of immunisation treatments (MOH, 1997a, 32). Acute respiratory infections such as pneumonia and asthma, infectious and parasitic diseases all affect Pacific Islands children more than European/Palagi children and could be prevented by immunisation (Bathgate et al., 1994, 156; MOH, 1997a, 30). Pacific Islands children are more likely to suffer from ear infections, and encounter hearing loss through glue ear (MOH, 1997a, 31). Unintentional injuries and burns are also among the leading causes of hospitalisation for Pacific Islands children (ibid, 30).

Youth Health: 14-25 years

The health issues associated with Pacific Islands young people are described in detail in Chapter Five: Studies into the Health of Pacific Islands Young People in New Zealand. The
main Pacific Islands youth health issues are unintentional injuries, falls, infectious and parasitic diseases, cancer, and pregnancy and childbirth (females only). Increasing rates of mental illness and suicide are also a concern.

**Adult Health: 25-65 years**

Three quarters of all hospital admissions for Pacific Islands women are for pregnancy, birth, or other conditions to do with reproduction (MOH, 1997a, 35; MinPac, 1999, 32). Other causes of hospitalisation include asthma, unintentional injuries, type II diabetes, coronary heart disease, cerebrovascular disease and pneumonia. Pacific Islands women have lower rates of psychiatric admissions that New Zealand women in general (Bathgate et al., 1994, 157). They have much higher rates of medically-supervised abortion (MOH, 1997a, 35), along with higher than average rates of cancer of the cervix, ovary, and uterus (Bathgate et al., 1994, 157; MinPac, 1999, 32). Due to these high rates of cancer the National Cervical Screening Programme is trying to cater to the specific needs of Pacific Islands women, by providing, for example, printed material in Pacific Islands languages, and by attending Pacific Islands health Fairs and clinics for Pacific Islands women.

Pacific Islands women have a mortality rate below that of New Zealand women in general. Their leading causes of death are cancer, coronary heart disease, asthma, and chronic rheumatic heart disease, along with unintentional injuries in women aged 25 to 44, and diabetes and cerebrovascular diseases in those between 45 and 64 (Bathgate et al., 1994, 157; PHC, 1995, 6). Unintentional injuries, cancer and coronary heart disease are also the leading causes of death in Pacific Islands men (Bathgate et al., 1994, 156; PHC, 1995, 6). Intentional self-injury (suicide), cerebrovascular disease, and respiratory disease also account for the mortality of Pacific Islands males (Bathgate et al., 1994, 156; MinPac, 1999, 32).

The Ministry of Health (1997, 36) acknowledges that the health status of Pacific Islands men is poor in comparison with that of Pacific Islands women. Pacific Islands men are hospitalised more frequently that New Zealand men in general (MinPac, 1999, 32), and much of the illness and injury that they encounter is preventable (MOH, 1997a, 37). They are most often hospitalised for unintentional injuries, asthma, infectious and parasitic diseases, pneumonia, cerebrovascular disease, and hypertension. Men aged 45 to 64 are also frequently hospitalised for diabetes and chronic liver disease (Bathgate et al., 1994, 156).

High risk manufacturing jobs partially account for the high rates of unintentional injuries among Pacific Islands men, and unemployment also has a significant impact upon their health: “there is a cycle of poverty, where high unemployment and increased alcohol and drug use led
[sic] to poor diet, poor housing, and increased violence" (MOH, 1997a, 36). The rate of admissions of Pacific Islands men to psychiatric hospitals has increased in the past decade, and around one third of all admissions are for alcohol and substance abuse (Bathgate et al., 1994, 156). Pacific Islands men are more likely to be readmitted to psychiatric hospitals after their first stay than New Zealand men in general (MinPac, 1999, 32).

Older Peoples Health: 65+

The health of older Pacific Islands people in New Zealand is more likely to be affected by factors of accessibility (transport, language and a lack of knowledge about the services available), and acceptability (that is, cultural appropriateness). In Pacific Islands people aged sixty-five years and older the leading causes of morbidity and mortality include stroke, pneumonia, diabetes, infectious and parasitic diseases, asthma, bronchiectasis, and bronchitis. The rate of each of these diseases in Pacific Islands people is higher than the national rate (Bathgate et al., 1994, 157; MOH, 1997a, 38). The Ministry of Pacific Islands Affairs (1999, 32) observed that "[t]he most common causes of hospitalisations and deaths amongst older Pacific peoples are degenerative diseases (such as the effects of diabetes, coronary heart disease, stroke and cancer), many of which are related to diet and lifestyle".

Asthma

The prevalence of asthma is the same in Pacific Islands people as it is in those from other ethnic groups, and yet Pacific Islands people have a death rate from asthma that is three times higher than that of Europeans/Palagi. Pacific Islands children are less likely to receive preventative medication, and more likely to be hospitalised for asthma (MOH, 1997a, 28).

Cancer

Cancer is a major cause of hospitalisation and death for adult Pacific Islands people (MOH, 1997a, 21). Cancer of the liver and stomach are more prevalent among Pacific Islands people than other New Zealanders. Lung cancer and prostate cancer are having an increasing influence on the health of Pacific Islands men, while women encounter cancer of the breast and cervix. Again, the failure of primary health services to reach Pacific Islands people is at least partially responsible for their higher rates of illness and death through cancer.

3.4 Chapter Summary

Chapter Three has revealed that many of the factors contributing to the poor health status of Pacific Islands people in New Zealand are outside of their immediate control. These factors are both socio-economic and cultural. With the failure of Western health professionals to account for Pacific Islands cultural differences proving one of the primary reasons why the
New Zealand health system is failing to meet the needs of Pacific Islands people. The health conditions most relevant to this thesis, and to the health of Pacific Islands people in New Zealand, are caused by poor diet and lifestyle behaviours. A description of the Pacific Islands diet, and the resultant health problems, are provided in Chapter Four.
CHAPTER 4

"Food Is The Meaning Of All Things"

Along with describing the health conditions associated with Pacific Islands people in New Zealand, Chapter Three revealed that socio-economic determinants affect health status by inhibiting a family’s ability to provide nutritious foods. Chapter Four maps the progression of the Pacific Islands diet from pre-contact times to the modern day. The diet of Pacific Islands people in the twenty-first century is strongly influenced not only by modern society, but also by traditional foods and cultural beliefs. Despite the inherent diversity of Pacific Islands countries, the people of these countries all attach a special significance to food. This significance, rather than a willingness to accept the consequences of their behaviour, accounts for the propensity of Pacific Islands people towards overeating and becoming overweight.

The significance is of food for Pacific Islands people is manifested in the food choices that they make, their attitudes towards particular foods, and even in the amounts that they eat. This chapter will show that the belief that big is beautiful was in fact an idea imposed upon Pacific Islands people by Europeans, in an attempt to explain their inherent obesity. Pacific Islands people do not in fact eat to become overweight. They overeat in an attempt to fulfil a set of cultural requirements, and become obese as a result.

However, in the New Zealand context, an even wider range of factors contribute to the quality of the Pacific Islands diet. The majority of health concerns facing Pacific Islands adults in New Zealand are related to obesity, and thus the diet and lifestyle of Pacific Islands people. The aim of Chapter Four is to show the effects of modernisation on the diet and lifestyle habits of Pacific Islands people and the problems associated with their diet as a result. As shown in the first section of this chapter, nutritional quality is directly related to urbanisation. Movement away from a subsistence-based lifestyle to an urban environment has resulted in decreased consumption of traditional Pacific Islands foods. This in turn has lead to a dramatic shift in Pacific Islands disease patterns. In New Zealand, where Pacific Islands people are almost exclusively urban, and have limited access to Pacific Islands foods, the diet struggles to resemble that of Pacific Islands nations, and health is severely compromised.

This chapter will show how food is culturally significant to Pacific Islands people, and how it is impossible for Pacific Islanders to ignore these cultural requirements and avoid becoming

7 Young, 1971, in Kahn and Sexton, 1988, 6.
overweight. The chapter begins with a description of the traditional Pacific Islands diet, and looks at how the processes of modernisation and urbanisation caused the diet to change dramatically over the second half of the twentieth century. The chapter then notes key details of the diet of Pacific Islands people living in New Zealand, based on a number of relevant studies. Lifestyle factors, and the way in which culture affects the food choices of Pacific Islands people in New Zealand are examined in detail. Based on the information provided in the first sections of this chapter, the relevance of several lifestyle-related health conditions to Pacific Islands people in New Zealand is then considered.

4.1 The Traditional Pacific Islands Diet

The traditional Pacific Islands diet suited both the environmental conditions and the physique of early Pacific Islands people. Originally ocean travellers, early Pacific Islands people were described as “a strong and healthy race, and indeed robust” (Houghton, 1996, 24). The more muscle a body has the more heat it can generate, and this would have been an asset in ocean travel (ibid. 80). Therefore Pacific Islands people developed a large body shape, with a high muscle mass, which enabled them to survive long periods at sea (ibid, 24). Baker (1979), agrees: “...over generations, genetic selection among Polynesians probably favoured those individuals who could best survive long ocean voyages and periodic food shortages due to hurricanes, droughts, etc” (quoted in Thaman, 1983, 30). The large body shape also provided a greater resistance to diseases such as malaria, which are endemic to the Pacific Island environment (Houghton, 1996, 88).

As the Pacific Islands were populated, early settlers attempted to cultivate the wide range of crops that they carried with them. These were mostly root and tree crops such as taro, breadfruit, bananas, coconut, sugar cane, and other vegetables. This process of migration and cultivation resulted in a rather similar traditional diet across Oceania (Kahn & Sexton, 1988, 4). The success or failure of these crops depended on the environmental conditions of the new island group, along with the ability of the settlers to adapt their cultivation practices to suit. Taro, for example, was not ideally suited to the Pacific atolls. However the preference of Pacific Islands people for aroids (which are high-carbohydrate root vegetables) led to them refining their cultivation methods so that these could be grown in any environment (ibid, 4). Thus swamp taro was found to grow readily in atoll conditions, and this became a staple of such islands.

Traditionally, Pacific Islands people ate two meals a day, and the foods eaten at these two meals were much the same (Kinloch, 1985, 17; Bathgate et al., 1994, 103). Kahn & Sexton (1988, 5) note that “not only are the traditional foods themselves relatively uniform across the
Pacific, so also is the way in which Pacific Islanders categorise foods and construct meals based on these categories. Meals consisted of a starchy staple such as taro or sweet potato, a beverage, and condiments which came from a selection of other vegetables:

"This distinction between staple and supplementary subsistence plants is a concept commonly found among Pacific Islanders...Food is the produce of staple subsistence plants – yams, aroids, sweet potatoes, and today, cassava – and includes only starchy foods. Condiments comprise all other food stuffs and consequently produce obtained from supplementary subsistence plants" (Barrau 1958, cited in Kahn & Sexton, 1988, 5).

Thus aroids comprised the traditional staple food in a Pacific Islands meal. Fish was the main source of protein in the traditional diet, while animal meat and coconut provided fat. Pigs and chicken were a source of animal protein, but as these were rare they were usually reserved for feasts (Kahn & Sexton, 1988, 5; Houghton, 1996, 14). Fruits and other kinds of vegetables were eaten to give the diet variety and balance. As a general rule, the Pacific Island diet varied only according to what is grown the most in each island group (Leach, 1993, 2). For example, in places where it was difficult to sustain root crops the diet tended to be lower in carbohydrates, and higher in protein and fat.

Before the time of European contact, "Pacific Islanders used what food they produced and produced only what was required" (Yano, cited in North, 1992, 27). The work involved with the traditional 'hunter-gatherer' lifestyle meant that the people of the Pacific Islands were constantly exercising, and were less susceptible to obesity (North, 1992, 27). This can be seen in the traditional propensity for women and titled men (those less involved in the collection of food) to becoming overweight, while working men remained lean.

4.2 The Changing Diet: From European Contact to the Modern Day

In the Pacific Islands diet today, "traditional high fibre root vegetable such as taro, sweet potatoes and yams, are being replaced with less beneficial bread, rice, tinned meats and fish" (Bloom, cited in Glasgow, 1987, 42). The patterns of Pacific Island food cultivation and consumption began to change as early as the time of first European contact (Leach 1993, 2; Kahn & Sexton 1988, 10). Change to the diet was rapid, dramatic and permanent (Kahn & Sexton, 1988, 2). Although changes occurred in different countries at different times, Micronesia, Melanesia and Polynesia were eventually all affected in very similar ways (ibid, 10).

4.2.1 The Onset of Change

Europeans initially gave seeds and gardening materials as gifts to the people of the Pacific Islands. They brought a multitude of new plants, some of which were accepted by Pacific
Islands people, and some that were not. Plants incorporated into the Pacific Islands diet were West Indian taro, cassava (from South America), dwarf bananas, melons, squash and pumpkins, papaya and pineapples. The foods in this list were readily accepted because of their similarities to existing Pacific Islands foods. Indian taro and cassava were equated to taro, breadfruit and yams as they could fulfil the same role in a Pacific Islands meal. Similarly, pumpkins, melons and squash were seen as useful as they resembled gourds (Leach, 1993, 2-3). Thus foods were accepted into the Pacific Islands diet based on their cultural suitability and not their ability to grow (ibid, 3). Capsicums, maize, guavas, gooseberries, apples, mangoes and citrus fruits were accepted into the diet, but to a lesser extent than those which directly matched an existing Pacific Islands food. This was also the case with some new varieties of sweet potatoes. Peas, beans, salad greens, radishes, carrots, cucumbers and onions had no place in Pacific Island life and so they were not cultivated (Leach, 1993, 3). Leach (1993, 3) also states that rice was a special case in this process, as it was accepted as a food, but not as a plant.

At this time the Pacific Islands lifestyle was based on subsistence gardening, and although new foods were introduced, basic eating habits and meal structures remained the same. The categories of starchy staples and condiments “influence the ways in which imported foods are combined to create meals…” (Kahn & Sexton, 1988, 5). As a result, nutritious local foods have been replaced in the Pacific Islands by “nutritionally inadequate alternatives” (ibid, 6). For example, mounds of rice and fried balls of flour came to replace the traditional plate of taro and plaintains. The new food choices “satisfy [sic] traditional categories and so can be classified as a meal by Pacific Islanders, but…may be of poor nutritional quality compared to a meal of traditional foods” (Kahn & Sexton, 1988, 6).

4.2.2 The Colonial Era

During the period of colonisation in the Pacific, which encompassed much of the twentieth century, all of the different Pacific Islands countries were subject to the processes of urbanisation and modernisation (Thaman, 1983, 34). The result was a change from the traditional Pacific Islands lifestyle of subsistence gardening to a cash-based economy, where people earn money either by cash-cropping or working in paid employment. This period was also characterised by a much more dramatic change in the Pacific Islands diet:

“...With the advent of the colonial era, the colonisers introduced non-traditional food, especially canned goods. The “modern” emphasis then was placed on production of surplus food to be sold for cash, which in turn bought imported goods, including foreign foods” (Yano, cited in North, 1992, 27).
By the 1920s there was an influx of imported foods, and tinned meats, sugar and flour had become a part of the regular Pacific Islands diet (Hanna et al., 1986, 291). Bindon (in Hanna et al., 1986, 291) observed that the processes of modernisation led:

"to the following dietary changes: (1) an increase in the variety of and quality of foods consumed, including a heavy reliance on Western foods of questionable nutritional value; (2) a reduced reliance upon traditional Samoan foods, such as breadfruit, banana, taro, and coconut; (3) a reliance upon introduced food for basic nutrition. These include rice, bread, fresh beef, and canned fish as new staple items".

The low cost, and ease of access to imported foods had a bearing on their acceptance into the diet. Because Pacific Islands people were becoming more reliant on money to feed their families, their food choices were effected by economic restraints. In shops imported foods were often a more affordable and readily available option than traditional Pacific Islands foods. Bindon (quoted in Kahn & Sexton, 1988, 11) "compare[d] the value of rice with taro, and of chicken with local fish and pork, on the basis of such factors as their cultural importance, financial cost, and time spent acquiring, storing and preparing the foods". He found that:

"Chicken...is cheaper to obtain and store than fish or pork, but fish and pork have greater value in communicating hospitality, status, and gender distinctions. [He] concludes that rice and chicken are used on a daily basis for economic reasons. For ceremonial occasions, however, taro, fish, and pork are the preferred foods despite their economic disadvantages. Economic efficiency prevails in decisions about everyday consumption, whereas provisioning for feasts recognises important cultural values" (ibid, 11)

In Pacific Islands societies food is used to communicate customs, to manipulate and maintain social relationships, and as an indicator of wealth and social status (Kahn & Sexton, 1988, 6). In Pacific Islands society a feast accompanies every important event. At feasts the host shows their generosity and wealth by providing vast quantities of foods. Certain traditional foods such as pigs, chicken, fish, yams and taro are all provided in abundance at feasts, while foods of less significance are not (for example cassava and bananas). These foods indicate the "resourcefulness of the person who is able to buy such luxuries" (ibid, 8). That is why it is necessary to provide guests with only the best kinds of foods, and to provide these in abundance. "In traditional Samoa pork, chicken and ocean fish were not readily available and their consumption was limited. These items were reserved for men and were usually consumed only on special occasions" (Hanna et al., 1986, 292-293). The prestige attached to certain foods has a direct bearing on the incorporation of new foods into the Pacific Islands diet. Following World War Two, Pacific Islands people came to associate imported foods with Western military power. During this period an abundance of new foods were introduced
in the Pacific Islands that did not fit into traditional Pacific Islands life. Significantly, it was at
this time that canned goods first found their way into the Pacific (North, 1992, 27), and the
Pacific Islands diet changed in a much more dramatic way. Because Pacific Islands people
believe that "food contains the essence of its producer" (Kahn & Sexton, 1986, 11), there was
a "certain kudos associated with purchasing Western foods" (Borgou, cited in Tuwai, 1996, 9-
10). A Pacific Islander was considered to "be 'someone' if [seen] to buy these foods or offer
them tinned fish, corned beef and rice, rather than the plentiful fresh fish or local greens.
People [have come to] generally look down on local foods as being inferior to imported foods"
(Yano, cited in North, 1992, 27).

Thus the post World War Two colonial period saw a movement of Pacific Islands people away
from a subsistence lifestyle to one based on cash, and a resultant change in the perception of
what constitutes a 'prestige food'. In the Pacific Islands the ability to earn cash indicated
prestige, and this prestige could be displayed by providing an abundance of highly prized
foods such as pigs and taro, along with imported tinned meat and other goods.

4.2.3 The Contemporary Pacific Islands Diet
In the Pacific Islands the prestige associated with purchasing food has filtered down into
everyday life, and the environment has changed to the extent that traditional staples (for
example fresh fish and taro) are now more expensive than imported foods (Kahn & Sexton,
1986, 8). Purchasing potato chips and soft drinks has become a way for people in the Pacific
Islands to show their wealth as well as a convenient way of accessing foods. Because Pacific
Islands society is increasingly urban, subsistence living is often no longer possible. Even in
rural areas the contemporary Pacific Islands diet is often purchased, and comprises of
imported foods. Hanna et al. (1985, 277), studied the nutritional habits of Samoans in various
locations including Western Samoa, American Samoa, and Hawaii, and determined that the
Pacific Islands diet in both the rural and urban areas of these countries vary only in the degree
of imported foods that they incorporate. In their report on this research the authors list some
of the foods typically chosen by Pacific Islands people in each of these locations. They found
that foods comprising the Pacific Islands diet include: tinned fish, palusami, pastry, bread,
alcohol, cocoa, pancakes, sugar, oil, butter, beef, and rice, along with more traditional staples
including taro, pork, coconut cream, fresh fish and breadfruit. Aside from bananas and taro,
fruits and vegetables rarely featured in these lists (Hanna et al., 1985, 289). Hanna et al. also
noted that Pacific Islands people consume larger quantities of food on Sundays. They
conclude that the changes to the Pacific Islands diet have had marked health consequences:
“In other populations, shifting to a modern diet is frequently accompanied by an increase in stature with dietary change (Baker & Hanna, 1981), but rather show a substantial gain in body fat (Pawson; Bindon & Baker, 1985; Bindon, 1982), and so the change to a modern diet is not necessarily beneficial” (Hanna et al., 1985, 277).

In Pacific Islands countries today, “the contemporary diet contains excessive animal fat, salt and calories and...traditional high fibre root vegetables such as taro, sweet potatoes and yams, are being replaced with less beneficial bread, rice, tinned meats and fish (Bloom in Glasgow, 1987, 42). In some Pacific Islands countries today 100% of food is imported (Kahn & Sexton, 1986, 10; Field, 1988, 29).

4.2.4 The Pacific Islands Diet in a Contemporary New Zealand Setting

In New Zealand, 97% of the Pacific Islands population is urban (see Chapter Two), and so urbanisation has had its greatest influence on the Pacific Islands diet. Foods that are high in fat and sugar and low in nutrients (such as baked goods and takeaways) are a staple feature of the diet of Pacific Islands New Zealanders, and this is affecting both their body size and potential for optimum health.

“Pacific people tend to see food as something to enjoy, rather than as a source of nutrients need to keep them healthy (Fitzgerald 1980, quoted in MOH, 1997a, 27). The cultural meaning of food for Pacific people must be respected. For example, while some traditional foods may lack nutritional value, their cultural value remains very powerful” (MOH, 1997a, 27).

Pacific Islands people in New Zealand maintain links with traditional dietary practices both through the inclusion of Pacific Islands foods in their diet, and by following traditional dietary patterns. For example, some Pacific Islands people still eat only one or two meals a day, with “little or no breakfast, snacks throughout the day, and a large afternoon tea or evening meal” (Bathgate et al., 1994, 103).

The diet of Pacific Islands people living in New Zealand was considered in two recent studies. The 1997 National Nutrition Survey (Russell et al., 1999) considered the contemporary Pacific Islands diet in comparison with that of both Māori and European New Zealanders. Vainikolo, Vivili and Guthrie (1993) look at the food choices of Tongans living in Dunedin. Unlike those living in Auckland, Wellington and even Christchurch, Pacific Islands people in Dunedin are restricted not only by the cost of traditional Pacific Islands foods, but to a significant extent by their limited availability. This study attempted to determine how limited income and access to traditional foods affected the participants’ methods of eating and cooking, and their attitudes towards Pacific Islands foods.

The 1997 National Nutrition Survey attempted to provide a detailed account of the food and nutrient intakes and dietary habits of New Zealanders. The 4363 respondents completed a 24-hour diet recall; a self-administered food frequency questionnaire which included questions about their food intake over the previous year, their food preparation habits, and their perceived level of household food security; and provided a number of physical measurements including height, weight, blood pressure and iron status. The participants, aged fifteen years and over, were separated into three ethnic groups: NZ[sic] Māori, Pacific people [sic], and NZ[sic] Europeans & Others. The above report, published in 1999, provides a summary of the Survey findings.

Russell et al. (1999, 164) discovered that “NZ Māori (males 27.0 percent, females 27.9 percent) and Pacific people (males 26.2 percent, females 47.2 percent) were more likely to be classified as obese than NZ Europeans & Others (males 12.6 percent, females 16.7 percent)” (ibid, 164). In addition, Pacific Islands males were significantly more likely to be classed as overweight than both NZ Māori and European & Other respondents. “NZ Māori (males 87.3 kilograms, females 75.2 kilograms) and Pacific people (males 95.0 kilograms, females 84.7 kilograms) were heavier than NZ Europeans & Others (males 78.9 kilograms, females 67.1 kilograms) but did not differ significantly in height”. Thus of the three groups of respondents, Pacific Islands people had the highest mean body weight. Pacific Islands participants also had the “highest prevalence of W/H ratio excess” (ibid, 165). The Waist to Hip (W/H) ratio is taken by measuring an individual’s waist and hip girth and expressing the result as a ratio. The ratio indicates increased risk of cardiovascular disease if greater than 0.9 for males and 0.8 for females. While NZ Māori males and females had a waist to hip ratio excess of 47.5% and 38% respectively, Pacific Islands respondents were significantly higher, with 66% of males and 52.4% of females having a waist to hip ratio excess (ibid, 165).

Food Choices

Western health professionals and nutritionists advocate a diet based on the Healthy Food Pyramid or a recently developed Pacific Islands equivalent: The Healthy Food Shell (see Appendix VII). The Healthy Food Pyramid recommends that an individual follow a “balanced diet”. This entails eating five servings of fruit and vegetables each day, along with six servings of breads and cereals, two servings of dairy products and one serving from the ‘meat’ section which includes foods such as fish, beans, lentils and eggs. Fats, oils, sugar, salt and alcohol belong to the “eat least” section at the apex of the pyramid (National Heart Foundation
of New Zealand, 1992; 1993; Whitney & Rolfes, 1999, 35). In accordance with these
guidelines the Nutrition Taskforce and the National Heart Foundation of New Zealand
recommend regular exercise and a smoke-free lifestyle (National Heart Foundation of New
Zealand, 1992).

The 1997 National Nutrition Survey (Russell et al., 1999) attempted to determine whether or
not the different population groups were meeting the recommendations of this pyramid. Some
details of their findings as they relate to Pacific Islands New Zealanders are listed below.

1. Breads and Cereals
According to the New Zealand Nutrition Taskforce (1991) guideline, an individual should eat
six servings of breads and cereals per day. Foods such as rice, pasta, and crackers are included
under this title along with breads and breakfast cereals. Russell et al. (1999, 128) found that
only 18% of the New Zealand population reached this guideline in 1997. They also found that
“Pacific people...were more frequent consumers of five or more servings of bread per day
than NZ Europeans & Others” (ibid, 128). NZ Māori and Pacific people were more likely than
NZ Europeans & Others to eat less than four servings of cereal foods per week. NZ Māori (20
percent) and Pacific (14 percent) females met the breads and cereals guidelines more
frequently than females from the category NZ Europeans & Others (7%).

Significantly, Pacific Islands people were more likely to use butter or margarine on bread,
whereas NZ Europeans & Others more often chose polyunsaturated spreads. The latter are
considered the more healthy of the two.

The study also revealed that “a higher proportion of young people consumed pasta, specialty
breads, waffles/donuts, fruit/iced buns, rice and Māori bread than older New Zealanders; and
that “a higher proportion of Pacific people consumed rice than the other two ethnic groups”
(Russell et al., 1999, 129).

2. Vegetable and Fruits
The Healthy Food Pyramid recommends eating at least three servings of vegetables and two of
fruits every day (National Heart Foundation of New Zealand, 1993). Russell et al. (1999, 131)
found that 67% of the New Zealand population ate at least three servings of vegetables per
day. Females were most likely to meet this guideline, in particular those aged over sixty-five
years. Only 42% of males aged fifteen to eighteen years met the guideline for the
consumption of vegetables. 56% of females and 34% of males ate at least two servings of
fruit in a day. The number of servings eaten by respondents of both sexes increased with age,
although females aged fifteen to eighteen years usually met the New Zealand Nutrition Taskforce guideline (Russell et al., 1999, 133).

Consumption of both fruit and vegetables were directly related to income and to ethnic group. Those on lower incomes were less likely to meet the guideline for both fruits and vegetables, while Pacific people were the least likely to have the recommended three or more vegetables per day (Russell et al., 1999, 131). While fruits were eaten equally among all ethnic groups "NZ Māori and Pacific people were more likely than NZ Europeans & Others to eat less than one serving of fruit per day" (ibid, 133). Pacific Islands people were less likely than Europeans to eat kiwifruit, stewed fruits and dried fruits, and more likely to choose pears and oranges than both other ethnic groups.

The Survey also revealed that Pacific people were the most likely to consume taro, green bananas and taro leaf. They also consumed the traditional Māori vegetables watercress, kamokamo and puha more frequently than Europeans.

3. Meat and Fish

New Zealanders are recommended to eat only one serving from this category of foods in a day. Meats more likely to be eaten by Pacific Islands people than New Zealand Europeans & Others included: lamb, hogget/mutton, fish- battered, hogget/mutton mixed dishes, pork-roast/chops, steak, corned beef, lamb mixed dishes, shellfish and pork bones (Russell et al., 1999, 130). Figure 4.1 shows the frequency of consumption of shellfish between the three ethnic groups. As shown in the figure Pacific Islands people are much more likely than the other two ethnic groups to eat shellfish one or more times a week.

**Figure 4.1**

Shellfish Consumption According to Ethnic Group

![Shellfish Consumption Chart](image)

*Source: Russell et al., 1999, 130.*
A “higher proportion of Pacific people consumed chicken, chicken mixed dishes, fish- canned, fish- steamed/baked/grilled/raw, fish- fried and pork mixed dishes than the other two ethnic groups” (Russell et al., 1999, 130).

Finally, where NZ European & Others reported always or often trimming the excess fat from meat, NZ Māori and Pacific people were unlikely to do so (Russell et al., 1999, 98). This is a useful way of reducing the amount of fat in a meal (National Heart Foundation of New Zealand, 1993).

4. Dairy Products
Pacific Islands people were more likely to use full-fat dairy products such as butter and whole milk, while trim milk and polyunsaturated spreads were chosen by Europeans. Pacific Islands respondents were more likely than those in the other ethnic groups to frequently drink hot beverages made with milk, but were less frequent consumers of many cheeses including mild, colby, tasty, gouda and edam (Russell et al., 1999, 127).

5. Beverages
In terms of non-alcoholic beverages, “compared to the other two ethnic groups, Pacific people were higher regular consumers of fruit drinks and sports drinks... Fewer NZ Māori and Pacific people drank coffee, tea and herbal tea than NZ Europeans & Others” (Russell et al., 1999, 134). Wine consumption was infrequent among both NZ Māori and Pacific participants in the Survey, and the “frequency of consumption of beer at least once a week” was lowest among Pacific Islands people in comparison to the other two ethnic groups (Russell et al., 1999, 135).

6. Miscellaneous Foods
Finally, the survey revealed that “NZ Māori and Pacific people were more likely to have eaten meat pies/ sausage rolls and hamburgers than NZ Europeans & Others” (Russell et al., 1999, 137). Takeaway foods were consumed more frequently by males than females, and most often by those males aged fifteen to twenty-four years.

The 1997 National Nutrition Survey is significant in that it shows the areas in which the Pacific Islands population is failing to meet recommended food guidelines. It also shows that Pacific Islands people are less likely than Europeans to take measures to reduce their intake of fats. The authors of the survey report acknowledge that the data on Pacific Islands people is limited in that their were considerably less Pacific Islands respondents than there were European and Māori; and because the Survey assumes the heterogeneity of the different Pacific Islands ethnic groups. However, by including information on Pacific Islands people
they are able to provide a better picture of the food and nutrient intakes of the New Zealand population as a whole, as well as providing a basis for further studies into Pacific Islands nutrition to be developed.


Similar to other New Zealand Pacific Islands migrants, Tongans were initially encouraged to come to Dunedin for work in the early 1970s. In the early 1990s approximately one percent of the Tongan population of New Zealand were living in Dunedin (Vainikolo et al., 1993, 6). Based on the opinion that the traditional Tongan diet has changed markedly over recent years, and that this is primarily attributable to urbanisation, Vainikolo et al. undertook a study of the diet of Tongan migrant to Dunedin. Thirty-nine Tongans aged 21-56 completed a food frequency questionnaire twice (once to describe their current eating habits in New Zealand, and once to recall their eating practices in Tonga), and thirty also participated in an interview about their eating habits. Participants were required to be over twenty years of age, and not to have lived in New Zealand for more than twenty years. Most had lived in New Zealand between two and five years. Fifteen of the participants were females, and twenty-four were male. Sixteen were factory workers, five workers in services industries, eight were housewives, eight were tertiary students, and the remaining six were unemployed. The aim of the study was to consider the diet of Tongans living in Dunedin both in terms of the food choices that the participants’ made, and the factors that affected these choices (Vainikolo et al., 1993, 6).

The researchers found that "all traditional Tongan staple foods were consumed significantly more often in Tonga than in Dunedin" (Vainikolo et al., 1993, 6). The cost of traditional foods and their limited availability were the two main factors that limited their consumption. The participants of the study were likely to eat Tongan foods only once every three to four months, usually at family gatherings or community feasts. Some Tongan foods such as bananas were eaten more regularly, but for the most part Tongan foods had been substituted with New Zealand alternatives. For example, while the basis of a meal in Tonga was a starchy root crop such as taro, potatoes were eaten in New Zealand. These were often prepared as taro would have been in Tonga, but were not considered as filling or tasty as Tongan foods. Rice and bread were also major sources of carbohydrates in the Dunedin meal, with rice often prepared as a sweet dish for breakfast or pudding (ibid, 6).
In Tonga the participants enjoyed fruits such as melon and pineapple on a daily basis. In Dunedin the consumption of fruits was rare. Apples, oranges, and pears were the fruits most often selected by the participants. Vegetables such as tomatoes, cabbage, onions and lettuce were consumed with similar frequency in both Dunedin and Tonga, where they were available in the markets. However, taro leaves, an important food source in Tonga, were not available in Dunedin. Silverbeet was often used instead, particularly for Sunday dinner. The consumption of meat, including boiled chicken, boiled and fried fish, and tinned corned beef, was similar in both Dunedin and Tonga, while raw fish and shellfish were eaten on only a weekly to monthly basis in Dunedin, but daily to weekly in Tonga (Vainikolo et al., 1993, 7).

In many households, especially those where all of the members were Tongan, Tongan cooking was the most prevalent food preparation method (Vainikolo et al., 1993, 7). Thus meat was usually boiled or fried, and vegetables were boiled and served plain. “Home-made soup” – which is made by cooking both meat and vegetables together in one pot, was a widely used cooking method. Cooking methods and recipes were always straightforward, and the only ingredients added in cooking were coconut cream (although this was often substituted with cream, which was less expensive) and salt. The Tongan way of cooking food was considered to be “tastier, cheaper, and easier” (ibid, 7). Participants less likely to eat foods prepared with Tongan methods were those from mixed households (particularly if the wife was European), and the eight tertiary students. The latter group ate very little food prepared by Tongan methods, and had adopted New Zealand cooking and eating habits (ibid, 7).

Three families involved in the study had an umu (traditional underground oven), and these were frequently used for the preparation of Sunday dinners (lu). Traditionally for these meals taro leaves, meat, onion vegetables and coconut cream were wrapped in banana leaves and cooked. In Dunedin silverbeet replaced the taro leaves and the food was cooked in aluminium foil. The umu were also used for preparing community feasts, which were usually church-based, with all households contributing food (Vainikolo et al., 1993, 7).

All of the participants in the Dunedin study expressed a strong preference for Tongan foods, and methods of cooking and eating. The Tongan way of eating involves “eating when hungry” (Vainikolo et al., 1993, 8). When asked whether they preferred the New Zealand or Tongan eating pattern, responses included: “I prefer the Tongan pattern – eat when I feel like it”, “I prefer the Tongan way as I eat when I feel like eating. But it can be bad in that you just eat once to be stuffed”, and “Tongan eating pattern – I don’t want to be pressured by time” (ibid, 8). The participants were accustomed to eating whenever they felt like it, and continuing to eat until full. Those who preferred the New Zealand method of eating smaller,
more frequent meals day pattern often found it was difficult to keep to, although some saw the benefits of eating less food in one meal.

Vainikolo et al. (1993, 8) note that the Pacific Islands habit of eating until full, combined with the lower satiety value of New Zealand foods, may be one reason why Pacific Islands people in New Zealand tend to be overweight:

"Anthropologists suggest that the value accorded satiety in Polynesian communities may have been a factor of cultural significance for many thousands of years. It could be that the observed increase in weight...is partly a consequence of patterns of eating structured by ancient habits based on subjective feelings before and after eating. The familiar feeling of fullness provided by traditional diets comes from the texture, the slow rate of digestion and the dietary fibre content of starchy staples. Potatoes, rice and bread do not provide these same feelings of fullness. Overeating can easily occur in an effort to achieve satiety..."

This is compounded by the fact that "another way of trying to obtain a desired level of feeling of satiety is to increase the consumption of meats, particularly fatty meats" (ibid, 8).

All of the participants of the Dunedin study indicated that they had an increased awareness of what they were eating in New Zealand, and some believed that this enabled them to be healthier. The variety of foods available in New Zealand was seen as positive as it allowed for a more balanced diet. One participant noted that she felt healthier in New Zealand: "In Tonga good food to me was having meat, because meat was limited. But in New Zealand I realised that veges, fruit and green leaves are the goodies" (Vainikolo et al., 1993, 8). Some participants acknowledged that they had put on a lot of weight in New Zealand, and believed that this was due both to an increased consumption of meats in New Zealand, and to the reduced satiety value of New Zealand foods. Tongan foods were seen as fresher and healthier, and as keeping people full for much longer.

Finally, Vainikolo et al. (1993) observed that the Tongan participants of their study placed a greater emphasis on the subjective feelings produced by food than on eating for nutritional purposes:

"If what I like (i.e. my favourites) are bad for me, I don’t think I’ll change. I’d rather enjoy my food."

"Sometimes its hard to change...its good if you can stop but sometimes that food is delicious, its hard to stop”.

"Living longer doesn’t really matter. I’d rather live comfortable” (quoted in Vainikolo et al., 1993, 8).
In 1993 and 1994 the Public Health Commission asked Pacific Islands people to comment on their diet. The participants of this research believed that their diet in New Zealand than that of their counterparts in the Pacific Islands. Because they had less access to fish, fresh fruits and taro, they felt more dependent on ready meat, bread and potatoes. They were also aware that in New Zealand they consumed more salt, sugar and fat. A lack of sufficient money to buy food was considered the main reason for the poor quality of the diet. Although some indicated that they were trying to improve their diet, and exercise more, most said that changing was difficult “particularly when the lavish production of food and the hearty enjoyment of it was expected at weddings, funerals and other occasions” (Bathgate et al., 1994, 23).

4.3 Lifestyle Factors
Smoking, alcohol consumption and exercise are lifestyle factors that combine with nutrition to have an affect on health. A movement away from subsistence-based lifestyles among Pacific Islands people has led to a reduction in the amount of exercise that they do. Coupled with this has been the infiltration, since the colonial period, of tobacco and beer into Pacific Islands life (Kahn & Sexton, 1986, 11). In the 1996 Census, 31% of Pacific Islands people aged fifteen years or older reported that they smoked one or more cigarettes per day. Figure 4.2 shows the prevalence of smoking among Pacific Islands people, according to ethnic group. Bathgate et al., (1994, 114) notes that over the ten years prior to 1994 “the smoking rate among Pacific Islands people in New Zealand appears [sic] to have declined to a lesser extent than the rate among Palagi”.

Figure 4.2
Cigarette Smoking Among Pacific Islands People, Census 1996

Source: Stats Nz, 1998, 23.
In New Zealand Pacific Islands people almost always live in urban environments, and are unlikely to participate in exercise regularly. Scrugg et al., (1992, in Bathgate et al., 1994, 118) found that “28% of Pacific Islands men and 18% of Pacific Islands women (in comparison with 33 and 30 percent of Palagi men and women respectively) were likely to partake in vigorous leisure time activity”. However, the 1993 Household Health Survey found that 60% of Pacific Islands people had not participated in any exercise within the previous seven days (StatsNZ & MOH 1993, in Bathgate et al., 1994, 118).

The 1993 Household Health Survey also found that Pacific Islands people were less likely to use alcohol than other New Zealanders. At this time “53% of Pacific Islands people aged fifteen and over never used alcohol, compared with 27% of Māori and 21% of Palagi respondents” (StatsNZ & MOH 1993, in Bathgate et al., 1994, 117). One half of those Pacific Islands people who did drink did so only moderately (ibid, 117). A subsequent 1996/1997 survey concurred that Pacific Islands people had a lower than average intake of alcohol. Over half of the Pacific Islands participants of this survey had consumed no alcohol in the twelve months leading up to this survey (ALAC, 2000, 5). However, this research revealed that more than one third of Pacific Islands people who did drink “[d]rank in a manner which put them at risk of future physical or mental health problems: Pacific drinkers (along with Māori, were more likely than other drinkers to have five or more drinks on one occasion” (ibid, 5). According to Bathgate et al. (1994, 118), Pacific Islands people see alcohol as “the root cause” of social problems such as lack of money, poor housing, domestic violence, rape, unplanned pregnancies, car accidents and driving convictions, especially for younger people. Young people who were born and raised in New Zealand are considered more likely than their Island-born counterparts to abuse alcohol or get into trouble because of it. This is because social controls in New Zealand are more relaxed (ibid, 118). Despite the commonly held negative views of alcohol, Pacific Islands people do consider it important to provide alcohol for social occasions and feasts, and “much money [will be] spent ensuring there [is] a copious supply” (ibid, 118).

4.4 Factors Affecting the Food Selections of Pacific Islands People

Three main factors affect the food choices of Pacific Islands people in New Zealand. These are the cost and availability of foods, and the influence of culture.

4.4.1 Food Affordability and Availability

In New Zealand, Pacific Islands foods both more expensive, and more difficult to find. Vainikolo (1993, 8) noted that the extensive dietary changes Pacific Islands people made on migration to New Zealand were exacerbated in cities like Dunedin – with their low Pacific
Islands populations – “due to [the] high cost and poor availability of Islands foods throughout the year”.

**Household Food Security**

“Food security is an internationally recognised term that encompasses the ready availability of nutritionally adequate and safe foods, and the assured ability to acquire personally acceptable foods in a socially acceptable way” (Russell et al., 1999, 100).

The authors found that thirteen percent of the total New Zealand population could afford to eat properly only *sometimes*. “More NZ Māori (males 24 percent, females 33 percent) and Pacific people (males 39 percent, females 37 percent) ‘can afford to eat properly’ only *sometimes* compared with NZ Europeans & Others” (Russell et al., 1999, 100). Food was reported to ‘run out’ *often or sometimes* by one half of Pacific respondents, one third of NZ Māori respondents, and only one tenth of NZ Europeans & Others (ibid, 100). A lack of money limited the food choices of Pacific people more than it did those in the other ethnic groups (ibid, 101), and 15% of Pacific people reported that a lack of money to buy food caused them stress *sometimes or often* (ibid, 102). The 1992/1993 Manukau Quality of Life Survey revealed that when money is limited the following foods are given up: meat, luxuries, fruit, vegetables, and Polynesian (or other traditional) foods (Manukau City, 1993, 2).

The lack of availability of Pacific Islands foods also meant that the participants of the Vainikolo study went to great lengths to attain these for feasts, even travelling to Christchurch if necessary (Vainikolo, 1993, 8). In Auckland markets meant that Pacific Islands foods are slightly easier to attain, however this is not the case for New Zealand’s other urban centres (Bathgate et al., 1994, 96).

### 4.4.2 Culture & Food

Throughout the Pacific Islands nations food has been used in the teaching of traditions and to communicate custom, to indicate kinship and social relationships, and as a vehicle for the exchange of wealth. As well as being an indicator of social status, food allows Pacific Islands people to show both generosity and hospitality to family members and guests (Kahn & Sexton, 1988, 7; Bathgate et al., 1994, 98). Thus in Pacific Islands life, “food is the meaning of all things” (Kahn & Sexton, 1988, 6).

The participants of the Vainikolo study noted the central role that food plays in Pacific Islands culture. It is an integral part of all major occasions including meetings, farewells, funerals and
sporting events. It is a way of showing respect and bringing people together, and an essential way of expressing happiness at celebrations.

For important occasions the Tongan participants stated the importance of providing foods that were valued highly by Tongan culture. Such foods include pigs, yams, and giant taro: "The giving of yams indicated a great respect for the recipient" (Vainikolo et al., 1993, 8). The practice of providing guests with an abundance of highly valued foods is common to all Pacific Islands cultures. Patricia Kinloch (1985, 18) whose studies focus on Samoan culture, states that collecting, producing and giving food is the Samoan way of expressing respect and love to a person or group. Thus not eating food that is offered is seen as rude, insulting, and a rejection of the respect and love that is offered (ibid, 19). In a second book, written in collaboration with Joan Metge, Kinloch goes on to describe the problems that Pacific Islands attitudes to food incur in the New Zealand context. Where a New Zealand host will offer a guest a 'cup of tea', in Samoan homes food and drink is customarily set before visitors without notice. An array of different foods will be set out to provide the guests with choice (Metge & Kinloch, 1999, 20). Similarly where Europeans eat with their guests, Pacific Islands people have a tradition of waiting on their guests, serving those ranked highest first. In Samoan culture women are served after men and titled guests, followed by young men and finally children. In New Zealand women are more likely to eat last for two proposed reasons: firstly, electrical stoves have limited the ability of the women to delegate cooking tasks to children, and secondly due to an increased importance placed on children in the New Zealand context (ibid, 20). In Pacific Islands culture to leave before food is served is a great offence, and turning down food that is offered causes distress as the host would have to go without food rather than eat in the presence of a guest who was not doing so (ibid, 20).

4.5 The Diet-Related Health Conditions of Pacific Islands People

"Food and nutrition are key factors contributing to the poorer health status of Pacific people. Obesity, hypertension, diabetes and heart diseases are more common among Pacific people than other New Zealanders. Dietary changes due to limited resources and the different types of food available in New Zealand have resulted in increased intake of saturated fat, refined sugar, energy and salt and reduced fibre intake" (MOH, 1997a, 23).

Bathgate et al. (1994, 96) assert that dietary changes have led to the increased morbidity of Pacific Islands people. In this 1994 Public Health Commission report an entire chapter is dedicated to nutrition and lifestyle, and the health effects that this has had on Pacific Islands people in New Zealand. The lower incomes of Pacific Islands people in New Zealand are noted as limiting their ability to access healthy foods. The authors recorded a number of the health problems associated with this change in the Pacific Islands diet, as have been
documented in the earlier sections of this chapter. For example, Pacific Islands children and young people consume a diet which is high in sugar and contains many foods with low nutritional quality. They are taller and heavier than other New Zealand children, and have an increased potential for obesity. Significant adult obesity occurs earlier in Pacific Islands people, and approximately seventy-five percent of Pacific Islands people in New Zealand are overweight. The health effects of the diet and nutrition of Pacific Islands people in New Zealand are described in this final section of Chapter Four.

Health conditions associated with diet and lifestyle behaviours are known as non-communicable diseases as they are not able to be transmitted from one person to another (Bathgate et al., 1994, 208). These diseases often occur as a result of lifestyle behaviours such as smoking, drinking excessive amounts of alcohol, eating a poor diet, and leading a sedentary lifestyles. As the Pacific Islands have undergone the process of modernisation, non-communicable diseases have replaced communicable (infectious) diseases as the most prevalent cause of morbidity and mortality for Pacific Islands people. Glasgow (1987, 42) recognises that the “dramatic shift in [Pacific Islands] disease patterns coincides with the adoption of Western lifestyles”. Further:

“Because the Pacific has imitated foreign development approaches and lifestyles these new diseases have been called Western diseases. This term is mostly applied to diseases such as diabetes, hypertension, heart attacks, stroke, gout, and similar ailments caused by overeating, lack of exercise and stress” (Tiffany, 1992, 24).

4.5.1 “Big Is Beautiful”

The tendency of Pacific Islands people towards obesity has a strong bearing on their patterns of disease. Obesity “is body fatness significantly in excess of that consistent with optimal health” (MOH, 1998b, 6), and “results from dietary intake chronically in excess of energy expenditure and is thus related to both diet and physical activity” (MOH, 1997a, 23). Obesity is usually measured by determining an individual’s Body Mass Index (BMI) which is a measure of the weight (in kilograms) over height (in metres) squared. If this figure is between twenty-five and thirty a person is considered overweight, and if it is greater than thirty they are deemed obese (Bathgate et al., 1994, 94). This measure of body weight has drawbacks for different sectors of the population. For example, athletes such as rugby players will often have a BMI over thirty but not be obese, simply because muscle weighs more than body fat. The BMI has also been criticised as an accurate measure for Pacific Islands people as they are thought to have a higher bone density and overall body weight than Europeans/Palagi. Thus Pacific Islands people may have a BMI higher than twenty-five but not be overweight. As yet no BMI reference range for Pacific Islands people has been established (ibid, 108).
However, based on the Waist to Hip ratio measure, and general observation, “it is estimated that seventy-five percent of Pacific Islands people in New Zealand are overweight” (Bathgate et al., 1994, 95). The genetic predisposition of Pacific Islands people to a larger body size, along with the perception that big is beautiful, and “being overweight can be a sign that your family cares well for you” (Kinloch, 1985, 18-19), have in part contributed to the high rates of obesity among Pacific Islands people.

“People look down on you if you’re slim. They think that you’re malnourished or diseased, that you have TB. They think that you have too much stress, like jealousy or being poor. People look down on you if you don’t eat vegetables” (research participant, quoted in Yamada, 2000, 67).

Therefore, in stark contrast to the Western ideal of a thin body shape, in Pacific Islands cultures a large body is accepted and even desired. However, in the New Zealand context, where the Pacific Islands diet is largely comprised of ‘unhealthy’ foods, obesity among Pacific Islands people is having a vast effect upon health. The two factors most responsible for obesity in Pacific Islands people are: “a decrease in physical activity in combination with an increased diversity in diet upon migration” (Bathgate et al., 1994, 108).

Obesity is both a disease in its own right as well as a precursor for a variety of other health conditions (MOH, 1998b, 6). For example, people who are thirty to forty percent above the recommended weight for a population are at a greater risk of coronary heart disease, colorectal cancer (in men), and cancer of the gall bladder, breast, cervix, endometrium, uterus and ovary (in women) (Bathgate et al., 1994, 107). Other diseases associated with obesity include stroke, hypertension, and non-insulin dependant diabetes mellitus (Bathgate et al., 1994, 108; MOH, 1997a, 23; MOH, 1998a, 6). Pacific Islands people tend to develop obesity earlier than non-Pacific Islands people (Bathgate et al., 1994, 108), and encounter non-communicable diseases at a younger age. The health conditions listed here, and the manner in which they affect Pacific Islands people in New Zealand, are described in the remainder of section 4.5.

4.5.2 Cardiovascular Disease: Heart Disease and Strokes
The term cardiovascular disease refers to all diseases of the heart and blood vessels. These are the leading cause of death for men and women in New Zealand and many other developed countries (Whitney & Rolfes, 1999, 563). Coronary heart disease (also known as ischaemic heart disease) is the most common form of cardiovascular disease. It involves atherosclerosis (the accumulation of lipids and other materials in the arteries) and hypertension (see section 4.5.3). The presence of either of these factors will make the other worse (ibid, 563).
Coronary heart disease is "the damage that occurs when the blood vessels carrying blood to the heart become narrow and occluded" (Whitney & Rolfes, 1999, 563). The best known form of coronary heart disease is that heart attack (ibid, 564). Smoking and a lack of exercise also contribute, along with dietary cholesterol (which is split into high density lipoproteins and low density lipoproteins, which are less healthy) and dietary fat contribute to atherosclerosis and thus to the risk of coronary heart disease (Bathgate et al., 1994, 109; Whitney & Rolfes, 1999, 564). Pacific Islands people in New Zealand have lower total and low density lipoprotein levels, and higher high density lipoprotein cholesterol rates, that is, they have a blood lipid profile seemingly more conducive to health (Bathgate et al., 1994, 109). However, coronary heart disease is still a significant cause of morbidity in Pacific Islands males and females, and mortality in Pacific Islands men. One of the probable reason accounting for the high rates of coronary heart disease in Pacific Islands people is the dietary shift from the relatively healthy coconut oil, to fats coming mainly from meat (ibid, 109).

Strokes, or cerebrovascular accidents, occur when the blood flow to the brain is temporarily cut (Bathgate et al., 1994, 205). Strokes share many of the same risk factors as coronary heart disease, including cigarette smoking, raised plasma cholesterol, raised blood pressure, a family history of the disease, a lack of physical activity, and other diet and lifestyle factors (MOH, 1997a, 23). Further, "the effects of socioeconomic [sic] issues such as poor standard of housing, unemployment, and low income levels can also seriously compromise health and nutritional well-being, to an extent that increases the risk of coronary heart disease and stroke" (ibid, 23). Strokes are a leading cause of morbidity and mortality in Pacific Islands people aged forty-five years and older (Bathgate et al., 1994, 156; MinPac, 1999, 32).

4.5.3 Hypertension

High blood pressure, or hypertension, occurs when a person has a systolic blood pressure level of 160 mmHg or more, and a diastolic level over 95mmHg, as determined by the WHO (Russell et al., 1999, 166). Any of the following factors will increase an individual's risk of developing high blood pressure: excessive alcohol sodium (salt) consumption, high blood lipid levels, low levels of physical activity, obesity and stress (MOH, 1997a, 24). Like obesity, high blood pressure is both a disease in itself, and a risk factor for other non-communicable diseases including coronary heart disease, diabetes, and stroke.

The Ministry of Health (1997, 26) observes that "Pacific Islands people have some of the highest rates of high blood pressure...in the world". Pacific Islands people traditionally experienced an increase in blood pressure on migration to New Zealand due to an increase in dietary protein, overall energy and salt intakes, and a decrease in potassium (Bathgate et al.,
1994, 109). Howard (1986, 415) also believes that hypertension among Pacific Islands people is related to the stress involved with keeping up family and community obligations, such as sending remittances home. Hypertension is modifiable by controlling diet-related factors including body weight, dietary fat, and salt intake, and through medication. Bathgate et al. (1994, 109) found that of all hypertensive New Zealanders, Pacific Islands people "were least likely to be receiving treatment for hypertension and were therefore considered to be at the highest risk". Russell et al. (1999, 166) concurs that medicating for high blood pressure is more effective in Europeans/Palagi than in Pacific Islands people in New Zealand.

4.5.4 Hyperuricaemia and Gout

Hyperuricaemia is a disorder where metabolism of uric acid is abnormal, either due to an excess amount of uric acid in the body or deficient excretion of this by the gut and kidneys (Bathgate et al., 1994, 207). Under specific circumstances hyperuricaemia becomes gout, which is when crystals of monosodium urate form in the outlying joints, such as fingers, toes and knees (ibid, 207). Pacific Islands people, especially males, have a genetic disposition to hyperuricaemia, and are likely to develop this at quite a young age (ibid, 110). Pacific Islands people in modernised locations have a higher than average propensity towards developing gout. The lifestyle changes associated with living in a Western setting, including a change in diet, increased alcohol consumption, and increased body weight, are responsible for the high rates of gout in Pacific Islands people. Most specifically, hyperuricaemia and gout are associated with an increased consumption of meat (ibid, 111).

4.5.5 Non-Insulin Dependant Diabetes Mellitus

Bathgate et al. (1994, 206) define diabetes mellitus as "a metabolic disorder in which there is a relative or absolute lack of insulin, resulting in the body being unable to metabolise glucose (from carbohydrate in food) inside cells". It is always linked to a diet that is high in sugar and fat, and low in dietary fibre, coupled with a sedentary lifestyle. There are two types of diabetes: type I or insulin dependant (IDDM) and type II or non-insulin dependant diabetes mellitus (NIDDM). The latter is related to diet and lifestyle, occurs in middle to later life, and is strongly associated with obesity.

Diabetes is the most widely recognised chronic health problem affecting Pacific Islands people in New Zealand (Bathgate et al., 1994, 111). The disease has reached epidemic proportions in several Pacific Islands countries including Fiji, Tonga, Western Samoa, Nauru, New Caledonia, the Marshall Islands, Papua New Guinea, and Kiribati, as well as among Pacific Islands people in New Zealand (Tiffany, 1992, 24; Tuwai, 1996, 8). Factors contributing to these high rates of diabetes include a diet higher in energy, protein, and alcohol than the...
traditional diet, weight gain, and decreased physical activity (ibid, 113). As stated earlier, each of these is a feature of modernisation. Foster (1996, 12) comments that “it is a tragedy that such a picture of rampant diseases is envisioned for indigenous people, who, by adopting another culture’s lifestyle habits, are killing themselves”.

Bathgate et al. (1994, 112) also estimate that one half of all diabetes cases are undiagnosed at any one time. Therefore the rate of diabetes among Pacific Islands people in New Zealand could be much higher than the four to eight percent indicated by existing statistics (MOH, 1997a, 27). The rate of diabetes in Pacific Islands people is higher than that of all other New Zealand ethnic groups including Māori, with the prevalence among Europeans/Palagi being only two to five percent. The predisposition of Pacific Islands people to diabetes is compounded by their high rates of obesity, and because the disease is hereditary (Bathgate et al., 1994, 113). Thus “Pacific people are at a higher risk of developing NIDDM and complications than the general population” (MOH, 1997a, 27). Complications of diabetes affect the nervous system, kidneys and eyes, and diabetes causes hypertension. NIDDM occurs approximately ten years earlier in Pacific Islands adults than in the population in general (Simmons, 1999, 45). Complications also present earlier, and, if left untreated, can have severe consequences. For example, diabetes affects the nervous system, causing a reduction in circulation, which if left untreated can lead to the amputation of the affected limb (Field, 1988, 29). However, there is “a lack of understanding among the Pacific population about diabetes, its risk factors and the need for early detection”, and Pacific Islands people suffer worse consequences due to “inadequate knowledge and skills in the self-management of diabetes” (MOH, 1997a, 28). Due to their lower utilisation of health services, Pacific Islands people are less likely to have their condition diagnosed, and a diminished quality of life. amputations and blindness are common outcomes of the disease (ibid, 27).

Type II diabetes is treated through modification of the diet, combined with increased physical activity, and often medication. Such measures help to keep blood sugar levels as close as possible to normal, and mean that insulin injections are not usually necessary. Overall, Pacific Islands people have higher levels of obesity; have an inadequate knowledge of their disease; have poor blood lipid and blood glucose control; and are failing to carry out adequate blood glucose monitoring (Bathgate et al., 1994, 114). Thus NIDDM continues to be a leading cause of death in Pacific Islands people, particularly for those aged forty-five to sixty-four years (MOH, 1997a, 27).
4.6 Chapter Summary

The idea that a Samoan host would rather forgo food than eat in front of guests who were not holds, in part, the key to the concept of obesity among Pacific Islands people. Both providing and accepting food indicate love and respect, and thus for Pacific Islands people to eat is 'politically correct'. This chapter has shown that while it is preferable to serve Pacific Islands foods, particularly at feasts and to honoured guests, Western foods have infiltrated the everyday Pacific Islands diet. Thus foods which are often highly processed, and high in fat and refined sugars are served and eaten in abundance by Pacific Islands people. The extent to which these foods comprise the diet varies based on the level of urbanisation of any area, and is worst among Pacific Islands people in New Zealand and other Western Pacific rim countries, where Pacific Islands people are almost entirely urban. As Yano (cited in North, 1992, 26-27) notes, Pacific Islands people equate nutritional quality with how expensive food is. Therefore spending money on food, even if that food is a KFC family feast, is an expression of love and wealth in a Pacific Islands family.

Chapter Four has shown that Pacific Islands people are predisposed to obesity for both genetic reasons and lifestyle factors. These lifestyle factors are bound by the environments in which Pacific Islands people live (both in the Pacific Islands and New Zealand), and by the cultural constraints of Pacific Islands society. Lifestyle-related health problems, also known as Western diseases, feature among the leading causes of morbidity and mortality for Pacific Islands people in New Zealand. Moreover, the patterns for these negative lifestyle behaviours are established during adolescence, and have a variety of negative long-term health effects. The specific characteristics of the diet and health of Pacific Islands young people are discussed in the ensuing chapter.
CHAPTER 5
Studies into the Health of Pacific Islands
Young People in New Zealand

Although there has been a growing interest in the health of Pacific Islands people in New Zealand, there have been few studies to date which deal specifically with the health of young people, and even fewer that consider their nutrition and lifestyle behaviours. Chapter Three looked at the health of Pacific Islands people in New Zealand, and at how traditional concepts of health, along with the socio-economic environment in New Zealand, contributes to their poor health status. Major health problems associated with Pacific Islands people. As is evident from this chapter, most of the health conditions associated with Pacific Islands people can be directly attributed to diet and lifestyle behaviours. The dietary habits of Pacific Islands people are outline in Chapter Four. This chapter considers the health of Pacific Islands youth.

Chapter Five provides an outline of existing research which concentrates on the health of Pacific Islands young people. The first section of the chapter presents Pacific Islands youth health issues as documented by the Public Health Commission (PHC) and the Ministry of Health (MOH). An independent study commissioned by the Ministry of Youth Affairs and the Central Regional Health Authority is also detailed. The remaining studies, described in the latter part of this chapter, regard the diet and nutrition of Pacific Islands young people in New Zealand specifically. These studies include a review of the food choices of Pacific Islands young people, along with the cultural significance that Pacific Islands youth assign to food. There have been limited studies into the nutritional habits of Pacific Islands young people, and of the studies presented the research undertaken by Nite Fuamatu, Rita Thetadig and Sally Casswell is the most comprehensive investigation of the food choices and nutritional habits of Pacific Islands youth.

The overall aim of Chapter Five is to provide an overview of the health problems facing Pacific Islands young people in New Zealand, and an insight into their lifestyle and nutritional habits. The information provided will form a basis for comparison with and discussion of the findings of this research, as detailed in Chapter Six.
5.1 Identifying Pacific Islands Youth Health Concerns

The main causes of morbidity and mortality among Pacific Islands people in New Zealand have been documented by both the Public Health Commission and the Ministry of Health. Both have presented their findings in published form. The three publications mentioned below detail health issues relevant to Pacific Islands youth in New Zealand as indicated by hospital records and national statistics. [The PHC volume also includes a lengthy section dealing with nutrition and Pacific Islands people. This information was presented in Chapter Four.] The fourth publication outlined in Chapter 5.1 contains the findings of a study undertaken by Alison Gray for the Central Regional Health Authority and the Ministry of Youth Affairs. This report is somewhat different from the first three publications in that the findings represent the opinions of the youth, as to which health issues they consider to be important.


This publication details important age-specific health concerns for Pacific Islands people, as identified in the period from 1987 to 1991. The major causes of death for all Pacific Islands young people are named as unintentional injuries and suicide. For adolescent males falls and motor vehicle accidents were the main cause of hospitalisation, followed by infectious and parasitic diseases, asthma and cancer. While the rate of unintentional injuries was similar to that of the entire population, young Pacific Islands males had a higher rate of hospitalisation for accidental falls, infectious and parasitic diseases, cancer and pneumonia. Three-quarters of all hospitalisations for adolescent Pacific Islands females were for pregnancy, childbirth, and health services related to reproduction. This rate was much higher than that of the total age-specific population. Pacific Islands women/adolescents have been identified as having a consistently higher fertility rate than New Zealanders in general. Other main causes of hospitalisation for adolescent females were asthma, infectious and parasitic diseases, motor vehicle accidents and unintentional injuries (Bathgate et al., 1994, 166-168).

Mental health was also common among Pacific Islands young people, with 213 first admissions in this period. Males were more likely to seek help for schizophrenic disorders, and alcohol and drug dependence, while females presented with affective psychoses, paranoid states, and schizophrenic disorders (Bathgate et al., 1994, 168-169).


Two separate booklets published by the Ministry of Health in 1997 and 1998 attempt to detail the main age-related health concerns of Pacific Islands People living in New Zealand. In each volume the primary health issues facing Pacific Islands young people, aged 15-24 years, are listed as follows. For males, unintentional injuries and suicide account for the highest proportions of both hospitalisation and death. Falls and motor vehicle accidents are the most common causes of injury. Respiratory diseases, skin diseases, digestive diseases and intentional injuries are other significant causes of hospitalisation (MOH, 1997a, 33). Pacific Islands adolescent females are most likely to be hospitalised for reasons relating to fertility and pregnancy (MOH, 1997a, 33; MOH, 1998a, 4). Poor mental health status, substance abuse and sexually transmitted diseases are also listed as health concerns common among Pacific Islands youth (MOH, 1997a, 34).

The Ministry of Health publications note the fact the high fertility rates, increasing birth rates, and the relative youth of the Pacific Islands population in New Zealand will have an impact on health and social services both now and in the future (MOH, 1998a, 4). In addition, the high rate of teenage pregnancy is concerning because adolescent mothers are less likely to complete their schooling, are more likely to become reliant on welfare and/or low income jobs, and will be less able to provide a healthy environment for their children (MOH, 1997a, 34). Such children are more likely to be exposed to smoking, alcohol and drugs, and violence within the home.

Neither the 1997 or 1998 publications mentions nutrition as a health issue relevant to Pacific Islands young people. However, food and nutrition are identified as “key factors in the poor health of Pacific people” (MOH, 1997a, 26). Obesity, hypertension, diabetes and coronary heart disease are identified as more common among Pacific Islands people than European/Palagi New Zealanders, with Pacific people having “some of the highest rates of high blood pressure and diabetes in the world” (ibid, 23). The diet of Pacific Islands people is noted to be high in saturated fat, refined sugar, energy and salt, with low levels of dietary fibre. The 1992/1993 New Zealand Health Survey showed that Pacific Islands people are “less likely to engage in vigorous physical activity than the rest of the population” (Statistics New Zealand and the Ministry of Health 1993 quoted in MOH, 1997a, 23). The 1997 publication also notes that “significant adult obesity” is likely to appear earlier in Pacific
Islands people living in New Zealand, and therefore “early intervention aimed at younger people needs to be implemented in places such as schools or church communities” (MOH, 1997a, 23).

The Ministry of Health (1997, 34) recognises that Pacific Islands young people have difficulty in accessing the health resources that they need. Language differences, inefficient methods of communication, family structure and relationships, and the church are named as cultural factors which influence the way in which Pacific Islanders utilise health services in New Zealand (MOH, 1997a, 34). A number of areas where health services are ineffective in reaching Pacific Islands youth are listed in this volume. The main identified shortcomings are:

- A lack of services which promote sexual health, including planned parenthood,
- a shortage of services that focus on the specific needs of youth,
- a lack of written, visual and telephone health information for young people, parents and caregivers,
- a shortage of services that promote mental health and help prevent suicide,
- a lack of joint programmes between health services and other sectors including education, and
- a need to health families provide caring stable support (ibid, 34).

Suggestions for improving the health of Pacific Islands young people included: consulting with Pacific Islands young people about their health concerns; consulting with Pacific health workers about the barriers between Pacific Islands young people and existing services; using the Pacific media to reach wider communities; and promoting research into the risk factors and causes of suicide among Pacific Islands youth (ibid, 34).


Commissioned by the Ministry of Youth Affairs and the Central Regional Health Authority, Alison Gray questioned thirty-five groups of young people about their use of health services, and their primary health concerns. Her participants were categorised into groups of European/Palagi, Māori, and Pacific Islands young people, as well as youth with special needs, and ‘mixed groups’ which incorporated participants of differing ethnicities including Asian. Forty of Gray’s 221 participants were of Pacific Islands ethnicity. Each adolescent participated in a focus group discussion and completed a self-administered questionnaire.
Based on the responses of her Pacific Islands participants, Gray made a number of observations. School-age adolescents identified the following health issues as important: hepatitis B, asthma, cancer, AIDS, and diabetes. They did not mention sexuality or mental health until prompted. Once prompted they acknowledged that contraception, pregnancy, safe sex and abortion were all important matters for people their age (Gray, 1994, 30).

Girls who had left school acknowledged sex education, teenage pregnancies, and nutrition as their most important health issues. Young men placed a greater emphasis on general health and fitness, followed by smoking, alcohol and drug use, fertility and AIDS. Males and females gave quite a different emphasis to sexuality issues. For women were concerned with pregnancy, men rated fertility as important. Both older groups also referred to drug and alcohol problems among Pacific Islands communities. None of the respondents mentioned disabilities until prompted, but then identified hearing problems quickly. Unlike those still at school, older participants were concerned about nutrition and saw the need for programmes on how to eat properly:

“A lot of members of the church have got high cholesterol and I think nearly everyone’s got high blood pressure and that’s due to all the food that they eat and the food that they don’t know how to cook here in New Zealand”
(Young woman, quoted in Gray, 1994, 30).

**Health Services**

According to Gray, younger adolescents in the group would most likely use a family doctor for all of their medical problems, and the appointment would be arranged by their parent. Older participants would first try a chemist (which was seen as less expensive), and then visit a doctor. They also mentioned traditional remedies, and the lower cost of these (Gray, 1994, 32).

For emotional problems the participants mentioned speaking to family or friends as preferable, but would also seek help from the school nurse, a teacher, a counsellor, or the church. They identified Alcoholics Anonymous, Youthline, and the Citizens Advice Bureau as possible sources of help and information. Few would go to their families for help with drug or alcohol problems, and they also found it hard to talk with their parents about sexuality issues. In addition, most of the young women felt uncomfortable visiting a family planning clinic.

Of all health services, the participants were most likely to have visited a doctor or chemist for health care in the last six months. Cultural values influence their willingness to seek help, with shame and embarrassment preventing them from using health services (Gray, 1994, 33).
According to the Ministry of Health, pregnancy, fertility and sexual health are major issues for Pacific Islands females. However, Gray’s participants did not mention sexual health until prompted by the research facilitator. Similarly, no participants of any age mentioned mental health as an issue significant to them. This may reflect a lack of knowledge about what constitutes a mental health issue, or reflect a cultural difference.

These four resources present a picture of Pacific Islands youth health from two different perspectives: the first is that of health professionals and government statistics, the second is that of the youth. While the PHC and MOH dedicate considerable time to documenting the nutrition-related problems of Pacific Islands adults, they fail to mention that the foundations for the diet and lifestyle behaviours causing such health problems are laid during the adolescent period. This is a factor that the young people in Gray’s study acknowledge. Based on this point it is necessary to now examine existing studies which consider the nutritional habits of Pacific Islands youth.

5.2 The Diet and Nutrition of Pacific Islands Youth

There have been no studies into adolescent nutrition in Christchurch, and few in the country as a whole. This section of Chapter Six outlines existing studies that deal specifically with the diet and nutrition of Pacific Islands youth. Studies by Bell and varying associates, a Dunedin study by Vainikolo and others, and the work of Fuaamatu, Thetadig and Casswell are described in detail in this section. The latter is the most significant study to date which considers the food choices of Pacific Islands young people in New Zealand. It was carried out as part of a larger study into adolescent nutrition in Auckland. The studies mentioned in this section will be referred back to later in this thesis.


The nutrition and body size of Pacific Islands adolescents has been studied to some degree by researchers at the University of Auckland’s Department of Community Health, Faculty of Medicine and Health Science. Colin Bell, co-author of the three papers listed above, is a researcher at the school.
The findings of the three above studies are presented below.

Bell, A. Colin & Parnell, Winsome R. 1996.
The study by Bell and Parnell assessed the nutrient intakes of approximately 140 Tongan and Tokelauan young people (aged 10-13 years) from thirteen schools in Wellington and Auckland. The participants were mostly New Zealand born, and, in accordance with the findings of the 1991 Census, their households had more members than the national average, and their socio-economic status was low (Bell & Parnell, 1996, 435).

The researchers found that the Tongan and Tokelauan children obtained most of their nutrients from meat, fast foods, bakery products and dairy products. Fruit and vegetables did not make a significant contribution to their nutrient intakes. They also found that “Tongan and Tokelauan children in New Zealand consume a diet that is higher in amount but lower in nutrient density compared to that of non-Pacific [sic] New Zealand children” (Bell & Parnell, 1996, 435). This relatively high dietary intake enabled the Pacific Islands children to meet the recommended dietary intake (RDI) for most nutrients. However, their high intakes of energy and fat may put Pacific Islands young people “at risk of heart diseases, obesity and other problems later in life” (ibid, 435). The authors also note that a healthy diet is important as the pathogenesis for these diseases may begin early in childhood.

Table 5.1 shows the mean weights and heights of the Tongan and Tokelauan children in this study in comparison to non-Pacific Islands children involved in similar research. This table shows that Pacific Islands children are slightly taller and considerably heavier than their non-Pacific Islands counterparts (Bell & Parnell, 1996, 436).

<table>
<thead>
<tr>
<th></th>
<th>Tongan</th>
<th>Tokelauan</th>
<th>Non-Pacific Islands</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean weight (Kg)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boys</td>
<td>54.9</td>
<td>52.7</td>
<td>40.6</td>
</tr>
<tr>
<td>Girls</td>
<td>61.2</td>
<td>53.9</td>
<td>41.0</td>
</tr>
<tr>
<td><strong>Mean height (cm)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boys</td>
<td>157.6</td>
<td>154.4</td>
<td>146.9</td>
</tr>
<tr>
<td>Girls</td>
<td>159.4</td>
<td>153.5</td>
<td>148.4</td>
</tr>
</tbody>
</table>

*Source: Bell & Parnell, 1996, 436.*
Intake of specific nutrients
Bell and Parnell (1996, 436) found that while the mean energy intakes of their Tongan and Tokelauan participants varied widely, Tongan boys had an energy intake consistently higher than the recommended intake for children of this age. Both male and female participants had higher mean energy intakes than their non-Pacific Islands counterparts, although the difference was not statistically significant. In contrast, Tongan and Tokelauan children had significantly higher mean intakes of protein, total fat and starch. Their intakes of sugar and sucrose were lower. The researchers also found that Tokelauan boys had higher intakes of polyunsaturated and monounsaturated fat than Tongan boys. In all cases the daily intake of fat was higher than the recommended 30-33% of all nutrients consumed on any given day:

“While Tongan and Tokelauan children had significantly lower intakes of total sugar and sucrose than non-Pacific [sic] Islands children they did have higher intakes of total fat. A high intake of fat is of concern not only because of the impact on nutrient density but also because if current levels of fat consumption are maintained the children may be at increased risk of developing obesity and heart disease when they reach adulthood” (Bell & Parnell, 1996, 437-438).

The protein intake of the Tongan and Tokelauan children met nutrition goals (of 13-15%), while carbohydrate intakes (recommended to be 50-55% of daily nutrients) were lower. The calcium intake of the participants only around 70% of the recommended daily allowance. Most of the participants also had lower intakes of zinc, riboflavin, vitamin B6, niacin and folate than is recommended for children of this age (ibid, 436).

Intake of specific foods
Bell & Parnell (1996, 436) found that “most energy in the diets of the Tongan and Tokelauan children came from bakery products (17-20%) and meat (13-20%). Dairy products (18-29%) and meat (21-28%) contributed the largest proportion of total fat, along with fast foods (11-19%). Bakery products (24-29%), along with sugar and confectionery (11-19%), were the main contributors of carbohydrates to the diet, and vegetables proved another important source for the Tongan participants. Fibre was consumed through fruit (15-25%) and baked goods (22-26%). Overall the diets of the Tongan and Tokelauan children consisted mainly of bakery products, dairy products, meat and fast foods. Fruit and vegetables were not eaten regularly and traditional foods did not feature. There was however evidence that the children’s’ eating habits were more typical of traditional patterns, as food was eaten throughout the day and distinct meals could not be distinguished.

The authors concluded that the micronutrient intakes of the Tongan and Tokelauan children were restricted by the types of foods that they consumed, and that “encouraging lower fat
baked goods, whole grain cereals, and more fruit and veges" would improve the nutrient quality of the children's diets (Bell & Parnell, 1996, 438).

Also undertaken in Auckland, this study considered the propensity of Pacific Islands people to being overweight. By asking participants to comment on the amount of fat in different foods, the researchers attempted to show the level of nutrition knowledge of Samoans in New Zealand. The research found that the majority of the participants did not follow healthy eating habits, such as buying low-fat dairy products or trimming the fat off meat (Bell et al., 1995, 125). The researchers note that this has the potential to affect the health of young people, as they will learn unhealthy cooking techniques. The authors also say that “taro, in particular, needs to be promoted as a non-fat food” and that Pacific Islands community members should be encouraged to follow both low-fat cooking methods and a traditional Pacific Islands diet (ibid, 126).

Salsea, J.S., Bell, A.C., & Swinburn, B.A. 1997.
The aim of the study documented by Salsea et al., (1997) was to compare the mean heights and weights of Pacific Islands children and teenagers in New Zealand with international reference charts, based on the premise that Pacific Islands young people are taller and heavier than their European counterparts. The heights and weights of 816 children and adolescents were measured. The researchers found that Pacific Islands children have “substantially higher mean heights, weights and body mass index values than the reference standards, particularly between five and twelve years” (Salsea et al., 1997, 229). In addition, Pacific Islands children (particularly females) reach their maximum height earlier than the general population. Their height flattens out one to two years before that of European teenagers, however weight continues to remain very high. The explanation for this difference between the body composition of European and Pacific Islands young people is said to be accounted for in the underlying genetic differences between Polynesians and Caucasians (ibid, 229).

The study by Vainikolo et al. (see Chapter Four) of Tongan migrants to New Zealand included a number of participants in their early twenties. The researchers found that younger adults had adapted more readily to the New Zealand diet than older adults. In contrast to older adults they had a better understanding of what constitutes a healthy diet, and claimed to feel healthier living in New Zealand (Vainikolo et al., 1993, 8).
Vainikolo et al. also found that the younger participants were less likely to eat Pacific Islands foods, and foods prepared with Tongan cooking methods. The researchers note that the perception that "fat is a sign of healthiness" is changing, particularly among younger Pacific Islands people. Finally, they consider that the Pacific Islands emphasis on children and young people may be significant in reversing the negative diet-related health trend, due to the desire of Pacific Islands parents and grandparents to see their children grow up healthy (Vainikolo et al., 1993, 8-9).


In 1995 and 1996 the Nutrition Taskforce of the Alcohol and Public Health Research Unit (APHRU) conducted an Auckland-based study which considered the food choices of sixty families in Auckland. Twenty of the participating families were European, twenty were Māori, and the remaining twenty were Samoan (Maskill & Jones, 1995, 128). Sixty adolescents (aged 13-16 years) were interviewed, along with the person in their household who was primarily responsible for purchasing and preparing food. The two main aims of the study were as follows:

(i) to develop a research based understanding of factors influencing food intake by young New Zealanders of different ethnic origin, socio-economic status and household composition; and

(ii) to inform policy and programme development with the ultimate goal of improving the nutritional behaviour and well being of New Zealanders.

The study attempted to provide an understanding of the wide range of influences on food choices, rather than find the prevalence of these influences (Maskill & Jones, 1995, 129). Participants answered questions on topics including: the food groups they would like to eat more or less of; food shopping; food at home and at school; family rules about food and eating; advertising; perceptions of whether the food groups were 'good for you'; the influence of the young person on what food is bought; food labelling; and who and what influences the young person's eating. Data was collected via two face-to-face interviews and a self-administered questionnaire (Maskill & Jones, 1995, 129).
Nite Fuamatu, at the time a Research Training Fellow for the Pacific Health Research Centre, University of Auckland, was responsible for the section of this study involving Pacific Islands youth. This is the largest research project to date in New Zealand which specifically considers the nutritional habits of Pacific Islands youth. The research of Fuamatu et al. considered similar material to that focussed on in this thesis, but dealt specifically with the dietary habits of Samoan youth.

The study by Fuamatu, Thetadig and Casswell is summarised in the Fuamatu article “The food choices of Samoan teenagers in Auckland: Big Mac Combo or pisupo and taro”, which appeared in the journal Pacific Health Dialog in September, 1997. Fuamatu, who is the sole author of this article, states that there is a lack of literature on the lifestyle habits and dietary intakes of New Zealand adolescents in general, and no literature about young Samoans, one of New Zealand’s largest ethnic groups (Fuamatu, 1997, 6). The aims of the APHRU study are outlined as follows: (i) to examine the factors that influence the perceptions Samoan teenagers have about food, (ii) to determine how these perceptions affect their subsequent food consumption, and (iii) to contextualize this information showing that the influence of the family, gender, and peers, as well as the economic, financial and ethnic factors affect food choice (ibid, 6). Fuamatu contends that adolescence is a time when habits are formed, including those related to food and lifestyle behaviours. Therefore, she believes that “there is a need to monitor the dietary intake of Samoan teenagers to address ensuing health problems such as diabetes and high blood pressure already prevalent in the older population” (ibid, 6). She also offers a range of reasons why adolescents are likely to consume certain foods, and notes the roles of both religion and culture in the nutrition habits of Pacific Islands people, along with influences such as accessibility, access to money, cost, taste, and the food habits of peers, all of which are more universal.

The APHRU study was conducted over 1995 and 1996, with the research team conducting in-depth interviews with twenty Samoan young people and also the person in the household who was primarily responsible for purchasing and preparing food (usually the teenager’s mother) (Fuamatu et al., 1996, 3; Fuamatu, 1997, 7). The results of the study are detailed below.

**Food Choices**

The participants in this study were able to loosely define the terms snack and light meal - which consisted of light foods, eaten throughout the day; and meal, which was something “heavy”, consisting of a variety of dishes (Fuamatu et al., 1996, 13).
“A meal means when you have something like meat that’s really heavy and keeps you moving around, like after work you come home, you have your meal with your family and all that and you have meat, salad and all sorts of stuff you can have” (quoted in Fuamatu et al., 1996, 13).

A meal was likely to incorporate Samoan foods, and to be eaten with the family.

Although unfamiliar with the term ‘balanced meal’, the participants generally concluded that such a meal would contain “meat, vegetables and potatoes” (Fuamatu et al., 1996, 13). It was also common for the teenagers to name Samoan foods in their definition of a balanced meal.

“I don’t really know anything well balanced but I think it would probably be chopsuey, roast chicken and taro with coconut cream. That’s to me that’s nice well balanced food” (quoted in Fuamatu et al., 1996, 14).

Table 6.2 shows the contents of twelve food cards shown to participants in this study.

**Table 5.2**

<table>
<thead>
<tr>
<th>Card</th>
<th>Type</th>
<th>Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sweet</td>
<td>Chocolates, lollies, biscuits, sticky buns, roll-ups, muesli bars, fizzy drinks</td>
</tr>
<tr>
<td>2</td>
<td>Low fat dairy</td>
<td>Trim milk, reduced-fat cheese, yoghurt, sour cream, cottage cheese</td>
</tr>
<tr>
<td>3</td>
<td>Standard dairy</td>
<td>Milk, cheese, cream, yoghurt, sour cream</td>
</tr>
<tr>
<td>4</td>
<td>Vegetables (fresh, tinned &amp; frozen)</td>
<td>Potatoes, tomatoes, corn, beans, celery, lettuce, broccoli, onions, carrots, peas, mixed vegetables, taro</td>
</tr>
<tr>
<td>5</td>
<td>Rice and Pasta</td>
<td>White/brown rice, pastas, noodles, spaghetti</td>
</tr>
<tr>
<td>6</td>
<td>Cereal</td>
<td>Weetbix, honeypuffs, muesli, rolled oats, cocoa pops, corn flakes</td>
</tr>
<tr>
<td>7</td>
<td>Bread</td>
<td>White, brown, and wholemeal bread, pita bread, filled rolls, sandwiches</td>
</tr>
<tr>
<td>8</td>
<td>Fruit (fresh, tinned &amp; dried)</td>
<td>Apples, bananas, pineapple, pears, oranges, kiwi fruit, peach, fruit salad, apricots, raisins, sultanas, fruit juice</td>
</tr>
<tr>
<td>9</td>
<td>Chips</td>
<td>Rashuns, corn chips, twisties, pretzels, cheezels, salt’n’vinegar</td>
</tr>
<tr>
<td>10</td>
<td>Meat</td>
<td>Beef, sausages, chicken, fish, chops, mussels, trotters, brisket, pisupu</td>
</tr>
<tr>
<td>11</td>
<td>Fast foods</td>
<td>McDonalds Hamburgers, KFC, Georgie Pies, fish’n’chips, spring roll</td>
</tr>
<tr>
<td>12</td>
<td>Vitamins</td>
<td>Garlic, vitamin C, super B, teentime</td>
</tr>
</tbody>
</table>


Participants defined the following foods as “good”: low-fat dairy products (Card 2), fresh, frozen and tinned vegetables (Card 4), rice, pasta and noodles (Card 5), cereals (Card 6),
breads (Card 7), and fresh, dried and tinned fruits (Card 8). These foods were seen as good for the bones and teeth, low in fat, and a good source of energy.

"It's healthy food, not very many calories and it has you know like different good things for you. Like if you eat an apple it keeps sicknesses away, makes you healthy, bones stronger and that" (quoted in Fuamatu et al., 1996, 15).

The adolescents perceived chocolates, sweets and baked goods (Card 1), chips (Card 9) and fast foods (Card 11) as not good for them because they rotted the teeth, were too high in sugar or fat, and did not provide the body with energy. They were uncertain as to whether standard dairy products (Card 3) and meats (Card 10) were good or bad for them.

"It's the meat – too much meat's bad for you cos it's bad for your heart or something. Usually that's cooked in oil isn't it". Corned beef – in heaps of oil, yeah. Fattening. Oh yeah, fish is good for you I think. You can cook it in oil and you can have it raw. Oh meat is good for you as long as you don't have too much of it" (quoted in Fuamatu et al., 1996, 17).

Fuamatu discovered that while most Pacific Islands youth know the difference between foods that are “good” and “not so good” for them, they most often choose to eat foods from the “not so good” category. For young people buying their lunch at school foods such as chips and pies were usually less expensive than healthier options like sandwiches and filled rolls.

When given money to purchase food the teenagers indicated that they were most likely to buy themselves twisties, chips, chocolate, soft drinks, and takeaways. They bought these foods from shops, dairies, supermarkets, takeaway bars and bakeries, either before or after school, in the evenings or at weekends (Fuamatu et al., 1996, 22).

**Gender**

The APHRU study uncovered a number of differences between boys and girls in relation to food. Girls were often more conscious of what they ate than boys, and were likely to select foods that would help them to remain slim or slender (Fuamatu et al., 1996, 27). The decision to eat such foods was influenced by friends and family members, as well as personal choice. It was considered “unpopular” to be fat (Fuamatu et al., 1996, 27).

In contrast, boys tend to eat a lot more food than girls so that they could bulk up, both for sport and to look attractive to girls.

"It would make me look better I reckon. Because I want to get big – that’s how they said – just eat heaps. So I can look big. Yeah build up and that. So whatever I can eat I eat..." (quoted in Fuamatu et al., 1996, 27).

Gender also determined the extent to which the adolescent was involved in food preparation within the home. Girls were likely to assist in cooking, cleaning and childminding, whereas
boys were seldom expected to cook unless the family had no daughters (Fuamatu et al., 1996, 39). The participants learned to cook by observing the preparation of meals, and gradually assisting with easy and then more difficult tasks. Several of the older female participants now cooked the family meals several times a week, particularly if their mother worked. If a family had more than one adolescent female then the responsibilities of cooking and childminding would be shared. Fuamatu notes that the expectation that adolescent girls participate in cooking and household chores “points to the socialisation pattern that the mothers were raised in and are accustomed to” (ibid, 54). The girls who assisted in the preparation of meals saw their place in the family as significant because of this important role (ibid, 39).

Culture

The APHRU study provided evidence to support the notion that food is intrinsically linked to culture in Pacific Islands society even within a New Zealand context, and that young people’s eating habits are culturally bound.

Pacific Islands people view collecting, producing and giving food as a way of expressing respect or love for a person or group (Kinloch, 1985, 18). In this study respect for guests and older people by being courteous and serving their meals was identified by most of the participants as “the Samoan way” (Fuamatu et al., 1996, p43).

“… Mum told me how it’s rude to eat when I stand up. And she was telling us all the Samoan way, how you know, you have to feed your guests before you eat yourself. So you just pick it up when you’re young” (quoted in Fuamatu et al., 1996, 44).

The participants mentioned several activities undertaken in the presence of guests to make them feel welcome and at ease. These included: serving guests and older family members first, attending to tasks such as filling and re-filling bowls, clearing and washing dishes while the guests ate, eating in a separate room or after the guests had finished, bending down in front of guests and saying ‘tulou’ or ‘excuse me’, not talking or being disruptive in the presence of guests, and serving traditional Samoan dishes and foods (Fuamatu et al., 1996, 43).

When purchasing foods Pacific Islands families in New Zealand are restricted to buying those that are both affordable and accessible, and that meet certain cultural requirements (Fuamatu et al., 1996, 53). As Pacific Islands foods are generally more expensive and harder to come by, they are purchased in smaller quantities and reserved for special people and events. Fuamatu et al. (1996, 54) found that: “cultural and religious events, and receiving visitors and relatives were factors that the mother considered especially with the provision of Samoan
food dishes”. Samoan foods and dishes reserved for guests and special occasions include taro, fa’i (green bananas), oka (raw fish), corned beef, roast chicken, chop suey, and chow mein. Fruits are made available both to guests and to older people or those with a diagnosed medical condition (ibid, 35). The young people in the study were therefore accustomed to eating these foods only on special occasions, when guests visited, or at ‘Sunday tonai’ – a meal held every Sunday after church, often with relatives or other families (ibid, 35).

“We just get together and make a umu and we buy a lot of chicken and taro or some bananas and some meat and yeah, some things for the feast” (quoted in Fuamatu et al., 1996, 36).

The study undertaken by Fuamatu and associates is significant in that it was the first to concentrate specifically on the nutritional habits of Pacific Islands young people, and because cultural considerations were taken into account. In her subsequent article on the findings of this research Fuamatu reminds us that food is a vehicle for teaching traditions in Samoan society, and that the importance of food can be seen in the continuing significance that Pacific Islands people attribute to feasting, and giving special foods to the elderly and infirm (ibid, 9). Fuamatu found that Samoan teenagers have “substantial knowledge” about the nutritional value of foods. They acquire this knowledge from school, doctors, dentists, nurses, their family, books, magazines, television, and their church:

“The primary influence of friends, family, church, school and doctors help to regulate specific views and self-monitoring practices about consumption and overconsumption [sic] of certain foods and drink. The church is paramount to Samoan people in governing and fostering attitudes and lifestyle practices. Friends, family, church, school and doctors as key influences are highly regarded by Samoan teenagers in making decisions about food and drink” (Fuamatu, 1997, 9).

She adds that despite their knowledge about the limited nutritional value of chips, sweets and chocolates, soft drinks, takeaways, and pies, they are more likely to buy these than other foods. Reasons for their selection of these foods include: accessibility, the influence of peers, low cost, taste, and habit (ibid, 9). Finally, Fuamatu acknowledges that there has been a focus on the health of Pacific Islands people in New Zealand due to the high incidence of non-communicable diseases. She contends that “to curb the incidence of such diseases for the present generation, the health status of Samoan [sic] young people needs special attention” (Fuamatu, 1997, 9).

5.3 Chapter Summary
Chapter Five has shown that while unintentional injuries, parasitic and infectious diseases, asthma, cancer, and pregnancy/fertility are recognised as Pacific Islands youth health issues, nutrition and lifestyle habits are also a concern. In fact, the Pacific Islands diet and lifestyle is
one health area that Pacific Islands young people have identified as significant to them (Gray, 1994). As yet, health service providers have not recognised nutrition as a Pacific Islands youth health issue. Fuamatu (1997, 6) considers this concerning, given that dietary practices are established in adolescence, and that these practices will increase the likelihood of the Pacific Islands adolescents contracting a non-communicable disease. As mentioned in Chapter Three of this thesis, such diseases feature among the leading causes of morbidity and mortality for Pacific Islands people in New Zealand. Therefore adequate studies into these practices, including an analysis of the foods Pacific Islands young people choose and why, can be used to develop programmes for intervention (Fuamatu, 1997, 9). Studies documented in this chapter reveal that Pacific Islands young people are making unhealthy food choices, and that they select foods for a variety of reasons. Even in the modern New Zealand environment, culture is one of these reasons. The information presented in this and the preceding chapters can be used to gain an overview of health issues facing Pacific Islands young people in New Zealand, in both the present and long-term. The findings of these chapters will be discussed in Chapter Seven, along with the research results to be documented in the upcoming chapter.
CHAPTER 6

Results of this Research

The information presented in Chapters Three, Four and Five of this thesis shows that Pacific Islands people in New Zealand have their own very specific health concerns, that many of these concerns are intrinsically related to diet and lifestyle factors, and that the establishment of these behaviours and thus the foundation for these poor health outcomes is laid during the period of adolescence. Fuamatu (1997) expressed concerns about the lack of dietary studies on Pacific Islands (specifically Samoan) young people in New Zealand, especially as this information is required before related health problems such as high blood pressure and diabetes can be addressed. Based in this need, the overall aim of this research was to investigate the nutrition and health related behaviours of Pacific Islands young people in Christchurch. Chapter Six describes this research.

The Chapter begins with a description of the methodology used in this research, including a brief outline of the self-administered questionnaire and the reasons behind the selection of this data collection device. The data collected in the study is then presented in detail. As outlined in section 6.1.3, both Pacific Islands and non-Pacific Islands participants were included in the study. In the results section of the Chapter the responses of these two groups are presented separately, followed by the overall (combined results). Finally, some of the problems encountered in the research process are documented.

6.1 Description of the Research

Data was collected for this thesis in November 1999 through the completion of the self-administered questionnaire by fifty-five students at two Christchurch secondary schools. The questionnaire, entitled Adolescent Health and Well-being Survey was created specifically for the purpose of collecting information about the nutrition and health related behaviours of young people. The processes of selecting, devising and pre-testing a data collection method, selecting research participants, and administering the questionnaire are described below.

6.1.1 Methodology

This first stage of this research involved selecting and devising a research tool, and applying for consent to administer this research to young people. A letter from the University of Canterbury Human Ethics Committee (HEC) granting consent for this project is provided as Appendix I.
A variety of data collection methods is effective in eliciting information from young people. Methods considered for this research included focus group discussions, face-to-face interviews, and self-administered questionnaires. Factors taken into consideration when selecting a data collection method including the preferred sample size (fifty to one hundred participants) and the proposed participants (see section 6.1.2). The face-to-face interview format was eliminated as an option because it would severely limit the sample size, and meant that the research could probably not be undertaken in the school environment.

A focus group discussion format was recommended to the researcher as an effective way of gathering information from Pacific Islands youth because the Pacific Islands culture is an "oral culture". This means that knowledge and customs are shared and assimilated through oral (for example narration and song) rather than written means. This method was considered inappropriate for this research for a number of reasons. As focus groups ideally contain around eight members, this method would have limited the sample size and the means of accessing youth. More importantly, cultural factors involved in researching Pacific Islands young people meant that this method would not be effective for this research. Research conducted by the researcher for a separate study (Hayes & Heckert, 2000) revealed that Pacific Islands young people in focus groups are unlikely to share personal information in the presence of adults, of adolescents of the opposite sex, or if the researcher is not of Pacific Islands descent. While the first two of these restrictions made the use of a focus group discussion format difficult, the third made it impossible. Thus, the self-administered questionnaire data collection method was selected.

Self-administered questionnaires have been criticised as a means of collecting information from young people in that the participants are able to rush their answers, and/or not give an honest response. However, the benefits of this method include the larger potential sample size, a higher level of uniformity in the data collection, and a greater level of anonymity for the research participants. Pacific Islands youth had in fact previously indicated that they preferred this research method because their responses remained private (Hayes & Heckert, 2000). If the research was to be undertaken in a school environment a teacher was likely to be present, and therefore the students ability to respond openly would be compromised. The use of a self-administered questionnaire prevented this. Finally, the self-administered questionnaire allowed for the collection of information of a greater number of topics, in a smaller amount of time.

Once selected as a data collection method, a relevant self-administered questionnaire was devised. The Adolescent Health and Well-being Survey was a compilation of questions from
various other questionnaires which had been used in prior studies to gather health related information from young people. The Survey had six sections:

➢ Section One: Personal Details
➢ Section Two: Nutrition Information
➢ Section Three: Nutrition and Health
➢ Section Four: Exercise and Leisure Activities
➢ Section Five: Cigarettes, Alcohol and Other Drugs
➢ Section Six: Health Information and Services.

Although relevant to youth health, an additional sections on sexual and mental health were eliminated as the overall interest of this research is nutrition and lifestyle-related health behaviours, and also because it might be construed as controversial. The survey is presented as Appendix VI.

6.1.2 The Pilot Study

Once completed, the Adolescent Health and Well-being Survey was pre-tested on a small group of adolescents selected from a Christchurch sports club. Feedback from this pilot study revealed that although the overall format was liked, the Survey was considered too long and difficult to answer in places. Based on this feedback the number of questions in the Survey was cut from sixty-five to forty. Questions were removed from the section on food and meal choices, and Section Five was cut dramatically. Questions requiring long wordy answers were minimised so that for the most part the participants would only have to check a box or provide a one-word answer. Finally at this stage, a number of grammatical errors were identified and corrected.

6.1.3 Selection of Research Participants

In 1998, Christchurch was home to approximately 1506 Pacific Islands youth (Siataga et al., 1999; see Table 2.2). The aim of this research was to access and survey a proportion of these young people along with a similar number of non-Pacific Islands youth. Initially a total of one hundred participants was considered to be ideal for the research project. Because secondary schools provide easy access to young people, and are familiar with the processes and benefits of research, it was decided that high school students would be the most appropriate subjects for this research. Four schools were selected to provide research subjects: Aranui High School, Burnside High School, Linwood High School and Papanui High School. All of these schools are situated in Christchurch city.

The schools were initially contacted by telephone in September 1999. Burnside High School declined the invitation to participate. The three remaining schools expressed and interest in
the study and a copy of the self-administered questionnaire was sent to these schools along with a covering letter. The deputy principal of Aranui High School and a health teacher from Papanui then rang to arrange a time for the research to take place. Linwood High School did not reply to the letter and could not be successfully contacted again. Therefore, the subjects of this study were selected from the students of two Christchurch schools.\footnote{The location of these schools are indicated by the map in Appendix III.}

\textit{Aranui High School}

Aranui High School opened in 1960. It is a co-educational school with approximately 1100 students. The school is considered innovative in that it provides a full range of conventional subjects along with both junior and senior Academy programs which provide practical skills for students and returning adults looking to enter the workforce or pursue further study (Aranui High School, 2000a). Aranui is also promoted as having a special interest in Māori and Pacific Islands students (Aranui High School, 2000b). According to a leaflet published by Aranui High School (Aranui High School, 1999; Appendix VII) there were approximately 120 Pacific Islands students at Aranui High School in 1999. Thus Pacific Islands students comprised around 10\% of the total role. In all New Zealand schools approximately 7.3\% of students are Pacific Islands (Fakahau, 1998, 3; see Chapter Two), meaning that Aranui has a higher than average number of Pacific Islands students on its role. The majority of these students are from Samoan descent, with others representing Tonga, Niue and Fiji. Two teachers, Mr Gorrie (Samoan/European) and Mrs Leota oversee the Pacific Islands students at the school. Mr Gorrie is in charge of the Cultural Group along with a special Pacific Islands Homework room. The aim of the Samoan Cultural Group is to promote and maintain the cultural background of the Pacific Islands students at Aranui. The group performs at school open night and events, and also meets as a class regularly. Mrs Leota is a Pacific Islands Liaison who works with students at both Aranui and Linwood High Schools. As well as teaching in the classroom, she monitors the progress of the Pacific Islands students between the school and home. For the purposes of this research the school’s Pacific Islands students were called to a special class session. Although approximately thirty students were expected to attend, only twenty-one arrived. All of these students completed the questionnaire.
\textit{Papanui High School}

Papanui High School opened as a technical institute in 1936. Situated on Langdons Road, close to the Papanui Railway Station, it served students from Little River, Kaiapoi, Springfield and Ashburton, as well as the surrounding area (Chalklen, 1986, 8). In 1973 the school adopted the modern school curriculum, and today Papanui also describes itself as a school with “an innovative curriculum” in that it provides subjects such as physical education, health, and technology. The “School-Wide Health Programme” in place at the school means that health is a compulsory subject for all students in years nine to eleven, and an option for senior students. The school has health committees with student, staff and parent membership; an onsite health clinic with a doctor, family planning and public health nurses; and participants in the “Health Promoting” school project (Papanui High School, 2000).

Papanui High School has a number of students who are Māori, but considerably less Pacific Islands students than Aranui. The students that Papanui High School provided to participate in this study were members of a weekly class devoted to Health Studies. The class of thirty-five students had two teachers, and covered health related topics such as illness and injury; diet, exercise and nutrition; and sexual health. The participants of this class varied in both age and ethnicity. One student in the class chose not to complete the questionnaire, bringing the total number of Papanui High School participants to thirty-four. Of these participants only three (8.6%) were of Pacific Islands ethnicity, bringing the total number of Pacific Islands respondents to the survey to twenty-four. The remaining thirty-one students represented a mixture of different ethnic backgrounds including European, Māori, and Asian.

According to the NZDep96 Index Papanui High School is an area with a deprivation rating of 4, meaning that the participants from this school lived in an average socio-economic environment. Both Linwood and Aranui High School (where the majority of the Pacific Islands participants went to school) have a deprivation rating of ten (Crampton et al., 2000, 111). Therefore the Pacific Islands participants of this study, possibly with the exception of those attending Papanui High School, almost certainly lived in a poor socio-economic environment.

The research was undertaken in October and November of 1999 in a classroom setting, in which a teacher was present but not involved in any way. Conducting the research in the schools rather than sending the questionnaires home with the pupils enabled the results to be collected immediately, and increased the likelihood that these would be returned. As
sanctioned by the HEC, by providing participants for the study the schools were giving informed consent on behalf of the students. Therefore the participants were not asked to sign a consent form. After an explanation of what was required of the participants, and their right not to answer any or all of the questions, the students were given up to one hour to complete the questionnaire. In total fifty-five participants were involved in the research. Although one hundred had been hoped for, the timing of the study and lack of participation by two schools meant that this number was not met. The researcher was advised that forty to sixty students would be adequate for the research. Of the fifty-five students twenty-three (41.8%) were female, and thirty-two (58.2%) were male. As shown in Table 6.1, the participants ranged in age from thirteen to seventeen years, with a mean age of 15.2 years (males 15.4, females 15.0).

Table 6.1
Age of Research Participants

<table>
<thead>
<tr>
<th>Age</th>
<th>Number of Participants</th>
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<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Total</td>
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<tr>
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<td>20</td>
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<td>34.5</td>
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<tr>
<td>17</td>
<td>5</td>
<td>-</td>
<td>5</td>
<td>9.1</td>
</tr>
<tr>
<td>Total</td>
<td>32</td>
<td>23</td>
<td>55</td>
<td>100</td>
</tr>
</tbody>
</table>

Figure 6.1 shows the overall ethnic breakdown of the participants of this research.

Figure 6.1
Ethnic Background of Research Participants
6.2 Research Results

This section presents the results of the Adolescent Health and Well-being Survey. The results are separated in accordance with the two research groups, and six survey sections.

6.2.1 Demographic Information

As previously stated the fifty-five participants of this research were separated into Pacific Islands and non-Pacific Islands research groups. The ethnicity of the participants was determined in Question 3 of the questionnaire. This then allowed those students who indicated that they were Pacific Islands in ethnicity to be allocated to the Pacific Islands group. Participants of all other ethnicities made up the non-Pacific Islands group. Other information gathered about the participants personal circumstances included their age and gender, where they were born, the size and compilation of their families, the language spoken in their home, and whether or not they were healthy and/or considered themselves to be so. The responses to these questions follow.

6.2.1.1 Demographic Information of Pacific Islands Participants

The total number of Pacific Islands students who completed the Adolescent Health and Well-being Survey was twenty-four. This group therefore comprised 43.6% of the total number of respondents (n=55). Thirteen of these students were male, and eleven were female. Ages ranged from thirteen to seventeen years, with a mean age of 14.7 (males 15, females 14.5). Table 6.2 shows the ages of the Pacific Islands participants:

<table>
<thead>
<tr>
<th>Age</th>
<th>Number of Participants</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>13</td>
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</tr>
<tr>
<td>14</td>
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<td>1</td>
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<td>17</td>
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<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>13</td>
<td>11</td>
</tr>
</tbody>
</table>

Of these students eighteen (75%) were of Samoan ethnicity. The ethnic backgrounds of the Pacific Islands students involved in this study are shown overleaf in Table 6.3.
Table 6.3

Ethnic Background of Pacific Islands Participants

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Number of Participants</th>
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<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Total</td>
<td></td>
<td>%</td>
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</tr>
<tr>
<td>Samoan</td>
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<td></td>
<td>8</td>
<td>18</td>
<td>75</td>
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<tr>
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</tr>
<tr>
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<td>1</td>
<td>4.2</td>
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</tr>
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<td>1#</td>
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<td>2</td>
<td>8.3</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>13</td>
<td>11</td>
<td></td>
<td>24</td>
<td>100.1</td>
<td></td>
</tr>
</tbody>
</table>

% Samoan, Tokelauan
# Samoan, Tongan, Fijian

Of the Pacific Islands students eighteen of the twenty-four (75%) were born in New Zealand, four (16.7%) were born in Samoa, and one (4.2%) was born in Fiji. One participant from Aranui High School failed to specify where he was born. One Samoan respondent had lived in New Zealand for only one year, however all of the other respondents who were not born here had lived here for at least five years. The mean length of time that the Pacific Islands participants born outside New Zealand had lived in this country was 7.1 years.

Question 7 (How many people do you live with?) revealed that most students came from homes with a large number of residents. Only four (16.7%) of the participants came from a one parent family, with seventeen (70.8%) living with two parents. Three (12.5%) stated that their households also contained members of their extended family. For example, one female participant lived with her parents, her sister, her sister’s husband and baby, and an adult border. As shown in the figure below, it was not unusual for the students to live in a house with eight or more people. The mean number of people living in the households of the Aranui High School students was 7.1.
Fifteen (62.5%) of the Pacific Islands respondents stated that their family spoke a Pacific Islands language in the home. Fourteen (14.3%) spoke Samoan, and the Cook Islands student spoke Rarotongan (Cook Island Māori). Of these participants seven (29.2%) spoke only Samoan when they were with their families, while the remaining eight (33.3%) households spoke a combination of Samoan/Rarotongan and English. The remaining nine (37.5%) families, including the families from Nuie and Fiji spoke English at home. Three of the four (75%) participants who were born in Samoa spoke Samoan in their homes, while one spoke only English. As already stated the Fijian born student also spoke English at home, meaning that the likelihood of a participant born outside of New Zealand speaking a Pacific Islands language in the home was only 60%. In comparison, the proportion of all of the New Zealand born Pacific Islands participants speaking a Pacific Islands language at home was 56.5%.

Questions 8 and 9 revealed that the majority of the Pacific Islands participants thought that they were healthy and did lead a healthy lifestyle. Eighteen participants (75%) felt that their lifestyle was healthy, and sixteen (66.7%) described themselves as healthy. Of the six respondents who admitted that they did not lead a healthy lifestyle, only one stated that he was healthy despite this. One female student believed that she was unhealthy despite her attempts to lead a healthy lifestyle.

6.2.1.2 Demographic Information of Non-Pacific Islands Participants
The remaining thirty-one (56.4%) survey participants belonged to the non-Pacific Islands group. Of these students twenty-six (83.9%) were European. Nineteen (61.3%) were male, and twelve (38.7%) were female. As shown in Table 6.4 the non-
Pacific Islands students ranged in age from fifteen to seventeen years, with a mean age of 15.6 years (males 15.7, females 15.5).

Table 6.4

<table>
<thead>
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<tr>
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<tr>
<td>Total</td>
<td>19</td>
<td>12</td>
<td>31</td>
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</table>

Table 6.5 shows the overall ethnic composition of the non-Pacific Islands research group.

Table 6.5

<table>
<thead>
<tr>
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</tr>
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</tr>
<tr>
<td>Sri Lankan</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>3.2</td>
</tr>
<tr>
<td>Total</td>
<td>19</td>
<td>12</td>
<td>31</td>
<td>100.1</td>
</tr>
</tbody>
</table>

All but four of the non-Pacific Islands participants were born in New Zealand. One was born in Korea, one in Sri Lanka, and one in England and one in the United States of America. These students had lived in New Zealand four, six, six and three years respectively; and had on average lived here for 4.8 years. Both of the Asian students spoke an Asian language in their home, the Sri Lankan boy spoke Tamil, and the Māori boy spoke both English and Māori. The remaining non-Pacific Islands students all spoke only English with their families.

Twenty-six of the non-Pacific Islands participants (83.9%) lived in a two parent household, and four (12.9%) lived with just one parent. The final student lived with members of her extended family. The number of residents in the non-Pacific Islands students’ households is shown in Figure 6.3 overleaf. On average these homes contained 4.8 people.
Two of the non-Pacific Islands participants did not respond to Questions 8 and 9. Of the remaining twenty-nine students twenty-five (86.2%) believed that they were in good health, and twenty-three (79.3%) also believed that they led a healthy lifestyle. Two (6.9%) were undecided.

6.2.1.3 Combined Demographic Information of Research Participants

The total number of students involved in this research at the two high schools was fifty-six, however one student chose not to participate, meaning that there were fifty-five completed surveys. Of this number, twenty-three (41.8%) of the participants were female, and the remaining 32 (58.2%) were male. The overall mean age was 15.2 years (males 15.4, females 15.0). This information is shown in Table 6.1.

The overall ethnic breakdown of this group is shown in Table 6.6 below, and previously in Figure 6.1.

Table 6.6

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Number of Participants</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>European</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Pacific Islands</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Māori</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Sri Lankan</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>32</td>
<td>23</td>
</tr>
</tbody>
</table>
Forty-five (81.8%) of the fifty-five participants of the survey were born in New Zealand. One respondent (1.8%) did not specify their country of birth, and the remaining nine (16.3%) were born in various other countries. The mean length of time that these participants had lived in New Zealand was 6.1 years. Thirty-five (63.6%) of the survey participants spoke only English at home, and an additional thirteen students (23.6%) spoke English in conjunction with another language. Only seven students (12.7%) did not speak English at home. The most common language spoken apart from English was Samoan.

Forty-three (78.2%) students lived in a two-parent household, eight (14.5%) lived with only one parent, and four (7.3%) lived in an extended family situation. As shown in Figure 6.4, the number of people living in the households of the fifty-three survey participants who answered Question 7 ranged from three to eleven. The mean number per household was 5.8 people.

Figure 6.4
Number of People Living in the Households of Combined Research Participants

Forty-three (78.2%) of the participants considered themselves to have a healthy lifestyle, eight (14.5%) thought their lifestyle was unhealthy, and four (7.3%) were undecided. Forty-two (76.4%) of the students also considered themselves to be in good health, while ten (18.2%) thought they were unhealthy, and three (5.5%) were not sure.
6.2.2 Nutrition Information

Section two of the Adolescent Health and Well-being Survey dealt with the nutrition-related aspect of lifestyle, with the aim of gathering information about the food choices of the participants. The participants were asked to list how frequently they ate different meals and types of foods, what their favourite foods were, who was the person in their household responsible for cooking and shopping for food, meals served when the family had guests to dinner, and whether any particular foods were significant to them. One aim of these last two questions (Questions 15-16) were to determine whether Christchurch's Pacific Islands adolescents attributed a cultural significance to Pacific Islands foods, in the manner of those in Auckland (Fuamatu et al., 1996) and Dunedin (Vainikolo et al., 1993).

6.2.2.1 Nutrition Information of Pacific Islands Participants

Question 10 of the questionnaire asked the respondents to indicate how often they ate the following meals: breakfast, lunch, dinner, dessert and snacks. One student did not complete this question, therefore the total number of respondents to Question 10 was twenty-three.

The results of Question 10 are depicted in figure 6.5.

Figure 6.5

Frequency of Eating Different Types of Meals: Pacific Islands Participants

![Graph showing the frequency of eating different types of meals. The x-axis represents meal frequency categories ranging from 'More than once a day' to 'Never', and the y-axis represents response rate ranging from 0 to 16. Bars show the frequency for each meal type (Breakfast, Lunch, Dinner, Dessert, Snacks).]
Whitney and Rolfes (1999, 514) state that “children who eat nutritious breakfasts function better than their peers who do not”. Further, children who do not eat breakfast “...perform poorly in tasks requiring concentration, their attention spans are shorter, and they even score lower on intelligence tests than their well-fed peers” (ibid, 515). As shown in Figure 6.5, one Pacific Islands student (4.3%) commonly ate a breakfast-type meal more than once a day, while three (13.0%) ate breakfast every day, and eight (34.8%) ate breakfast every few days. Another ten students (43.5%) ate breakfast never or almost never. Therefore, 52.1% of the Pacific Islands respondents ate breakfast regularly, while 43.5% did not. Six Pacific Islands respondents (26.1%) ate lunch (or a lunch-type meal) more than once a day, while twelve (52.2%) ate lunch daily, and one more respondent (4.3%) ate lunch once in every few days. Four of the respondents (17.4%) ate lunch almost never. One respondent never ate dinner, and another stated that they only ate this one time a week. The remaining twenty-one (91.3%) participants ate dinner at least once every day. The number of participants who ate dessert was less than for the other types of meals. Five (21.7%) ate dessert at least daily, and an additional ten (43.5%) ate dessert every week. One (4.3%) had dessert only fortnightly, and the remaining seven (30.4%) respondents ate dessert almost never. All but three of the participants admitted to frequently eating snacks. Six ate some kind of snack food daily, and another nine ate snacks more than once a day. In response to this question one participant noted: “When I get bored I go to the refrigerator”.

Question 11 of the Adolescent Health and Well-being Survey followed a similar format to Question 10 (see Appendix V), but asked the students how often they ate a variety of different foods. The responses to this question are shown overleaf in Figure 6.6.
As shown in the figure, the participants ate certain foods regularly and other foods much less often. Twenty-one of the twenty-four participants (87.5%) ate breads and cereals at least every few days, with thirteen (54.2%) eating such foods more than once a day. Only three students (12.5%) did not eat bread or cereal foods regularly (that is, they ate these once a fortnight or less). This result is not surprising given that bread is a staple food in the New Zealand diet. Six of the Pacific Islands students (25%) ate fruits more than once a day, and two (8.3%) ate more than one serving of vegetables. As the New Zealand Food and Nutrition Guidelines recommend five or more servings of fruit and vegetables daily, ideally all twenty-four participants should have answered more than once a day to this question (MOH, 1998c, 7). Six of the participants (25%) ate fruit every day, meaning that a total of twelve (50%) of the Pacific Islands participants ate some kind of fruit once a day. Nineteen (79.2%) of the participants ate vegetables daily or every few days, while three (12.5%) ate these once a week or less. Five of the respondents (20.8%) stated that they only ate meat every few days. Seven students (29.2%) ate this daily and another six (25%) ate meat more than once a day. The New Zealand Food and Nutrition Guidelines recommend approximately one serving of meat (or a meat substitute such as lentils) per day (MOH, 1998c, 7). Therefore only 29.2% of the Pacific Islands students were
adhering this recommendation. Six (25%) ate more meat than is advised, while eleven (45.8%) ate less. Fifteen (62.5%) of the Pacific Islands students ate fish less than one time per week, with four (26.7%) of these students stating that they never ate fish. Only five students (20.8%) ate fish every day, with two participants (8.3%) stating that they had more than one serving of fish in a typical day. Eleven (45.8%) of the Pacific Islands participants ate dairy foods (for example milk, ice-cream, yoghurt and cheese) on a daily basis, and another five (20.8%) ate these more than once a day. This result is pleasing given that dairy products provide the nutrient calcium, and that during adolescence the recommended dietary intake (RDI) is highest. As shown in the figure, four participants (16.7%) ate dairy foods only every few days, one (4.2%) ate these only weekly, and two (8.3%) ate these only every two weeks. None of the participants never or almost never ate dairy foods.

Reid (1993, 55) notes that adolescence is often an “environment that relies on snacking and unstable meal patterns”. Whitney and Rolfes (1999, 524) add that “snacks typically provide at least one fourth of the average teenager’s daily food intake,” and that “most often, favourite snacks are high in fat and low in calcium, iron, vitamin A, vitamin C, and folate”’. Only five of the Pacific Islands survey participants (20.8%) stated that they ate snacks more than once a day. Another seven (29.2%) ate these daily, bringing the total number of Pacific Islands participants who ate snacks every day to twelve (50%). This result is a little surprising given that adolescents are known to eat a lot of snack foods, but may be related to the fact that Pacific Islands people do not categorise meals according to specific foods (Kinloch, 1985, 17). Figure 6.6 shows that four of the participants (16.7%) stated that they ate snacks never or almost never, while the remaining eight (33.3%) admitted to eating snacks every few days. Five of the Pacific Islands respondents (20.8%) said that they ate takeaway foods (Fish & Chips, KFC, McDonalds) more than once daily, and another three (12.5%) ate such foods daily. This result is alarming considering that food guidelines recommend that takeaways be eaten in moderation, that is one to two times a week at the most. Five of the participants (20.8%) ate takeaways every few days, meaning that thirteen of the Pacific Islands participants (54.2%) exceeded this recommended intake of takeaway foods. Only two students (8.3%) ate takeaways never or almost never. The remaining nine participants ate these fortnightly or once a week. The final section of Question 11 asked the participants how often they drank soft drinks. As shown in the figure, eighteen of the participants (75%) had soft drinks either daily, or more than once a day.
Question 12 asked the participants to name the person who was responsible for grocery shopping in their household. The possible responses were: a) your mother; b) your father; c) another adult; d) a sibling; e) you; and f) someone else. The response rate to this question is shown in Table 6.7.

<table>
<thead>
<tr>
<th>Person responsible for grocery shopping</th>
<th>Number of responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother</td>
<td>15</td>
</tr>
<tr>
<td>Father</td>
<td>1</td>
</tr>
<tr>
<td>Mother and Father</td>
<td>6</td>
</tr>
<tr>
<td>Another adult</td>
<td>0</td>
</tr>
<tr>
<td>A sibling</td>
<td>2</td>
</tr>
<tr>
<td>The Participant</td>
<td>1</td>
</tr>
</tbody>
</table>

In six households both the mother and the father were responsible for buying food for the family. Therefore only one father was the sole family member in charge of buying groceries. One of the Pacific Islands students (a female) was responsible for shopping, and two participants stated that this was the role of an older sibling rather than their parents.

Question 13 followed a similar format but asked the participants who in their family cooked the evening meal. The results to this question are shown in Table 6.8.

<table>
<thead>
<tr>
<th>Person responsible for cooking</th>
<th>Number of responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother</td>
<td>16</td>
</tr>
<tr>
<td>Father</td>
<td>7</td>
</tr>
<tr>
<td>Another adult</td>
<td>2</td>
</tr>
<tr>
<td>A sibling</td>
<td>4</td>
</tr>
<tr>
<td>The Participant</td>
<td>1</td>
</tr>
</tbody>
</table>

In three households both the mother and the father were cooked dinner for the family. Only one of the Pacific Islands students (a female) was responsible for cooking the evening meal.
Questions 14 asked the participants what they would eat for dinner on an average night, and Question 15 asked what foods were served when the family had guests. In response to Question 14, Pacific Islands participants replied that a typical evening meal incorporated the following foods: meat, vegetables, potatoes, rice, Samoan foods, hot chips/takeaways, and fish. Two students did not answer Question 14 and two said that their typical evening meal varied. Figure 6.7 below shows the number of Pacific Islands students who ate the aforementioned foods at a typical evening meal.

Figure 6.7
Foods Eaten by Pacific Islands Participants ‘On a Typical Evening’

![Bar chart showing the number of responses for different meal types]

Figure 6.8
Foods Eaten by Pacific Islands Participants ‘When Guests Visit’

![Bar chart showing the number of responses for different meal types]

Figure 6.8 shows the foods most likely to be eaten by Pacific Islands families when guests are in the home. The typical responses to this question were “Samoan foods” and “heavy foods”. Foods such as taro, fish, chop suey, okaia, banana/fa’i, pisupo
(corned beef), chicken and pig were listed as Samoan foods that would be served on such occasions. Four of the students stated that their parents would serve a roast if people came to dinner. Of note is the fact that none of the three Pacific Islands participants from Papanui High School stated that their families would serve guests “Samoan foods”.

Question 16 (Do you attach any special significance to certain foods?) revealed that while many of the Pacific Islands adolescents did not consider any particular foods to be significant, seven (29.2%) attached a special significance to Pacific Islands/Samoan foods. Foods listed as significant included chop suey, taro, oka, bananas and pork. One student called these foods “festival foods”. Another noted that it was important to serve pigs at events such as weddings and funerals.

Pacific Islands foods also featured highly in response to Question 17 (What are your favourite foods?). Ten participants (41.7%) listed these as a favourite. Two students (8.3%) stated that fruit and vegetables were a favourite, and a third preferred a roast (4.2%). Seventeen of the respondents (70.8%) listed takeaways, including McDonalds, KFC, Burger King, and Fish and Chips, among their favourite foods. One student listed her favourite food as chocolate. Figure 6.9 shows the results of Question 17.

Figure 6.9
Favourite Foods of Pacific Islands Participants

The final question in Section Two of the survey asked if the participants had any other details about their diet that they wished to share. One student stated that their family diet was primarily made up of meat and fish, and another (a female) said that she did
not eat much, that she rarely ate meat, and that her food choices were related to her high level of participation in sport.

6.2.2.2 Nutrition Information of Non-Pacific Islands Participants

As shown in Figure 6.10 the majority of the non-Pacific Islands participants ate breakfast, lunch and dinner every day. In comparison, the Pacific Islands respondents ate dinner and lunch-type meals more than once a day, and were a lot less likely to eat breakfast every day. The Pacific Islands participants were more likely to never or almost never eat all of the meal types mentioned than the non-Pacific Islands adolescents (see Figure 6.5).

Figure 6.10
Frequency of Eating Different Types of Meals: Non-Pacific Islands Participants

Figure 6.11 (overleaf) shows the frequency with which the non-Pacific Islands participants ate the following kinds of foods: breads and cereals, fruits, vegetables, meat, fish, dairy products, snacks, takeaways and soft drinks. The figure reveals that the majority of the non-Pacific Islands participants ate all of the foods in the above list daily or every few days, with the exception of takeaways, which were usually eaten only one time in a week. Twenty-four of the non-Pacific Islands participants (77.4%) ate bread and cereal foods daily or more than once a day, and another two (6.5%) ate these every few days. Only five (16.1%) of these adolescents ate breads and cereals less regularly than this. Thirteen of the non-Pacific Islands Survey participants (41.9%) ate more than one serving of fruit per day, and six (19.4%) ate more than one serving of vegetables. In total twenty-one of the thirty-one non Pacific Islands participants (67.7%) ate fruit every day and twenty-five (80.6%) ate vegetables. These results imply that the non-Pacific Islands adolescents were more
likely than the Pacific Islands respondents to meet the recommended daily intake of five or more servings of fruit and vegetables a day, as well as the guideline for cereals and bread.

**Figure 6.11**

**Frequency of Eating Different Types of Food: Non-Pacific Islands Participants**

While none of the non-Pacific Islands students was a vegetarian, one (3.2%) *almost never* ate meat. Sixteen of the members of this group (51.6%) ate meat daily and another five (16.1%) ate meat more than once a day. Seven (22.6%) ate meat every few days. Thirteen participants (41.9%) also ate fish every few days while only two (6.5%) said that they ate this daily. In comparison, 20.8% of the Pacific Islands students ate fish *daily* and 8.3% ate fish *more than once a day*. This might reflect the fact that fish and shellfish has an important place in the traditional Pacific Islands diet. Fourteen of the non-Pacific Islands survey respondents (45.2%) consumed dairy products *daily* and another six had these *more than once a day*. Therefore a total of 64.5% of the non-Pacific Islands participants can be said to meet the recommended dietary intake (RDI) for dairy products. Around two thirds of the both Pacific Islands (66.7%) and non-Pacific Islands (64.5%) adolescents had an adequate intake of dairy products in their everyday diet. Thirty-one of the non-Pacific Islands participants (100%) ate snacks *daily* or *more than once a day*. In comparison, only 50% of the
Pacific Islands participants ate snacks every day. As mentioned above, 48.4% of the non-Pacific Islands participants only ate takeaways one time per week. Nine (29.0%) ate these every few days, while three (9.7%) ate them daily and two (6.5%) admitted to eating takeaways more than once a day. In comparison, 54.2% of the Pacific Islands Survey respondents ate takeaways more than once a day, daily or every few days. Only 20.8% of the Pacific Islands participants consumed takeaways one time in a week. Finally, the results of Question 11 indicate that the non-Pacific Islands students were less likely than the Pacific Islands respondents to drink soft drinks on a regular basis. Only 45.2% of the non-Pacific Islands adolescents drank one or more serving of soft drink per day, as opposed to 75% of the Pacific Islands teens.

The results of Question 12 (who is responsible for grocery shopping in your household?) are shown in Table 6.9.

Table 6.9
Family Member(s) Responsible for Grocery Shopping:
Non-Pacific Islands Participants

<table>
<thead>
<tr>
<th>Person responsible for grocery shopping</th>
<th>Number of responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother</td>
<td>22</td>
</tr>
<tr>
<td>Father</td>
<td>2</td>
</tr>
<tr>
<td>Mother and Father</td>
<td>4</td>
</tr>
<tr>
<td>Another adult</td>
<td>1</td>
</tr>
<tr>
<td>A sibling</td>
<td>2</td>
</tr>
<tr>
<td>The Participant</td>
<td>4</td>
</tr>
</tbody>
</table>

Two of the participants who stated that they bought their family's groceries did this in conjunction with their mother. In one non-Pacific Islands household an aunty shopped for groceries for the household. Only two fathers were primarily responsible for buying the family groceries.

Table 6.10 (overleaf) shows the family members who were responsible for cooking the non-Pacific Islands respondents their evening meal.
Table 6.10

Family Member(s) Responsible for Cooking the Evening Meal:
Non-Pacific Islands Participants

<table>
<thead>
<tr>
<th>Person responsible for cooking</th>
<th>Number of responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother</td>
<td>21</td>
</tr>
<tr>
<td>Father</td>
<td>0</td>
</tr>
<tr>
<td>Mother &amp; Father</td>
<td>3</td>
</tr>
<tr>
<td>Another adult</td>
<td>2</td>
</tr>
<tr>
<td>A sibling</td>
<td>3</td>
</tr>
<tr>
<td>The Participant</td>
<td>8</td>
</tr>
</tbody>
</table>

As shown in the table, it was most often the responsibility of the adolescent's mother to cook the evening meal. While three fathers cooked for their families in conjunction with the mother, none was solely on charge of preparing the family's meals. One participants stated that their sibling cooked all of the family's meals, and two said that either their mother or a sibling cooked. Four of the teens shared the cooking responsibilities with their mother. In one family all of the members (the mother, father, sibling(s) and the teen took turns cooking. Therefore only three of the adolescents (9.7%) did all of the cooking for their family. Four cooked along with their mother and one cooked in conjunction with a sibling. In two families an aunt also shared the cooking responsibilities.

Responses to Question 14 (On an average night, what do you eat for dinner?) included: meat (for example steak and chicken) and vegetables, pasta, and salad. The number of participants who ate the various types of food are shown in Figure 6.12.

Figure 6.12

Foods Eaten by Non-Pacific Islands Participants 'On a Typical Evening'
Figure 6.13 shows the kinds of meals typically served when the non-Pacific Islands families had guests to dinner.

**Figure 6.13**

**Foods Eaten by Non-Pacific Islands Participants ‘When Guests Visit’**

As shown in the figure, 38.7% of the non-Pacific Islands participants ate a roast when visitors came to dinner, as opposed to 16.7% of the Pacific Islands families. Three respondents (9.7%) stated that “posh/nice” food was served on such occasions, but did not specify the kind of foods. Six participants (19.4%) noted that dessert was always served when guests came to dinner. None of the Pacific Islands participants indicated this.

Sixteen of the thirty-one non-Pacific Islands participants (51.6%) provided a response to Question 16 (Do you attach any special significance to certain foods?). Ten of these respondents (62.5%) preferred “healthy foods” (fruits, vegetables, cereals and bread) because they are “nutritious”, “give you vitamins and minerals”, and are “good for you”. One Asian participant said that Korean foods were significant and were always served to guests. Three participants (18.8%) attached a special significance to junk food/takeaways. One of these respondents stated “I sometimes choose foods that aren’t healthy because they taste good”.

Question 17 (What are your favourite foods?) revealed that non-Pacific Islands adolescents preferred the following: takeaways (such as pizza, McDonalds, KFC and Fish & Chips), pasta (lasagne, spaghetti bolognese), vegetables, fruit (strawberries, rock melon, grapes, oranges and kiwifruit), salad, chocolate, lollies, yoghurt, meat
(lamb and chicken), baked beans, cookies, coke, and different ethnic foods (Chinese, Mexican, Greek, Korean and Italian). The number of participants who liked each of these foods is shown in Figure 6.14.

**Figure 6.14**

Favourite Foods of Non-Pacific Islands Participants

Seven of the non-Pacific Islands adolescents responded to the final Question of Section 2 of the Adolescent Health and Well-being Survey, which asked whether the participants had any additional details about their diet that they wished to share. One girl said she was a vegetarian (although no non-Pacific Islands students stated that they *never* ate meat - see Figure 6.11), and a second wanted to stop eating meat. One girl visited a dietician regularly “to learn how to eat healthy” and a boy said he ate a lot of healthy foods such as salads, fruit, juice and water. One participant in this group was a diabetic, and another said she was bulimic. Finally, one boy stated he was “addicted to coke”.

6.2.2.3 Nutrition Information of Combined Research Participants

Question 10 revealed that most of the survey participants regularly ate breakfast, lunch, dinner and snacks. Snacks were more likely than any of the other meals to be eaten more than once a day. Dessert was the meal eaten least often by both the Pacific Islands and non-Pacific Islands respondent groups. Table 6.11 shows how often the research participants ate these meals.
Table 6.11
Frequency of Eating Different Types of Meals: Combined Research Participants

<table>
<thead>
<tr>
<th></th>
<th>Breakfast Number</th>
<th>Breakfast %</th>
<th>Lunch Number</th>
<th>Lunch %</th>
<th>Dinner Number</th>
<th>Dinner %</th>
<th>Dessert Number</th>
<th>Dessert %</th>
<th>Snacks Number</th>
<th>Snacks %</th>
</tr>
</thead>
<tbody>
<tr>
<td>More than once a day</td>
<td>3</td>
<td>5.6</td>
<td>7</td>
<td>13.0</td>
<td>7</td>
<td>13.0</td>
<td>2</td>
<td>3.7</td>
<td>25</td>
<td>46.3</td>
</tr>
<tr>
<td>Daily</td>
<td>22</td>
<td>40.7</td>
<td>33</td>
<td>61.1</td>
<td>42</td>
<td>77.8</td>
<td>7</td>
<td>13.0</td>
<td>18</td>
<td>33.3</td>
</tr>
<tr>
<td>Every few days</td>
<td>13</td>
<td>24.1</td>
<td>7</td>
<td>13.0</td>
<td>3</td>
<td>5.6</td>
<td>25</td>
<td>46.3</td>
<td>6</td>
<td>11.1</td>
</tr>
<tr>
<td>Weekly</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>3.7</td>
<td>1</td>
<td>1.9</td>
<td>9</td>
<td>16.7</td>
<td>2</td>
<td>3.7</td>
</tr>
<tr>
<td>Fortnightly</td>
<td>1</td>
<td>1.9</td>
<td>1</td>
<td>1.9</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>3.7</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Almost Never</td>
<td>6</td>
<td>11.1</td>
<td>4</td>
<td>7.4</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>14.8</td>
<td>1</td>
<td>1.9</td>
</tr>
<tr>
<td>Never</td>
<td>9</td>
<td>16.7</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1.9</td>
<td>1</td>
<td>1.9</td>
<td>2</td>
<td>3.7</td>
</tr>
<tr>
<td>Total</td>
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<td>54</td>
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<td>54</td>
<td>100</td>
<td>54</td>
<td>100</td>
<td>54</td>
<td>100</td>
</tr>
</tbody>
</table>

Note- One Pacific Islands participant did not answer Question 10, therefore n=54.

As shown in Figures 6.6 and 6.11, the diets of both the Pacific Islands and non-Pacific Islands participants contained a wide range of foods. Table 6.12 shows the percentage of respondents who ate each of the listed food types in the time periods given. In this table the shaded square indicate the participants who would have met the recommended daily allowance for that food group (as shown in MOH, 1998c, 7; and Whitney & Rolfes, 1999, 34-35).

Table 6.12
Frequency of Eating Different Foods: Combined Research Participants

<table>
<thead>
<tr>
<th></th>
<th>Breads &amp; Cereals</th>
<th>Fruit</th>
<th>Veges</th>
<th>Meat</th>
<th>Fish</th>
<th>Dairy</th>
<th>Snack Foods</th>
<th>Take-aways</th>
<th>Soft drinks</th>
</tr>
</thead>
<tbody>
<tr>
<td>More than once a day</td>
<td>40</td>
<td>30.9</td>
<td>14.5</td>
<td>20</td>
<td>3.6</td>
<td>20</td>
<td>36.4</td>
<td>12.7</td>
<td>27.3</td>
</tr>
<tr>
<td>Daily</td>
<td>38.2</td>
<td>25.5</td>
<td>47.3</td>
<td>41.8</td>
<td>9.1</td>
<td>45.5</td>
<td>34.5</td>
<td>10.9</td>
<td>30.4</td>
</tr>
<tr>
<td>Every few days</td>
<td>7.3</td>
<td>35.5</td>
<td>27.3</td>
<td>21.8</td>
<td>30.9</td>
<td>21.8</td>
<td>21.8</td>
<td>25.5</td>
<td>23.6</td>
</tr>
<tr>
<td>Weekly</td>
<td>1.8</td>
<td>10.9</td>
<td>5.5</td>
<td>7.3</td>
<td>18.2</td>
<td>5.5</td>
<td>0</td>
<td>40</td>
<td>9.1</td>
</tr>
<tr>
<td>Fortnightly</td>
<td>3.6</td>
<td>1.8</td>
<td>1.8</td>
<td>1.8</td>
<td>20</td>
<td>0</td>
<td>1.8</td>
<td>1.8</td>
<td>3.6</td>
</tr>
<tr>
<td>Almost Never</td>
<td>7.3</td>
<td>1.8</td>
<td>1.8</td>
<td>1.8</td>
<td>20</td>
<td>0</td>
<td>1.8</td>
<td>1.8</td>
<td>3.6</td>
</tr>
<tr>
<td>Never</td>
<td>1.8</td>
<td>3.6</td>
<td>1.8</td>
<td>0</td>
<td>14.5</td>
<td>1.8</td>
<td>5.5</td>
<td>1.8</td>
<td>1.8</td>
</tr>
<tr>
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<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

According to Table 6.12 40% of the survey participants would have met the recommended daily allowance (RDA) for breads and cereals (six servings per day). 30.9 and 14.5 percent would have reached the RDA for fruit and vegetables respectively, however if as the recommendation allows for five or more servings of
fruit and vegetables, a lot more of the participants may have reached this. One serving of meat, seafood, or meat substitutes (lentils, beans and pulses) is recommended. 41.8% of the participants reached the RDA for meat, while 20% exceeded it. 20% of the participants had more than one serving of dairy products a day, and two or more servings a recommended (as long as these servings are low in salt and fat). As already stated, snacks are a normal part of the adolescent diet. It is appropriate for teenagers to eat snacks regularly throughout the day, as long as these snacks are selected from foods low in sugar and fat (for example, fruits, vegetables, breads and nuts) (MOH, 1998c, 8; Whitney & Rolfes, 1999, 524). In total, 70.9% of the survey participants ate at least one snack every day. 40% of the teenagers ate takeaways once a week which is ideal, while 49.1% of the participants ate takeaways more often than is recommended. Although there are no recommendations given for the intake of soft-drinks, over-consumption of these is concerning as they tend to be high in sugar and low in many other nutrients (MOH, 1998b, 30). Teenagers are encouraged to drink juice and water, while soft drinks, energy drinks and alcohol are not recommended. Therefore in terms of the above table, drinking soft drinks only every few days is probably preferable. 23.6% of the survey participants did this.

The participants of the Adolescent Health and Well-being Survey named a variety of people responsible for shopping for the family and cooking the evening meal. Both shoppers and cooks included: the participants’ mothers, fathers, and siblings, another adult such as an aunt, and the participants. Often a combination of family members assisted with these jobs, however in the mother was most often responsible for cooking and shopping.

In total thirty-one of the survey participants (56.4%) stated that they ate meat and vegetables for dinner on a typical nights. Rice, pasta, salad, “Samoaan foods” and takeaways were other common evening meals. The most common meal eaten when guests visited was a roast (29.1%). However, 50% of the Pacific Islands participants said that they would eat “Samoaan foods”, while only 16.7% of these families would serve a roast to guests. 19.4% of the non-Pacific Islands respondents stated that dessert was always included in a meal when guests were present.

As shown in Figures 6.9 and 6.14 the survey participants favoured a wide range of foods. Takeaways were a common favourite for both groups, while several of the Pacific Islands preferred “Samoaan foods”. Fruits, vegetables and chocolate also featured in both sets of results.
In response to Question 18 (If there are any other details about your diet that you would like to share please note them below) three of the participants (all female) expressed a desire to eat less meat or become vegetarian. Two students stated that they had a diet-related health condition, and a third was “addicted to coke”. Three participants stated a preference for healthy eating, while a fourth indicated that his family’s diet consisted primarily of fish and meat. Only ten of the fifty-five survey participants (18.2%) provided a response to this question.

6.2.3 Nutrition and Health

The aim of this section was to determine whether or not the participants were concerned about the way their diet may affect their health, and therefore behaved in a manner which reflected this concern. Question 19 asked the Survey participants to indicate how often they performed certain activities which relate to both nutrition and health (see Appendix V) such as reading food labels and choosing foods which were low in salt or fat. Questions 20 to 22 asked the students about specific health issues which are directly linked to nutrition. The questions looked at whether the students knew about certain nutrition-related health conditions common in New Zealand; and whether they or any of their friends and family members had been diagnosed with conditions such as obesity and Type II diabetes.

"Developing adolescents, especially females, are particularly concerned about their body image and excessive weight (either real or perceived) and are under constant pressure to enhance their body image" (MOH, 1998b, 38).

The final two questions in this section asked the participants to determine whether or not they had a healthy body weight, and whether they were happy with the weight that they were. These questions were included for two reasons. First, in an attempt to judge the relevance of the above statement to these adolescents; and secondly to judge determine or not the Pacific Islands students had different perceptions about body size to the non-Pacific Islands teens.

6.2.3.1 Nutrition and Health Information of Pacific Islands Participants

As shown in Figure 6.15 below, the Pacific Islands Survey participants rarely read food labels, chose foods low in fat or salt, though about nutrition when choosing foods, or worried about their diets. Food labels appear on almost all processed foods (Whitney & Rolfes, 1999, 46). They provide a variety of information such as the main ingredients present in a specific food, and the quantities of specific nutrients such as carbohydrates and fat, and minerals such as calcium, sodium and iron. This information allows people to make informed choices about the nutritional value of the foods they select. Food labels will always indicate the levels of salt and dietary fat in
a food. Selecting foods low in fat may assist an individual in maintaining a healthy body weight, whereas a diet high in salt (sodium) is associated with hypertension. Therefore choosing foods low in fat or salt can have positive long-term benefits for health (MOH, 1998b, 26; Whitney & Rolfes, 1999, 376).

**Figure 6.15**

Performance of Activities Related to Nutrition and Health  
– Pacific Islands Participants

![Bar chart showing frequency of action related to nutrition and health.]

Only thirteen of the twenty-four Pacific Islands participants (54.2%) read food labels on at least a weekly basis, implying that almost half of the students rarely or never attempted to make informed decisions about the foods they chose. Thirteen (54.2%) attempted to choose foods low in fat at least once a week, with three (12.5%) doing this every day. Only two participants (8.3%) tried daily to choose low salt foods, while twelve (50%) never or almost never considered the salt content of the foods they chose.

Teenagers, particularly teenage girls, frequently worry about their diet. Heinberg et al. (1996, quoted in MOH, 1998b, 38) states that concerns about body image are so prevalent that they “can be considered to be a normal part of the female experience”. During this time it is important that the adolescent fits in with his or her peers, and conformity through dietary habits can enable this.
"Peer influence through increased social activity [also] affects food choices of adolescents. Loss of appetite or refusing to consume food, overeating, eating whatever is available and eating convenience or junk foods are some of the food-related responses to the stress of a teenage lifestyle" (MOH, 1998b, 2).

"Many of the food and health choices adolescents make reflect the opinions and actions of their peers" (Whitney & Rolfs, 1999, 525).

Adolescence is known as a time when girls (and to a lesser extent boys) attempt to diet, and when eating disorders such as anorexia and bulimia may occur. The phenomenon of adolescent obesity is also becoming increasingly recognised (Whitney & Rolfs, 1999, 532; Dekker, 2000). Ten of the students in this group (41.7%) worried about their diet every week, with seven (29.7%) worrying more than daily, daily, or every few days. As shown in the figure, twelve of the students (50%) almost never or never worried about their diet. The National Advisory Committee (quoted in Morris, 1985, 50) notes that "food is chosen as much for cultural or social reasons as for nutritional reason. This is likely to be of particular importance during teenage years when self-identity in relation to peer group membership is a central concern". Therefore adolescents are unlikely to be concerned about nutrition when choosing foods. Instead, they select foods that prove their affinity with their peers. Fourteen of the Pacific Islands participants (58.3%) said that they thought about nutrition when choosing foods, eight of them (33.3%) at least once daily. Ten (41.7%) never or almost never did this.

Only twenty-three of the twenty-four Pacific Islands participants answered Questions 20, which asked them whether or not they or anyone they knew had been diagnosed with the nutrition-related health conditions anorexia, bulimia, obesity, iron deficiency/anaemia, coronary heart disease, and Type II diabetes. One (4.3%) participant had a friend with anorexia or bulimia, and another had a family member with one of these conditions. Four of the Pacific Islands participants (17.4%) knew of someone with an eating disorder, while seventeen of the twenty-three (73.9%) did not. Only one participant (4.3%) had a friend who suffered from obesity, and another stated that this affected a family member. Three others (13.0%) knew of someone who was obese, leaving eighteen Pacific Islands participants who did not know of anyone with this health condition. Seventeen of the twenty-three Pacific Islands participants neither had nor knew of anyone who suffered from iron deficiency or anaemia. One student (4.3%) stated that they had either iron deficiency or anaemia, another had a friend with this, and two others (8.7%) stated that they knew of a person with this problem. One participant (4.3%) also said that they had a friend with
coronary heart disease, while two (8.7%) had a family member with this problem and three (12.5%) said that it affected someone they knew. Seventeen (70.8%) of the respondents did not know of anyone with coronary heart disease, and seventeen did not know of anyone with non-insulin dependant diabetes mellitus (NIDDM/Type II diabetes). Four of the Pacific Islands participants (16.7%) stated that someone in their family suffered from type II diabetes, and two (8.7%) knew of someone who had this.

"World-wide, iron deficiency is the most common nutrient deficiency" (Whitney & Rolfes, 1999, 410). People most prone to iron deficiency (depletion of iron stores) and anaemia (severe depletion of the stores with a resultant low concentration of haemoglobin) include: women, pregnant women, infants and young children, and adolescents. "The rapid growth of adolescence, especially for males, and the menstrual losses of females also demand extra iron that a typical teen diet may not provide" (ibid, 410). Symptoms of iron deficiency include: fatigue, itchiness, weakness, headaches, apathy, pallor, and poor resistance to the cold. In practical terms iron deficiency can decrease an individual's ability to concentrate for long periods; it may reduce work productivity and tolerance to work; it may reduce physical fitness; and, significantly for children and teenagers, iron deficiency can reduce the ability to learn (ibid, 410-411). Question 21 asked the participants to identify the symptoms of iron deficiency and anaemia. Only one student was able to identify any of these symptoms. The symptoms she listed were: tiredness, dizziness, and feeling run down. As already stated only four of students in this group had or knew of someone with iron deficiency or anaemia.

Type II diabetes accounts for 90-95% of all diabetes cases. Onset usually occurs in people over forty years of age, but is also seen in obese children. Pacific Islands/Polynesian people are also considered to be at increased risk. Obesity and a poor diet are known precursors of this disease (Whitney & Rolfes, 1999, 578). The main symptoms of type II diabetes are: excessive thirst, frequent urination, loss of weight and energy, and infections that will not heal (Lions Clubs International). Complications from diabetes include: damaged vision, decreased circulation (sometimes resulting in amputations), kidney failure and damage to the heart (Auckland Area Health Board, 1991). The above student was also able to list some of the symptoms she thought to be associated with Type II diabetes. She wrote the following: "eyes turn funny, gain weight, and headaches". Weight gain is more a cause than a symptom of this condition, but it is noteworthy that the participant saw
that these were related. The other two symptoms listed are also associated with this condition. One other student answered this question (Question 22), listing “sickness” as a diabetes symptom.

"Most female adolescents tend to associate weight with fatness, which is undesirable, while male adolescents tend to associate weight with muscle and bone, which is desirable" (Morava 1992, quoted in MOH, 1998b, 38).

Twenty-three of the twenty-four Pacific Islands participants (95.8%) answered Question 23 (Do you believe that you have a healthy body weight?). Ten of these participants (43.5%) stated that they thought they did have a healthy body weight, three (13.0%) said that they did not, and ten (43.5%) did not know if their body weight was healthy or not. Of the ten participants who did feel they had a healthy body weight, six were male and four were female. One female thought her weight was unhealthy, and six were uncertain. Two of the males in this group thought that their weight was unhealthy. Fifteen of the twenty-three Pacific Islands participants (65.2%) said that they were happy with the weight they were (Question 24). Eleven of the fifteen (73.3%) were male, and only four (26.7%) were female. Of these participants, seven (46.7) also believed that they had a healthy body weight, and seven (46.7%) were unsure. One participant (6.7%) thought that his weight was unhealthy, but he was not concerned about this. The remaining eight participants (34.8%) were not happy with the weight they were. Seven of these students (87.5%) were female, six of whom were trying to lose weight, and one who was trying to gain. The male participant was also trying to lose weight.

6.2.3.2 Nutrition and Health Information of Non-Pacific Islands Participants
The responses of the non-Pacific Islands Survey participants to Question 19 are shown in Figure 6.16 (overleaf). As shown in this figure, 41.9% of the non-Pacific Islands participants read food labels at least once a week. Twelve of the thirty-one non-Pacific Islands participants (38.7%) attempted to choose foods low in fat at least once a week, although only four (12.9%) did this daily or more than once a day. Of the twelve participants who did chose low-fat foods once a week or more, six were male and six were female. Seventeen of the non-Pacific Islands participants (54.8%) rarely if ever chose foods low in fat. Sixteen (51.6%) never or hardly ever chose low-salt foods, while fourteen (45.2%) considered the salt content of their foods selections at least once a week.
Nineteen of the non-Pacific Islands participants (61.3%) never or almost never worried about their diet, compared with 50% of the Pacific Islands respondents. Six of the students (19.4%) worried about their diet every day. Finally, thirteen of the non-Pacific Islands Survey participants considered nutrition when choosing foods one or more times in a week. Seventeen of these participants 54.8%) rarely or never worried about nutrition when choosing foods. These results show that the non-Pacific Islands participants were unlikely to read foods labels, to choose foods low in fat or salt, to worry about their diet, or to consider nutrition when choosing foods.

Twenty-four of the thirty-one non-Pacific Islands participants of the Adolescent Health and Well-being Survey neither had nor knew of anyone who had the eating disorders anorexia or bulimia. Two of the participants (6.5%) admitted to suffering from an eating disorder. One seventeen year old male indicated that he had bulimia, and a female participant aged sixteen said that she had an eating disorder but did not specify which kind. Three of the participants (9.7%) said that they had a friend with one of these eating disorders, while a forth participant (3.2%) knew someone who had one. Ten of the participants (32.3%) knew someone who was obese, and an additional five participants (16.1%) stated that a member of their family suffered from this health condition.

Two of the participants (6.5%), both female, stated that they suffered from iron deficiency/anaemia. Two (6.5%) knew of someone, and two (6.5%) said that one of
their friends was iron deficient. Four of the participants (12.9%) said someone in their family suffered from this condition. A total of ten of the teens (32.3%) knew of someone with coronary heart disease. Eight of these people were members of the adolescent’s family, while two were other acquaintances. Finally, eleven of the participants (35.5%) knew of someone with diabetes. One teen said that they had diabetes, and two teens said they had a friend with this, possibly referring to this person. However, these teens all went on to list “insulin dependency” as a symptom of NIDDM, when it is in fact a symptom of Type I diabetes. It is therefore possible that these participants were confused by the term Type II diabetes. Six of the non-Pacific Islands participants (19.4%) stated that a family member had Type II diabetes, and the remaining two (6.5%) knew of someone who had this. Twenty-six of the thirty-one non-Pacific Islands participants of this research (83.9%) could not identify any symptoms of either iron deficiency/anaemia or Type II diabetes. Symptoms listed by the remaining five students as relevant to iron deficiency/anaemia were: tiredness, pale eyes, a lack of energy, and a low blood count. Symptoms given for non-insulin dependant diabetes mellitus were: fainting/blacking/passing out, acetone breath, frequent urination, run [sic] out of energy, lack of energy, high blood pressure, drinking a lot, a high blood sugar level, and a dependency on insulin. This list shows that the non-Pacific Islands participants had a better knowledge of the symptoms of NIDDM.

Seventeen of the thirty-one non-Pacific Islands participants (54.8%) believed that they had a healthy body weight (Question 23). Nine of these respondents (52.9%) were male and eight (47.1%) were female. Four male participants (12.9%) and three females (9.7%) did not think that their body weight was healthy. The two participants who stated that they had an eating disorder responded NO to this question. The remaining seven (six males and one female) non-Pacific Islands participants (22.6%) were unsure as to whether their body weight was health or not. Finally, sixteen of the non-Pacific Islands participants (51.6%) were happy with the weight they were. Eight of these participants were female (50%) and eight were male. While twelve of the participants (38.7%) were both happy with their body weight and believed that this was healthy, four of the students (12.9%) indicated that although they were happy with their body weight they were not sure if it was in fact healthy. Fifteen of the non-Pacific Islands participants (48.4%) were not happy with their body weight, and fourteen (45.2%) were trying to change the weight they were. Five of these participants (35.7%) were trying to gain weight, four of them male and one who was female. The remaining nine participants (64.3%) wished to lose weight. Surprisingly,
seven of these students (77.8%) were male and only two (22.2%) were female. These results show that although most of the non-Pacific Islands participants thought they had a healthy body weight.

6.2.3.3 Nutrition and Health Information of Combined Research Participants

As shown in Figure 6.17, many of the fifty-five participants of the Adolescent Health and Well-being Survey rarely or never performed behaviours which would help them to make healthier food choices, such as reading food labels or thinking about nutrition when choosing foods. However, the figure also shows that a number of the adolescents did perform these activities occasionally, with the third most common response in most cases being “every few days”.

![Figure 6.17](image)

**Performance of Activities Related to Nutrition and Health — Combined Survey Participants**

In total, twenty-six (47.3%) of the participants read food labels at least once a week, fourteen (25.5%) once a day or more. Seven of the participants (12.7%) chose low fat foods daily, and a total of twenty-seven (49.1%) selected low fat foods each week. In addition, twenty-six of the participants (47.3%) selected foods low in salt each week. Twenty-six of the participants (47.3%) never worried about their diet, while eighteen (32.7%) worried every day or every few days. Approximately half of the students (49.1%) said that they considered nutrition when choosing foods.
Two of the fifty-five Survey participants (3.6%) stated that they had an eating disorder, four (7.3%) had a friend with either anorexia or bulimia, one participant (1.8%) had a family member with one of these conditions, and a further eight participants (14.5%) knew of someone who had one. Six of the adolescents (10.9%) had a family member who suffered from obesity, and another thirteen (23.6%) knew someone who was obese. While none of the participants believed that they were obese, one (1.8%) said that he/she had a friend who was. Only three (5.5%) participants (all female) were iron deficient/anaemic, four (7.3%) knew of someone who was, and four (7.3%) had a friend who was. Another four participants had a family member with one of these conditions. In total, sixteen of the participants (29.1%) stated that they knew of someone with coronary heart disease. Ten of these people were members of the participants’ families; one was a participant’s friend, and the remaining five were someone the participant knew. Finally, ten of the fifty-five participants (18.2%) had a family member with Type II diabetes, one adolescent (1.8%) had diabetes (possibly Type I), and six (10.9%) knew of someone who had this.

While most of the participants (89.1%) did not know any symptoms of iron deficiency/anaemia or Type II diabetes, those who could name symptoms seemed to have quite a good knowledge of what these were. Symptoms given by the participants in response to Questions 21 and 22 have been listed in sections 6.2.3.1 and 6.3.2.2.

Only fifty-four of the fifty-five Survey participants (98.2%) answered Questions 23 and 24. Of these participants twenty-seven (50%) believed that they had a healthy body weight. Fifteen (55.6%) were male, and twelve (44.4%) were female. Ten participants thought that their weight was unhealthy (six males and four females), and seventeen (ten males (58.8%), and seven females (41.2%)) were unsure. Thirty-one of the participants (57.4%) were happy with the weight they were. Twelve (38.7%) of these participants were female and nineteen (61.3%) were male. Therefore twelve of the twenty-three female Survey participants (52.2%) and nineteen of the thirty-two males (59.4%) were happy with their body weight at that time. Twenty-three of the participants (42.6%) were unhappy with their weight and sixteen (29.6%) were trying to lose weight. Eight of these participants were female and eight were male. Finally, six participants were trying to gain weight, two females and four of the males.
6.2.4 Exercise and Leisure Activities

As shown in Chapter Four, regular exercise is crucial to good health (MOH, 1997a, 23). Physical activity, in conjunction with a healthy diet, enables an individual to maintain a healthy body weight, and thus reduces their risk of contracting a lifestyle-related disease. Section four of the Adolescent Health and Well-being Survey asked the participants whether or not they deemed themselves to be physically fit, and then asked them to show how often they participated in a number of different activities, including walking, household chores, sport (either team sports or individual), paid employment, babysitting, watching television and homework. Several of the activities listed, although not automatically perceived as exercise, are in fact physical activity and can contribute to an individual's overall level of physical fitness (for example walking to school, household chores, and even babysitting). Other activities in Question 26 can be used to estimate the level of inactivity of the individual concerned, as well as how they spend their leisure time.

6.2.4.1 Exercise and Leisure Activities of Pacific Islands Participants

Twenty-two of the twenty-four Pacific Islands participants (91.7%) provided an answer to Question 25 (Do you believe that you are physically fit). Thirteen (59.1%) said that they were fit, four (18.2%) said that they were not fit, and five (22.7%) stated that they were unsure whether they were fit or not. Of those participants that considered themselves to be fit, five (38.5%) were female and eight (61.5%) were male.

Figure 6.18 (overleaf) shows the results of Question 26. As shown in the figure, the Pacific Islands young people regularly participated in many of the activities listed. The participants were least likely to participant in paid employment, and most likely to be involved in school activities, household chores, child minding, church or youth group, and some kind of sport or exercise daily. The teens were slightly more likely to participate in organised sport than to exercise for fitness. Significantly, all but one of the Pacific Islands students (95.8%) participated in church and/or youth group every week, with twelve (50%) having some kind of church/youth group involvement every day.
6.2.4.2 Exercise and Leisure Activities of Non-Pacific Islands Participants

Thirteen of the thirty-one non-Pacific Islands participants (41.9%) considered themselves to be fit, and twelve (38.7%) did not. The remaining six participants (19.4%) were unsure as to whether they were fit or not. Of the thirteen participants who stated that they were fit, eleven (84.6%) were male and only two (15.4%) were female. Four of the twelve unfit participants (33.3%) were male and eight (66.7%) were female. Three students who were unsure about their level of fitness were male and the rest were female.

The results of Question 26 for the non-Pacific Islands survey participants are shown in Figure 6.19 overleaf.
In stark contrast to the members of the Pacific Islands group (see Figure 6.18), these students were least likely to participate in church or youth group activities. They were also much less likely to daily visit friends or relatives. As with the Pacific Islands youth they were likely to walk, play sport and do chores every day or every week. They were more likely to be involved in paid employment.

6.2.4.3 Exercise and Leisure Activities of Combined Survey Participants

In total, fifty-three of the fifty-five Survey participants answered Question 25, stating whether or not they considered themselves to be physically fit. Of these students, thirty-one (58.5%) were male and twenty-two (41.5%) were female. Twenty-six of the fifty-two participants (49.1%) described themselves as fit, sixteen (30.2%) said they were unfit, and eleven (20.8%) said that they did not know whether they were fit or not. Of the twenty-two female participants, seven (31.8%) said that they were fit, nine (40.9%) thought that they were unfit, and six (27.3%) were unsure. Nineteen of the thirty-one male participants (61.3%) described themselves as fit, seven (22.6%) said they were unfit, and five (16.1%) were not sure. These results suggest either that males are more fit than females or that females are less likely than males to consider themselves to be fit.
As shown in Figures 6.18 and 6.19 both the Pacific Islands and the non-Pacific Islands regularly participated in all of the activities presented in Question 26. As stated in section 6.2.4.2, where the two groups had similar levels of participation in most activities including walking, household chores, playing sport, and watching television, they participated a different amount in others. To indicate the differences between the ethnic groups Figure 6.20 shows the level of participation in five of the listed exercise and leisure activities: household chores, exercise for sport or fitness, paid employment, minding other children and church or youth group activities.

**Figure 6.20**

**Participation of Combined Research Participants in Selected Activities**

![Bar chart showing participation levels for Pacific Islands and non-Pacific Islands in various activities.](chart)

This figure reveals that both the Pacific Islands and the non-Pacific Islands survey respondents participated regularly in physical activity, either for sport or fitness. Of the fifty-five survey respondents, forty-eight (87.3%) stated that they exercised one or more times per week. Twenty-three of the twenty-four Pacific Islands respondents (95.8%) and twenty-five of the thirty-one non-Pacific Islands participants (80.6%) exercised regularly. Forty-seven of the adolescents also stated that they regularly completed household chores. Twenty of the Pacific Islands respondents (83.3%) did household chores one or more times per week. Eight of these respondents (40%) were female and twelve (60%) were male. Therefore 72.7% of the Pacific Islands females and 92.3% of the males regularly did household chores. Twenty-seven of the thirty-one non-Pacific Islands survey participants (87.1%) also did chores regularly.
Ten of the twelve females (83.3%) and seventeen of the nineteen males (89.5%). This result suggests that both Pacific Islands and non-Pacific Islands adolescents were expected to carry out chores in the home regularly. In contrast seventeen of the twenty-four Pacific Islands participants (70.8%) regularly looked after other children, as opposed to sixteen of the thirty-one non-Pacific Islands respondents (51.6%). According to this result, Pacific Islands adolescents are more likely than their non-Pacific Islands counterparts to look after other children regularly. In addition, given that most of the Pacific Islands adolescents stated that they rarely participated in paid employment, their looking after other children would not have been babysitting as this is usually a youth activity that involves getting paid. The non-Pacific Islands adolescents were more likely to regularly participate in paid employment. Of the twenty-two survey participants (40%) who worked one or more times a week, sixteen (72.7%) were from the non-Pacific Islands research group. Only six (27.3%) were Pacific Islands in ethnicity. Two (33.3%) of the Pacific Islands adolescents who worked were female and four (66.7%) were male. Eleven (68.8%) of the sixteen non-Pacific Islands participants who worked were male and five (31.3%) were female. Therefore a total of 51.6% of the non-Pacific Islands survey participants worked, in comparison to only 25% of the Pacific Islands teens. 58.0% of the non-Pacific Islands males and 41.7% of the females worked, as opposed to 18.2% of the Pacific Islands females and 30.8% of the males. Finally, of the thirty survey participants (54.5%) who participated in church or youth group activities regularly, twenty-three (76.7%) were members of the Pacific Islands group. 100% of the Pacific Islands females, and 92.3% of the males participated in church-related activities at least once every week. In comparison only seven (22.6%) of the non-Pacific Islands participants were regularly involved with church or youth group related activities. All of these participants were male. Therefore, although less likely than the non-Pacific Islands young people to be involved in paid employment, the Pacific Islands adolescents were equally likely to play sport or exercise, and to complete household chores, and were more likely to be involved in both church/youth group activities and child-minding.

6.2.5 Cigarettes, Alcohol and Other Drugs

"Alcohol, tobacco and drug use can also affect nutrition status and food choice in the adolescent, and they also need to be considered" (Crawley & While 1996, cited in MOH, 1998b, 2).

Questions 27-34 of the Adolescent Health and Well-being Survey asked the participants whether or not they had ever tried alcohol, cigarettes or other drugs, and how frequently they
used these. The aim of this section was to determine the rate of use among the young people, and whether the rates of use by the Pacific Islands participants were in line with overall use of these products by Pacific Islands people in New Zealand.

6.2.5.1 Cigarette, Alcohol and Drug Use of the Pacific Islands Participants

One Pacific Islands participant did not complete section five of the survey, therefore the total number of Pacific Islands respondents was twenty-three: eleven females and twelve males. Of the students seventeen (73.9%) had smoked a cigarette at some stage in their lives. Seven of the males 58.3% and ten of the females (90.9%) had attempted smoking. Therefore five of the six students who had never tried smoking were male, and only one was female. All of those who had not tried smoking were of Samoan ethnicity. Only eleven (47.8%) of those students who had attempted smoking considered themselves to be a regular smoker. Seven of these students were female (63.4%) and four were male (36.4%). One participant indicated that they had been a regular smoker but had "quit". The number of cigarettes the students smoked ranged from three cigarettes to four packs of cigarettes (80-100 cigarettes) a week. Five (45.5%) of these students smoked more than a pack of cigarettes per week, one indicating that they smoked "too much".

Nine of the eleven girls (81.8%) and seven of the twelve boys (58.3%) had tried alcohol, meaning that sixteen of the twenty-three (69.6%) students had tried alcohol prior to the time of this survey. Nine (39.1%) students admitted to drinking alcohol regularly. Four of the nine (44.4%) were girls and five (55.5%) were boys. These results suggest that although many of the students had tried alcohol less than half drank this on a regular basis. While the female participants were more likely to have tasted alcohol, the boys were slightly more likely to drink it regularly. Three of those who drank alcohol regularly were unsure of how much they drank in a typical week, and other responses ranged from one drink to nine. Two of the females drank every weekend, and one male had alcohol every few days. One female participant stated "I never get drunk". Five of the twenty-three (21.7%) students had had so much alcohol that they had been sick or passed out (Question 33).

Nine (39.1%) of the participants responded yes to Question 34 (Have you ever tried any other kind of drugs such as solvents or marijuana?). Four of these participants were male and five were female. Of the participants who responded yes to this question, seven (77.8%) also drank alcohol and smoked cigarettes on a regular basis. The remaining two had tried other drugs but did not drink or smoke.
6.2.5.2 Cigarette, Alcohol and Drug Use of the Non-Pacific Islands Participants

As already stated, of the thirty-one non-Pacific Islands respondents to section five of the Adolescent Health and Well-being Survey, nineteen (61.3%) were male and twelve (38.7%) were female. Twenty-six (83.9%) of the students had attempted smoking at some time, seventeen of the boys and nine of the girls. Therefore, of this group 89.5% of the male participants and 75% of the females had tried smoking. Of the five non-smokers in the group three were female and two were male. Four of the non-smokers were European, and the fifth was an Asian female. An Asian boy was one of the fourteen (45.2%) non-Pacific Islands students who stated that they smoked cigarettes regularly. A Māori student and twelve European students also admitted to being regular students at some stage, two claiming to have now given up. Seven of the regular smokers were female, and seven were male. Therefore 36.8% of the male students and 58.3% of the females were (or had been) a regular smoker. This result suggests that of those smokers who had tried smoking at some stage the female participants were more likely to continue to smoke. As with the Pacific Islands participants, the number of cigarettes that the members of this group smoked ranged from very few (two or three cigarettes per week) to several packets. Approximately half of the students smoked more than one packet of cigarettes per week.

Twenty-seven (87.1%) of the non-Pacific Islands respondents had tried alcohol: sixteen of the nineteen males (84.2%) and eleven of the twelve females (91.7%). Only ten students (32.3%) drank alcohol regularly. Eight of these ten were male (80%) and two (20%) were female, indicating that although both girls and boys tended to have tried alcohol, the boys were more likely to drink this on a regular basis. Seven of the ten respondents who drank alcohol regularly also smoked cigarettes, while three did not. Although ten students stated that they drank alcohol regularly, fifteen (48.4%) answered Question 32 (About how many drinks of alcohol do you currently drink in a week?). Five more students answered this question with a question mark, possibly indicating that they drank some alcohol in a typical week. Answers to this question included “lots”, “it varies”, and “as many as possible”. All of the five students who drank more than ten drinks per week were male. Thirteen of the thirty-one non-Pacific Islands students (41.9%) had at some time drunk so much alcohol that they had been sick or passed out: eight (42.1%) of the males and five (41.7%) of the females. From this result it seems that although more likely to drink regularly, the males were not significantly more likely than the females to drink until they were drunk.
Twelve of the non-Pacific Islands students (38.7%) admitted to trying other kinds of drugs; 31.4% of the males, and 50% of the females. Of these students nine (75%) also smoked and/or drank alcohol regularly. Three, (25%) neither drank nor smoked but had tried some other kind of drug.

6.2.5.3 Combined Cigarette, Alcohol and Drug Use of All Research Participants
Forty-three of the fifty-four students who answered these questions (79.6%) had attempted smoking and twenty-five (46.3%) smoked regularly. Twenty-four of the thirty-one male students (77.4%) and nineteen of the twenty-three females (82.6%) had attempted smoking, but of eleven males (35.5%) and fourteen females (60.9%) smoked on a regular basis. Three of the students (5.6%) stated that they had smoked cigarettes regularly but no longer did. The results of this section suggest that both males and females were likely to have tried smoking but that females were more likely to be regular smokers. Males, however, were likely to smoke larger quantities of cigarettes.

A total of forty-three of the fifty-four adolescents (79.6%) had also tried alcohol. Twenty-three (74.2%) of the males and twenty (87.0%) of the females. However, only nineteen (35.2%) of the participants consumed alcohol regularly: thirteen (41.9%) of the males, and six (26.1%) of the females. Therefore students were more likely to smoke than drink alcohol on a regular basis. The fact that thirteen of those students who drank alcohol regularly (68.4%) were male while only six (31.6%) were female suggests that males were more likely to drink alcohol than females. Eighteen (33.3%) of the fifty-four participants had had so much alcohol that they had been sick or passed out. Five students (9.6%) drank more than ten alcoholic drinks per week. None of these students were in the Pacific Islands group.

Twenty-one students (38.9%) had tried drugs other than cigarettes and alcohol. Ten of the thirty-one males (32.3%) and eleven of the twenty-three females (47.8%) responded yes to this question.

6.2.6 Health Information and Services
The final section of the Adolescent Health and Well-being Survey (Questions 35 to 40), asked the participants whether or not they had ever received any information about the main topics covered in the survey (that is, nutrition, exercise, smoking, and alcohol); what the sources of this information were; and which health services (if any) they most commonly used in Christchurch.
6.2.6.1 Health Information and Services – Results of Pacific Islands Participants

Of the twenty-four Pacific Islands participants who answered Question 35 (Have you ever received any information about nutrition, exercise, smoking and alcohol), twenty-one (87.5%) had received information of some kind. Question 36, which asked the participants to indicate the sources of this information (see Appendix V) proved difficult for some of the students (particularly the Pacific Islands students) to answer. In total, seventeen (70.8%) of the Pacific Islands participants answered Question 36, with some respondents answering only selected parts of the question. The results of Question 36 are shown in Figure 6.21.

Figure 6.21
Sources of Information Related to Nutrition, Exercise, Smoking and Alcohol:
Pacific Islands Participants

![Graph showing sources of information for nutrition, exercise, smoking, and alcohol]

**Nutrition**

Only fourteen of the twenty-four Pacific Islands students (58.3%) provided a response to the first section of Question 36. As shown in the figure, several sources provided the Pacific Islands young people with nutrition-related information. School sources including teachers and guest speakers, sports coaches, friends and family members, and the media (television and magazines in particular) were all common responses to this question.
Exercise
Fourteen of the twenty-four Pacific Islands participants (58.3%) showed the sources where they had received information about exercise. Sources of information about exercise were similar to those used by the students to gather information about nutrition, however health clinics provided more information in this area, while friends and church ministers were a less significant information source.

Smoking
Sixteen of the Pacific Islands participants (66.7%) had received information about smoking. As shown in the figure, the most common sources of this information were friends, parents, teachers and guest speakers at school. Pamphlets, television and videos were also significant sources of information related to smoking.

Alcohol
Fifteen of the twenty-four Pacific Islands participants (62.5%) stated that they had received information about alcohol. The church minister was also a significant source of information related to alcohol, with 29.2% of the students learning about alcohol through their church. Again, the media (television, magazines and videos) proved an important source of information, as did friends, teachers, and the family. Figure 6.21 also shows that the participant’s sports coach and the newspaper were less likely to have provided information about alcohol than in the other areas of health.

It is important to note that due to the nature of Question 36, it is difficult to judge the nature of the information referred to in response to the question. Therefore the information the participants are referring to could be health related, or of a very different nature. For example, the participants may have acquired from their friends information about how to smoke cigarettes.

Question 37 of the Survey asked the participants how frequently they used health services in Christchurch. Fifteen of the twenty-four Pacific Islands participants (62.5%) answered this question, with responses varying from “never” (four out of fifteen, 26.7%) to four times per week (one participants, or 6.7%). One participant (6.7%) said they used health services when required, and two (13.3%) said that they did not know how often they used these. Eleven of the participants (73.3%) indicated that they used health services in Christchurch rarely if ever.
Eight of the participants (33.3%) answered Question 38. The kinds of health services that the Pacific Islands young people stated they used were: the family doctor, a nurse or school nurse, health clinics, self medication (for example, panadol), school councillors, the YMCA or another gym, and the Campbell Centre (for drugs). Of these services the Pacific Islands students most often saw the doctor (37.5%) or their school councillor (25%).

Sixteen of the Pacific Islands participants (66.7%) answered Question 38 (Who chooses the health services that you use?). As shown in Table 6.13 (see next page), the participant's parents were most likely to choose the health services that the respondents used. Three (18.8%) of the participants were allowed to make this decision in conjunction with their parents, and only three (18.8%) were permitted to make such decision alone. One participant stated that either his/her parent(s) or the school chose the health services that he/she used.

<table>
<thead>
<tr>
<th>Person responsible</th>
<th>Response rate</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent(s)</td>
<td>9</td>
<td>56.3</td>
</tr>
<tr>
<td>Participant</td>
<td>3</td>
<td>18.8</td>
</tr>
<tr>
<td>Parent(s) + Participant</td>
<td>3</td>
<td>18.8</td>
</tr>
<tr>
<td>Parent(s) + School</td>
<td>1</td>
<td>6.3</td>
</tr>
<tr>
<td>Total</td>
<td>16</td>
<td>100.2</td>
</tr>
</tbody>
</table>

The final question of the Adolescent Health and Well-being Survey (Question 40: In general, are you happy with your access to health services in Christchurch?) received a total of nineteen responses (79.2%) from the Pacific Islands group. Seventeen of the nineteen (89.5%) said that they were happy with their access to health services, while two (10.5%) were not.

6.2.6.2 Health Information and Services-Results of Non-Pacific Islands Participants

Twenty-nine of the thirty-one non-Pacific Islands respondents (93.5%) to the Adolescent Health and Well-being Survey stated that they had received information about nutrition, exercise, smoking and alcohol; and two (6.5%) said they had not. All of the twenty-nine participants who had answered yes to Question 35 provided a
response to Question 36 (What are the sources of this information?). The responses of the non-Pacific Islands participants to Question 36 are show on the bar chart in Figure 6.22.

**Figure 6.22**

*Sources of Information Related to Nutrition, Exercise, Smoking and Alcohol: Non-Pacific Islands Participants*

<table>
<thead>
<tr>
<th>Source of Information</th>
<th>Nutrition</th>
<th>Exercise</th>
<th>Smoking</th>
<th>Alcohol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Siblings</td>
<td>20</td>
<td>10</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Parents</td>
<td>15</td>
<td>12</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Teachers</td>
<td>10</td>
<td>9</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Guest speakers at school</td>
<td>7</td>
<td>8</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Pamphlets</td>
<td>12</td>
<td>11</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>School counsellor</td>
<td>8</td>
<td>10</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Friends</td>
<td>15</td>
<td>12</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Sports coach</td>
<td>10</td>
<td>11</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Dietician</td>
<td>7</td>
<td>8</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Nurse</td>
<td>12</td>
<td>10</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Church Minister</td>
<td>8</td>
<td>9</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Supermarket</td>
<td>15</td>
<td>12</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Internet</td>
<td>20</td>
<td>22</td>
<td>16</td>
<td>10</td>
</tr>
<tr>
<td>Television Programmes</td>
<td>25</td>
<td>23</td>
<td>18</td>
<td>12</td>
</tr>
<tr>
<td>Videos</td>
<td>10</td>
<td>11</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Teaching tips</td>
<td>7</td>
<td>8</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Health clinics</td>
<td>12</td>
<td>10</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Newspapers</td>
<td>15</td>
<td>14</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>Magazines</td>
<td>20</td>
<td>18</td>
<td>12</td>
<td>8</td>
</tr>
</tbody>
</table>

**Nutrition**

As shown in the figure, twenty-seven of the thirty-one non-Pacific Islands adolescents (87.1%) stated the sources that provided them with information related to nutrition. As shown in Figure 6.23 important sources of nutrition-related information were the adolescents’ parents, teachers, guest speakers at school, pamphlets, the supermarket, television, videos, newspapers and magazines. The non-Pacific Islands participants rarely received information about nutrition from their siblings, the internet, school counsellors or other teens.

**Exercise**

The responses of the twenty-eight participants (90.3%) who answered this section of Question 36 revealed that siblings are friends were slightly more likely to teach the participants about exercise. Teachers, parents, pamphlets and other printed information (newspapers and magazines), along with television were also useful in providing such information. Not surprisingly, the sports coach was a significant
information source. Guest speakers, school counsellors, videos and teaching kits were less likely to provide information in this area.

**Smoking**

The non-Pacific Islands teens were most likely to have gained information about smoking from their teachers, television programmes, pamphlets and videos. Friends, siblings, sports coaches, magazines, newspapers, health clinics, nurses and school counsellors were also frequently used as information sources. 93.5% of the non-Pacific Islands participants responded to this section of the question.

**Alcohol**

The response rate to the final section of Question 36 was also 93.5%. Teachers, television programmes and pamphlets were the three main sources of information about smoking. All other sources had been used by the teenagers, although the internet, the supermarket, siblings and church ministers rarely provided alcohol-related information.

As with the Pacific Islands participants, the frequency of use of health services by non-Pacific Islands adolescents varied from more than once a week to never. Of the twenty-three participants who answered Question 37, two (8.7%) used health services 'as required', three (13.0%) used them one or more times a week, and one student (4.3%) used health services on a monthly basis. Ten participants (43.5%) stated that they used health services 'rarely', and seven (30.4%) said that they 'never' used health services in Christchurch. The responses to Question 38 (Please list some of the health services that you most often use) were as follows: hospital, medical centre, dentist, orthodontist, doctor/general practitioner, family planning centre, diabetes centre, aromatherapist, gym, nurse, school councillor, physiotherapist, therapist, and dietician. The doctor and dentist, and nurse, were the health services that the non-Pacific Islands teenagers used most often.

The parents of the non-Pacific Islands adolescents were also the most likely people to choose which health services the non-Pacific Islands Survey participants used. Of the twenty-nine (93.5%) students who answered Question 39, only eight (27.6%) were personally responsible for choosing the health services that they used. Fifteen (51.7%) left this decision to their parents, and three others (10.3%) made the decision either along with or as well as their parents. Two of the students in this group (6.9%) stated that their trainer/coach told them which health services to use; and others used
health services based on the instructions of their school, a relative or their friends. This information is depicted overleaf in Table 6.14.

Table 6.14
Person Responsible for Selecting Health Services: Non-Pacific Islands Participants

<table>
<thead>
<tr>
<th>Person responsible</th>
<th>Response rate</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent(s)</td>
<td>14</td>
<td>48.3</td>
</tr>
<tr>
<td>Participant</td>
<td>8</td>
<td>62.1</td>
</tr>
<tr>
<td>Parent(s) + Participant</td>
<td>3</td>
<td>10.3</td>
</tr>
<tr>
<td>School</td>
<td>1</td>
<td>3.4</td>
</tr>
<tr>
<td>Sports Coach</td>
<td>2</td>
<td>6.9</td>
</tr>
<tr>
<td>Friends</td>
<td>2</td>
<td>6.9</td>
</tr>
<tr>
<td>Another Adult</td>
<td>1</td>
<td>3.4</td>
</tr>
</tbody>
</table>

Twenty-nine of the non-Pacific Islands students (93.5%) provided an answer to Question 40 (In general, are you happy with your access to health services in Christchurch?); and of these participants twenty-seven (93.1%) were happy with their health services access.

6.2.6.3 Health Information and Services – Results of Combined Research Participants

In total, fifty of the fifty-five Survey participants (90.9%) said that they had received information about nutrition, exercise, smoking and alcohol. The main sources of this information were school sources (teachers, guest speakers, counsellors), the media (television, the internet, magazines, videos and newspapers), and family and friends. This information is depicted in figures 6.21 and 6.22.

Thirty-eight of the participants (69.1%) answered Question 37 (About how often do you use health services in Christchurch?). Four of these participants (10.5%) used health services one or more times a week, three (7.9%) used them as required, and one (2.6%) used health services monthly. Seventeen (44.7%) of these participants "rarely" used health services and eleven (28.9%) did not use them at all. The final two participants (5.3%) who answered Question 37 were unsure about the frequency of their health service use.

The health services used by the participants of the Adolescent Health and Well-being Survey were: the family doctor, a nurse or school nurse, health clinics, self medication
(for example, panadol), school councillors', the YMCA or another gym, and the Campbell Centre (for drugs), hospitals, medical centres, the dentist and orthodontist, family planning centre, diabetes centre, an aromatherapist, a physiotherapist, a therapist, and a dietician.

The parents, the adolescents, or occasionally the adolescent’s friends or school chose the health services that the participants used. Forty-four of the forty-eight participants (91.7%) who answered Question 40 (In general, are you happy with your access to health services in Christchurch?) indicated that they were in fact happy, while four (8.3%) were not.

This concludes the presentation of the Adolescent Health and Well-being Survey results. These results, and their implications for Pacific Islands young people, will be discussed in Chapter Seven.

6.3 Discussion of the Research Process
The remainder of this chapter will discuss the research process, including some of the problems encountered and shortcomings of the research process.

Some of the initial problems associated with researching a combination of Pacific Islands and non-Pacific Islands young people have been outlined earlier in this chapter. To maximise the participation of the Pacific Islands young people, and the accuracy of their responses, cultural considerations were held paramount. Thus during the selection and preparation of a research tool the needs of the Pacific Islands participants were seen as more important than the non-Pacific Islands group. The self-administered questionnaire research format was selected as it was more appropriate for Pacific Islands young people, given that the researcher was not Pacific Islands. Unfortunately, the self-administered questionnaire research tool has its limitations. Sporle (1993, 14) notes that: “questionnaires were [sic] not taken seriously by young people any more”. However, after consideration of a variety of methods, and communication with Pacific Islands young people (Hayes & Heckert, 2000), the self-administered questionnaire was deemed the most appropriate method for this research.

The selection of the self-administered questionnaire method also increased the potential for accessing young people. It was disappointing that two of the schools chose not to participate

9 Aranui High School has a specific Samoan councillor to cater to the needs of its Pacific Islands students.
in the study, and that the timing of the research limited the potential for subjects (as some senior students had left school for exams). The schools who agreed to participate preferred the research to be carried out at the end of 1999 rather than the beginning of 2000 as this would be a very busy time of year. It was deemed preferable to proceed with a smaller sample size than wait until May of 2000 to conduct the research. The sample size of fifty-five was considered adequate for this research.

Sporle (1993, 15) also noted that including only high school students when researching adolescents provided an "inadequate representation" of a city's young people. In fact, members of this group can include employed people, beneficiaries, tertiary students and others. However, as already stated, accessing such groups would have been more difficult, and so for the purposes of this research only high school students were surveyed. It is important to note that an individual's behaviour is likely to undergo a transition during the late adolescent period, as during this time the teens assumes more responsibility for their every-day decisions. This affects diet and lifestyle behaviours (for example the youth may leave home and begin choosing their own foods), selection of health services, and many other behaviours. Given this fact, this research cannot be taken as a study into the nutrition and lifestyle behaviours of 'young people' as defined in Chapter One of this thesis, but rather as an insight into the behaviours of a secondary school teens, aged thirteen to seventeen years. If conducted with older groups, the outcomes might be quite different. However, the research presented here is useful in that it might be used for comparative studies if conducted with other groups at a later stage, and used for comparison with existing studies which have included school-aged youth.

Seventy-five percent of the Pacific Islands participants in this study were Samoan in ethnicity. This is higher than both the national rate of 50%, and the percentage of Samoan young people in Christchurch, which is 65.5% (see Chapter Two). This potential bias was unavoidable both because the selection of the students was up to the schools, and because the Pacific Islands students at Aranui High School are mostly Samoan.

As already noted, such studies were difficult to find. Fuamatu (1997, 6) notes that there is a lack of and need for studies into the diet and lifestyle habits of Pacific Islands young people in New Zealand. The Ministry of Health agrees that youth health-based studies are lacking, particularly studies into independent young people, and those which consider "cultural-specific dietary practices" (MOH, 1998b, 2). While confirming the need for this research,
this lack of resources made devising the research project difficult. For example, when the size of the research tool was reduced (based on the findings of the pilot test), it was difficult to determine which questions should be kept. In hindsight, different foods could have been included in Question 11, and it would have been useful to know where in their home the participants usually ate. Other questions could potentially have been omitted. The pilot study failed to reveal this shortcoming, as well as one or two others. For example, many of the Pacific Islands participants did not even know the word ‘ethnicity’ and so had difficulty answering Question 3. Question 35 also proved challenging. Although the vocabulary in the questionnaire was kept simple, the Pacific Islands participants had some problems with this. This appeared to be due to a language barrier rather than intelligence.

6.4 Chapter Summary
The process of formulating a research project and undertaking the research has been discussed in detail in this chapter, and the results of this research have been documented. From its conception to the compilation of the results, and their presentation in this thesis, the research project took approximately twenty-four months. Background research accounted for a large portion of this time, along with the application for Human Ethics Committee consent. The undertaking of this research project was difficult in that many problems had to be overcome. These included the cultural requirements of the young people to be investigated, the time constraints of the schools, and the preparation of a suitable research method. However the results presented in Chapter Six suggest that the project was in fact worthwhile. These results indicate that Pacific Islands young people have slightly different diet and lifestyle habits than their non-Pacific Islands counterparts. They also have some negative food habits such as overeating takeaway foods. In addition, some cultural differences between the two groups were revealed. The results of the Adolescent Health and Well-being Survey, along with their possible implications for the health of Pacific Islands young people in Christchurch will be discussed in Chapter Seven.
CHAPTER 7
Discussion of Research Results

The first six chapters of this thesis have described the health of Pacific Islands young people in New Zealand, with particular regard to the influence of dietary choices on health. Given this influence, along with the fact that adult dietary behaviours become established during the adolescent period, the overall health of Pacific Islands people in New Zealand will benefit from an understanding of the dietary habits of Pacific Islands youth. As Sallis (1993, 209) notes: “[p]roper diet and physical activity may be especially important during adolescence, when rapid growth and development create an increased need for many nutrients, and when excessive accumulation of fat may contribute to health problems and psychosocial difficulties for years to come”. Therefore studies into Pacific Islands adolescent nutritional habits have been documented, and research into the health of Pacific Islands young people in Christchurch was carried out.

While literature regarding the health habits of Pacific Islands young people is scarce, the studies documented in the early chapters of this thesis, along with the results of the Adolescent Health and Well-being Survey provide a wealth of information about the dietary behaviours of Pacific Islands young people in New Zealand. In this chapter the survey findings will be discussed with reference to the supporting literature, so as to provide a detailed overview of the results of this research.

Based on the aims set out in Chapter One of this thesis, Chapter Seven poses a number of questions regarding the dietary and lifestyle behaviours of Pacific Islands young people in New Zealand. These aims include a discussion of the features of the diet of Pacific Islands young people in New Zealand, including potential areas where this diet could be improved, and the influence of culture of Pacific Islands adolescent food choices. Following this the incidence of health-related lifestyle behaviours – namely smoking, alcohol consumption, and rates of physical activity – is outlined. The effects of socio-economic variables on dietary choices, and of diet upon Pacific Islands health are then reiterated with reference to the research findings. Finally, based on the assertion that Pacific Islands youth health is an important public health issue, Chapter Seven discusses potential avenues for promoting health to Pacific Islands young people in New Zealand.
7.1 The Diet of Pacific Islands Young People in New Zealand

Aim: To show that several aspects of the diet of Pacific Islands young people are unhealthy, along with possible areas where the diet could be changed to enhance health.

Following the observation made by Bell & Parnell (1996, 435) that Pacific Islands young people consume "a diet that is higher in amount but lower in nutrient density compared to that of non-Pacific [sic] New Zealand children", and that their diet consists mainly of meat, fast foods, dairy foods and bakery products, with vegetables and fruit rarely eaten (ibid, 435), this section of Chapter Seven looks at the findings of the Adolescent Health and Well-being Survey in an attempt to document Pacific Islands adolescent's consumption of different foods. It is hoped that this overview of their dietary habits will show how and why the diet of Pacific Islands young people in New Zealand is deemed unhealthy.

Breads and cereals

Russell et al. (1999, 128) found that Pacific Islands people, especially females, were more likely to eat the New Zealand Food and Nutrition Guideline of five or more servings of breads and cereals a day than New Zealanders in general. However, Pacific Islands people were less likely to eat cereals, and therefore most of these daily servings would consist of bread. Although meeting the recommended daily intake of bread appears to be a positive result, Bell & Parnell (1996, 436) discovered that while breads/baked goods constituted a significant proportion of the total energy intake of Pacific Islands young people, they also contributed a significant amount of fat. This is because Pacific Islands young people typically select bread foods that have a poor nutritional quality. These include white bread as opposed to brown, along with: waffles and donuts, fruit and iced buns, and speciality breads (Russell et al., 1999, 128). In addition, Pacific Islands people are likely to use full fat butters and spreads on their bread, whereas NZ Europeans more commonly select reduced fat and polyunsaturated spreads (ibid, 128). Based on these observations, Bell and Parnell (1996, 438) note that "encouraging [the consumption of] lower fat baked goods' would improve the quality of Pacific Islands young people's diets.

The Adolescent Health and Well-being Survey revealed that 54.2% of the Pacific Islands young people ate breads and cereals more than once a day, thus meeting the New Zealand nutrition guideline; and a further 25% ate these once every day. The survey did not ask the participants which kinds of breads and cereal foods they ate. It did however reveal that 77.4% of the non-Pacific Islands young people also consumed breads and cereals daily or more than once a day.
Meat and Fish

Bathgate et al. (1994, 23) has stated that in New Zealand Pacific Islands people consume more meat (particularly red meat) than was traditional in the Pacific Islands. Russell et al. (1998, 98) found that Pacific Islands people ate a variety of meats including corned beef, chops and pork; mixed chicken, pork, and mutton dishes; steamed, baked, grilled, raw, battered, and fried fish. They ate more fish and shellfish that New Zealanders in general. The higher intake of meat by Pacific Islands people in New Zealand increases their dietary intake of both fat and salt because certain meats (for example tinned meats) have salt added to them, and because Pacific Islands people are less likely than other New Zealanders to trim the fat off meat (Bell et al., 1995, 125; Russell et al., 1999, 98).

The results of Adolescent Health and Well-being Survey supported the above finding that Pacific Islands people ate more fish than non-Pacific Islands people, with 20.8% of the Pacific Islands participants and 6.5% of the non-Pacific Islands participants eating fish once a day or more. The results of the survey indicated that 29.2% of the Pacific Islands young people and 51.6% of the non-Pacific Islands young people ate one serving of meat per day, as is recommended by the New Zealand Nutrition Guidelines. The discrepancy in this result is in part accounted for by the fact that the Pacific Islands participants were a lot more likely to exceed the recommended daily intake of meat. 25% of the Pacific Islands students ate more than one serving of meat each day, as opposed to only 16.1% of the non-Pacific Islands students. Therefore the total number of Pacific Islands students eating meat daily (once a day or more) was 54.2%. 73.7% of the non-Pacific Islands students ate meat daily. In total, 41.8% of the survey participants (n=55) met the recommended daily intake of meat, while 20% exceeded it.

38.2% of the participants ate less meat than is recommended (45.8% of the Pacific Islands adolescents, and 32.3% of the non-Pacific Islands teens). This finding is significant for two reasons. Firstly, as will be shown in section 7.4, when money is scarce meat is one of the foods that is sacrificed so that other expenses can be met (Manukau City, 1993, 2; Sallis, 1993, 216). And secondly because meat is the main food contributing the mineral iron to the diet. As stated in Chapter Six, adequate iron intake allows for the transportation of oxygen in the blood. An insufficient intake can reduce an individual’s ability to concentrate, and compromise both physical fitness and productivity at work (Whitney & Rolfes, 1999, 410-411). During adolescence, the amount of dietary iron required by the body increases:

“Nutrition needs rise dramatically as children enter the rapid growth phase of the teen years. The busy lifestyles of adolescents add to the challenge of meeting their nutrient needs – especially for iron and calcium” (Whitney & Rolfes, 1999, 526).
Iron is required by adolescent males and females for two very different reasons. Males, whose iron needs are similar before and during adolescence, require an adequate iron intake to sustain the growth of lean muscle mass; whereas the iron needs of females increase during adolescence to counter the losses which coincide with the onset of menstruation (Whitney & Rolfes, 1999, 525). From adolescence onwards females have a higher recommended daily allowance (RDA) for iron than males (ibid, 524).

A study of South Auckland schools revealed that 27% of Māori, 21% of Pacific Islands, and only 7% of European adolescent females were likely to be iron deficient. Further, this iron deficiency is likely to have a detrimental affect on the students’ ability to learn and concentrate in class (MOH, 1998d, 1). One Pacific Islands participant of the Adolescent Health and Well-being Survey stated she was iron deficient as opposed to three of the non-Pacific Islands girls. No male participants claimed that they were iron deficient. This result does not support the above finding, but it is important to note that the Pacific Islands participants of this survey were less able than the non-Pacific Islands participants to identify the symptoms of iron deficiency and anaemia. This may indicate that they are not as aware of the condition, and thus the incidence of iron deficiency may have in fact been higher.

Dairy Products

From childhood to adolescence the amount of most nutrients that the body requires will increase. Aside from iron, the most crucial mineral required by the body during adolescence is calcium. The RDA for calcium in males and females aged nine to eighteen years is 1300 milligrams per day (Whitney & Rolfes, 1999, 524). This equates to at least four servings of calcium-rich foods. A high calcium intake is crucial during adolescence because calcium is the primary nutrient involved in the development of bone. An inadequate calcium intake during adolescence can “compromise the development of peak bone mass”, which will have consequences for the individual later in life (ibid, 524).

66.6% of the Pacific Islands survey respondents ate one or more servings of dairy foods each day, as did 64.5% of the non-Pacific Islands students. None of the participants never or almost never ate dairy foods. This result is pleasing in that two-thirds of the young people are most likely attaining an adequate intake of calcium. However, Russell et al. (1999, 127) found that Pacific Islands people were more likely to eat dairy foods that were high in fat, such as butter and standard milk; whereas non-Pacific Islands people more commonly choose low-fat dairy options. Fuamatu et al. (1996, 15) found that although Samoan young people saw low-fat dairy products as ‘good for them’, in particular for their bones and teeth, they were uncertain about the nutritional quality of standard dairy foods. These participants also
stated that it was products from the ‘standard dairy foods’ card (see Table 5.2) that they
normally selected. Because the Adolescent Health and Well-being Survey did not ask the
participants to determine which dairy foods they ate, these results cannot be compared.

The health outcome most commonly associated with an insufficient intake of dietary calcium
is osteoporosis (Whitney & Rolfes, 1999, 396). Note that osteoporosis is not listed as a
disease affecting older Pacific Islands people (see Chapter Three), whereas it is widely known
to affect European/Palagi women, and even men (Reid, 1993, 56; Sallis, 1993, 212; Whitney
& Rolfes, 1999, 398). It is possible that, with their larger physique, and higher bone density
and muscle mass, Pacific Islands people may be less at risk of developing osteoporosis when
older.

**Vegetables and Fruits**

Colin Bell (1993, cited in Bathgate et al., 1994, 103) notes that there is a glaring lack of both
vegetables and fruit in the diet of Pacific Islands children and young people; while Russell et
al. (1999, 131, 133) concur that Pacific Islands people are less likely to eat these than the New
Zealand population in general. The New Zealand Nutrition Guidelines recommend a
minimum daily intake of five servings of fruits and vegetables a day – three servings
vegetables and two of fruit is considered ideal (MOH, 1998c, 7). Russell et al. (1999, 131)
found that 67% of New Zealanders ate three or more servings of vegetables daily, and that
46% of the population ate two or more servings of fruit (ibid, 133). In general, females are
more likely to meet this requirement. Less than half of all males aged fifteen to eighteen
years had an adequate daily intake of vegetables and fruit, whereas females in this age group
typically met the daily intake recommended (ibid, 131, 133). However, Pacific Islands people
were the least likely population group to eat three or more vegetables a day, and were most
likely to eat less than one piece of fruit per day (ibid, 131, 133). Russell et al. also
acknowledge that fruit and vegetable consumption is related to income along with ethnic
group. The Manukau City Quality of Life Survey revealed that when money is scarce fruits
and vegetables are less likely to be purchased (Manukau City, 1993, 2). Fuamatu et al (1996,
35) add that because a lack of money limits the amount of fruits and vegetables that Pacific
Islands families can buy, these are reserved for elderly family members and those that are ill.
Furthermore, while Pacific Islands young people knew that fruits and vegetables were good
for them, they rarely bought these for themselves (ibid, 31). Both were typically eaten at
family meals, and fruits were often rationed so that they lasted for an entire week. Money
available was one of the primary factors determining whether or not fruit was purchased (ibid,
32).
The results of the Adolescent Health and Well-being Survey supported the assertion that Pacific Islands people are less likely than other New Zealanders to eat vegetables and fruit. Table 6.12 shows that in total 30.9% of the survey participants (n=55) met the recommendation of two to three servings of fruit per day, and 14.5% ate more than one serving of vegetables per day. 25.5% and 47.3% of respondents ate one serving daily of fruit and vegetables respectively. However, only 25% of the Pacific Islands survey respondents (n=24) ate more than one serving of fruit a day, and 8.3% ate more than one serving of vegetables. In contrast, 35.5% of the non-Pacific Islands participants (n=31) ate more than one serving of fruit daily, and 19.4% ate more than one serving of vegetables. In addition, 61.3% of the non-Pacific Islands participants ate one vegetable daily, and 25.8% ate one serving of fruit. Only 29.2% of the Pacific Islands adolescents ate vegetables once daily, with 25% eating this much fruit. Further, 29.0% of the non-Pacific Islands participants stated that fruits and/or vegetables were among their favourite foods, but only 8.3% of the Pacific Islands participants thought this. This information is depicted in Table 7.1 below.

### Table 7.1

**Adolescent Health and Well-being Survey Result: Daily Consumption of Vegetables and Fruits**

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>% of participants who ate more than one serving of fruit per day</th>
<th>% of participants who ate one serving of fruit per day</th>
<th>% who did not eat any fruit on a typical day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pacific Islands</td>
<td>25%</td>
<td>25</td>
<td>50</td>
</tr>
<tr>
<td>Non-Pacific Islands</td>
<td>35.5%</td>
<td>25.8</td>
<td>38.2</td>
</tr>
<tr>
<td></td>
<td>% of participants who ate more than one serving of vegetables per day</td>
<td>% of participants who ate one serving of vegetables per day</td>
<td>% who did not eat any vegetables on a typical day</td>
</tr>
<tr>
<td>Pacific Islands</td>
<td>8.3%</td>
<td>29.2</td>
<td>62.5</td>
</tr>
<tr>
<td>Non-Pacific Islands</td>
<td>19.4%</td>
<td>61.3</td>
<td>29.3</td>
</tr>
</tbody>
</table>

The shaded column indicates those participants who would probably have met the recommended intake of two-three servings each of fruit vegetables (MOH, 1998c, 7). Those in the following column may also have met this requirement if, for example, they ate one serving of fruit, but several servings of vegetables. It is less likely that the participants in the final column of this table would have had a sufficient dietary intake of fruits and vegetables. Based on this assumption, half of the Pacific Islands participants would have failed to eat enough fruit, and almost two thirds were not eating enough vegetables. This limits their intake of several important vitamins and minerals, including vitamins A and C, folate, magnesium and potassium, as well as dietary fibre (Bell & Parnell, 1996, 438; MOH, 1998c,
13). Only around one-third of the non-Pacific Islands students did not eat enough vegetables or fruit.

Further consideration of the survey results revealed that five of the six Pacific Islands participants who ate more than one serving of fruit per day were male, and only one was female. Of the eleven non-Pacific Islands respondents met this requirement, eight were male and three were female. Similarly, of the six non-Pacific Islands respondents who ate more than one serving of vegetables daily, five were male and only one was female. Both of the Pacific Islands participants who met this guideline were male. Thus the results of the Adolescent Health and Well-being Survey contradict the findings of Russell et al. (1999, 133).

**Takeaways and Snacks**

Bell & Parnell (1996, 436) found that 18-29% of the total fat intake of Pacific Islands young people came from dairy foods, followed by meat (21-28%) and fast foods (11-19%). The results of the Adolescent Health and Well-being Survey confirm that takeaways/fast foods have a significant place in the Pacific Islands diet. As Figure 6.6 revealed, eight of the twenty-four (33.3%) Pacific Islands survey participants consumed takeaways every day, with five of them (20.8%) eating more than one meal of takeaways per day. Takeaways should be eaten in moderation, that is one time a week or less (Whitney & Rolfes, 1999, 525), however thirteen (54.2%) of the Pacific Islands participants exceeded this recommendation. Also of note is the finding that three (12.5%) of the Pacific Islands adolescents stated that they ate takeaways for a typical evening meal (see Figure 6.7); and that seventeen (70.8%) of these students stated that takeaways comprised their favourite foods (Figure 6.9). Specific takeaways mentioned included McDonalds, Burger King, KFC, Fish & Chips, and Pizza. In contrast, only five of the thirty-one non-Pacific Islands participants (16.1%) ate takeaways once a day or more (6.5% daily, 9.7% more than once a day). Seventeen of these participants (48.4%) stated that they ate takeaways weekly, as is recommended by food guidelines. None of the non-Pacific Islands adolescents ate takeaways for their typical evening meal, although two (6.5%) did eat these when guests came to visit. As with the Pacific Islands participants takeaways were a favourite food of the non-Pacific Islands young people, with 58.1% naming these in response to Question 17.

Sallis (1993, 220) asserts that “[f]ast-food restaurants are an integral part of adolescent culture”; and further, that these “are particularly welcomed in poor and minority communities because they provide employment and convenience to area residents”. Therefore for New Zealand young people fast-food restaurants may provide employment as well as a place to socialise. In the case of Pacific Islands young people in New Zealand, the tendency of Pacific
Islands parents to purchase these foods (as indicated by the result that showing that Pacific Islands people eat takeaways as a typical evening meal (Figure 6.7), and the findings Bell and Parnell, 1996), along with the fact that adolescents have a higher consumption of these foods than other population groups, both contribute to the over-consumption of takeaways by Pacific Islands youth. Sallis (1993, 218) notes that “eating fast foods limits the adolescent’s potential to choose foods low in fat, sugar and salt”. Therefore the consumption of fast-foods compromises the quality of different foods in the Pacific Islands adolescent diet. For example, if Pacific Islands young people are eating one McDonalds burger a day, this will contribute two servings of white bread and one of typically high-fat meat. Given the high consumption of takeaways by young people, Sallis (1993, 230) contends that while fast-foods are “undoubtedly here to stay...consumer demand can influence restaurant chains to develop a variety of low-fat/salt/calorie foods that are tasty and attractive to patrons”.

Whitney & Rolfes (1999, 524) note that “teens like the freedom to come and go as they choose and eat what they like”; and Reid (1993, 55) believes that “healthy eating during adolescence is an extension of healthy eating during childhood but often in an environment that relies on snacking and unstable meal patterns. Therefore adolescents often have irregular eating habits, with their diet affected by their participation in school, activities, and paid employment. Therefore during adolescence snacking becomes very common. According to Whitney & Rolfes (1999, 524) snacks provide at least one quarter if the daily energy intake of a typical teen. Dairies and vending machines, for example, are popular sources of foods for young people, and provide food options which are rarely nutrient-dense. Therefore snacks are usually comprised of foods that are high in fat and low in nutrients such as calcium, iron, vitamin A, vitamin C, and folate. (ibid, 524). As the participants of the Auckland study into Pacific Islands adolescent nutrition habits revealed, young people will purchase foods displayed in the most prominent positions in a dairy - that is, next to the counter or door. Foods typically occurring in these positions include ice-creams, sweets, and potato chips (Fuamatu et al., 1996, 23).

"Cos the shop sticks the fruit and that at the back and the twisties and that near the counter. So like I see that first and cos I don't really think of fruit. I just want something that's just pick up and go. I notice it when I'm at the counter, I notice it when I walk in to the shop..." (quoted in Fuamatu et al., 1996, 23).

Fuamatu et al. (1996, 12) also determined that Samoan young people considered a snack to be something they would eat if in a rush, between meals, at school interval, or after a sports game. Chips, biscuits, fruit sandwiches, and chocolate bars were considered typical snack foods.
"Snack means to me something from the dairy like, just like a packet of chips or a packet of cookies or something like that. That's what I think a snack means" (participant, quoted in Fuamatu et al., 1996, 12).

The Adolescent Health and Well-being Survey revealed that while the Pacific Islands young people ate considerably more takeaways than the non-Pacific Islands teens, they were a lot less likely to eat snacks. In total, only 50% of the Pacific Islands participants ate snacks one or more times a day, as opposed to the 87.1% of the non-Pacific Islands survey respondents who indicated that they ate snacks, and 48.4% eating more than one snack per day. The remainder of the non-Pacific Islands participants all ate snacks at least once every few days.

Although Pacific Islands youth rarely snack, studies suggest that they choose unhealthy foods such as chips when they do (Bell & Parnell, 1996, 435; Fuamatu et al., 1996, 12). This section has revealed other aspects of the diet of Pacific Islands young people which are unhealthy, such as their propensity towards eating takeaways, and therefore unhealthy meat and bread products; and the lack of fruits and vegetables in their diets. The section has also indicated that improving the dietary quality of Pacific Islands young people is possible, and that there are three key areas require attention to achieve this aim: (i) the consumption of fruits and vegetables should be increased; (ii) the consumption of takeaways must be decreased; and (iii) healthier, low-fat products (such as meats, breads and dairy foods) should be selected. Both the New Zealand environment and Pacific Islands culture contributes to the food choices that Pacific Islands adolescents make. The next section of this chapter considers the influence of culture on the foods that Pacific Islands young people choose.

7.2 Culture and Food

Aim: To provide evidence that the dietary behaviours of Pacific Islands young people are unique from those of non-Pacific Islands adolescents (including Māori, Europeans, and other New Zealanders) due to the influence of Pacific Islands culture.

Having established the dietary pattern of Pacific Islands young people, the focus in this section is to examine the influence of culture on the foods that Pacific Islands young people choose. As discussed in Chapter Four, "food is the meaning of all things" to Pacific Islands people, even those living in New Zealand. Fuamatu (1997, 9) asserts that food "represents a vehicle for teaching traditions and aspects of Fa'a Samoa, and recognises kin and social relations". Katherine Curry (1984, 45) states that "cultural differences on food habits are likely to be evident in the food choices people make for special occasions". This section of Chapter Seven discusses the impact that culture has upon Pacific Islands people's food
choices, and how cultural factors limit the ability of Pacific Islands people to consume a healthy diet.

7.2.1 Classification of Meals

Vainikolo et al. (1993, 8) stated that Pacific Islands people in New Zealand often follow Pacific Islands eating practices of eating two meals per day – one in the morning and one in the afternoon or evening. Further, as shown above the morning meal often consists of foods leftover from the night before. Kinloch (1985, 18) agrees that Pacific Islands people eat only two meals daily, and that these consist of similar kinds of foods. Given that eating snacks is a common habit of adolescents, the results of the Adolescent Health and Well-being Survey for Pacific Islands participants were unexpected. Only seven of these young people (29.2%) ate snacks daily, with five (20.8%) eating more than one snack a day. 16.7% of the Pacific Islands participants stated that they ate snacks never or almost never. An explanation for this result could be found in the fact that Pacific Islands people have different ways of defining meals than Europeans/Palagi:

"Some Pacific Islands people in New Zealand follow a traditional one to two meal a day dietary pattern, consisting of little or no breakfast, snacks throughout the day and a large afternoon or evening meal (Fitzgerald, 1980). Children usually do eat food of some sort before going to school in the morning, which often consists of "leftovers" (Fitzgerald, 1980)" (quoted in Bathgate et al., 1994, 103).

Thus the Pacific Islands young people may in fact have been eating snacks regularly, but defining these as other kinds of meals. Further evidence to support this claim may lie in the results of Question 10 of the Adolescent Health and Well-being Survey. According to this question the majority of the non-Pacific Islands adolescents ate each of the three meals breakfast, lunch, and dinner once a day (see Figure 6.10). However, around one quarter of the Pacific Islands young people commonly indicated that they ate lunch and/or dinner more than once a day.

Chapter Six of this thesis noted the importance of eating breakfast, as this enables an individual to concentrate and better participate in the various tasks they undertake during the day (Whitney & Rolfes, 1999, 521). Only three (12.5%) of the Pacific Islands participants ate breakfast on an average day (either daily or more than once a day). Given the importance of breakfast, particularly when it comes to concentrating at school, the finding that only three of the Pacific Islands adolescents ate breakfast daily appears to be concerning. However, the above sources (Vainikolo et al., 1993; Bathgate et al., 1994) and the results of the Adolescent Health and Well-being Survey both imply that Pacific Islands young people are in fact eating in the morning, but that they are not eating traditional New Zealand breakfast foods. Instead
they may be eating food left over from the previous night's meal. Thus a further possible conclusion that can be drawn from this result is that Pacific Islands young people living in New Zealand define meal types based on the foods that are eaten at the meal, rather than by the time of day when the meal is eaten (as is generally the case for Europeans).

7.2.2 Why Do Pacific Islands People Overeat?

Whether or not the above is true, a high proportion of Pacific Islands young people are in fact eating more than one lunch and/or dinner a day. These meals typically contain more food than breakfast and snacks, and so there is a very high potential for them to be eating too much food. This propensity towards overeating among Pacific Islands people has been documented by both Vainikolo et al. (1993) and Bathgate et al. (1994). In their Dunedin study of Tongan eating patterns Vainikolo et al. found that Pacific Islands people preferred the Pacific Islands way of eating based on subjective feelings of hunger rather than the time of day. The participants of the study described the Tongan way of eating as eating when hungry and until 'stuffed' (Vainikolo et al., 1993, 8). The authors of this article also believe that the tendency for Pacific Islands people to be overweight is due to the reduced satiety value of the New Zealand foods used to replace Pacific Islands staples. For example, where a small serving of taro would have been satisfying, in New Zealand the individual would need to eat several potatoes before they felt full. In addition, fast foods are notorious for leaving people feeling hungry. Therefore Pacific Islands people in New Zealand are eating more food, and becoming obese.

Yamada (1999, 69) lists a number of reasons why Pacific Islands (Samoa) people overeat: "[m]any aspects of Samoan culture promote overeating. Among these are the acceptance of obesity, food as an expression of love and respect, food as a focus of social interactions, and the physical inactivity of high status individuals". Pacific Islands people are particularly likely, and are in fact expected, to overeat at special events. Lavish quantities of food accompany Pacific Islands weddings, funerals, and other gatherings. At such events food plays an integral part in maintaining Pacific Islands culture through tradition. However, as Yamada notes, while these norms have traditionally enabled social harmony, in the current era where food is readily available they are proving to be maladaptive (ibid, 69).

7.2.3 Food and Pacific Islands Tradition

That food is culturally significant to Pacific Islands people -

"can be seen in the continued practise of Sunday tonai, the provision of Samoan foods and the priority given to the ill, elderly, and young children in the household. Special attention to the ill and elderly recognises their life of dedicated service to the family, and they represent a formal connection to the
future as transmitters of traditional values, beliefs, and knowledge to its young family members” (Fuamatu, 1997, 9).

As Fuamatu notes, Pacific Islands people typically follow their Sunday church services with a ‘feast’. At such occasions extra effort is undertaken to ensure that traditional Pacific Islands foods are served. These include pigs, oka, taro, chicken, pisupo and chop suey (Vainikolo et al., 1993, 7; Bathgate et al., 1994, 23; Fuamatu, 1997, 8). It is important that such foods are also provided in abundance at other gatherings. In fact, the providing adequate food to guests is deemed so important that Russell et al. (1999, 102) found that Pacific Islands people reported feeling considerable stress if they could not do so.

The reception of visitors in the home is also characterised by the provision of vast quantities of food. Having a large quantity and variety of food indicated the amount of time and money that had been spent to accommodate the well-being of the guests (Fuamatu et al., 1996, 42). This in turn, symbolizes their importance (Kinloch, 1985, 18). Yamada (1999, 69) asserts that in order to counter obesity among Pacific Islands people, “the focus on food at social interactions and food as an expression of love and respect both need to be changed”.

The Adolescent Health and Well-being Survey revealed that while only 25% of the Pacific Islands respondents ate traditional foods on a typical evening, at least 50% of them ate these when guests visited (seven Pacific Islands students did not answer this question). Further, 29.2% stated that they deemed Pacific Islands foods to be significant. Several (41.7%) also named Pacific Islands foods to be their favourite kinds of food, indicating the important place of these foods in their diet.

7.2.4 Big Is Beautiful

“People look down on you if you’re slim. They think that you’re malnourished or diseased, that you have TB. They think that you have too much stress, like jealousy or being poor. People look down on you if you eat vegetables” (research participant, quoted in Yamada, 1999, 67).

Finally in terms of culture, the issue of body image must be considered. Much has been made of the concept that ‘big is beautiful’ to Pacific Islands people; that “fat is a sign of healthiness” (Vainikolo et al., 1993, 9); and that women and titled men are more appealing if they have a large body. Therefore how do Pacific Islands young people in New Zealand feel about potentially becoming overweight?

The Adolescent Health and Well-being Survey asked the participants whether or not they were happy with their body weight, whether they worried about their diet, and whether they were
undertaking any activities that would improve this. Ten of the twenty-three Pacific Islands participants (43.5%) thought that they had a healthy body weight (six males and four females), and fifteen were happy with the weight they were. Only eight of the participants wanted to change their current weight. Of these participants seven were trying to lose weight (one male, six females), and one female wished to gain. The non-Pacific Islands participants of the survey displayed similar levels of satisfaction with their body weights, but were slightly less likely to worry about their diet (35.5% did this).

Adolescence is known as a time when young people become concerned about their body image, and tend to strive to fit in with other teenagers:

“Developing adolescents, especially females, are particularly concerned about their body image and excessive weight (either real or perceived) and are under constant pressure to enhance their body image” (MOH, 1998b, 38).

Typically, females try to lose weight and attain a slender body shape, while boys aim to gain weight as muscle (Sallis, 1993, 215; Fuamatu et al., 1996, 26; MOH, 1998b, 38). For Pacific Islands people both males and females have traditionally been thought to aspire to a large body size, however it seems that this perception is changing. One adolescent participant of Yamada (1999, 67) observed that “[i]n the past, people thought that being too skinny showed that you were sick, that it was unhealthy to be fat. Now people know that being overweight can cause diabetes, hypertension and heart disease”. The Adolescent Health and Well-being Survey revealed that fifteen of the non-Pacific Islands adolescents and only two of the Pacific Islands participants knew someone who was obese. This result was surprising, given that 75% of Pacific Islands people in New Zealand are thought to be overweight (Bathgate et al., 1994, 95). Bearing in mind that Pacific Islands people are said not to consider obesity to be a health condition because it does not limit their participation in everyday life (Kinloch, 1985, 18), it is possible that this result may not mean that the Pacific Islands young people were less likely to know someone who was obese, but rather that they were less likely to know what obesity was. If true, the implication of this result would be that the Pacific Islands young people do not know when they are overweight, or that an excessive body weight is considered to be unhealthy; and would not recognise that the foods they are eating are causing them (and the people around them) to become overweight, or that their health may be at risk because of this.

From the examples provided in the preceding sections, it is clear that for Pacific Islands people culture and food are inextricably linked. This means that the foods the Pacific Islands people choose must fulfil a set of cultural requirements as well as physical needs. Therefore Pacific Islands people are not simply prone to becoming overweight because they eat too much.
Rather, the foods they choose and amount that they eat of different foods are a way of expressing and acknowledging Pacific Islands culture. And this culture holds that to show that you love and respect someone it is important to consume large quantities of the foods that they provide. Furthermore, because Pacific Islands culture has favoured a large body shape, and has not traditionally equated obesity with being unhealthy, Pacific Islands people often do not know that their dietary habits are putting their health in jeopardy. Despite the fact that they are typically born in New Zealand, and grown up in a Western environment, culture has an important influence over the diets of Pacific Islands youth (Fuamatu, 1997, 9). Therefore, Pacific Islands young people may be more likely to choose unhealthy foods and to overeat because this is culturally appropriate.

7.3 Lifestyle Factors

Aim: To determine the incidence of health-related lifestyle behaviours – namely smoking, alcohol use, and physical activity - among Pacific Islands youth.

It is widely accepted that a sedentary lifestyle is largely responsible for the high rates of obesity among Pacific Islands people, and that smoking and alcohol consumption also contribute to their poor health status (Bathgate et al., 1994, 118). Further, along with consuming a poorer quality diet, Pacific Islands people in urban environments are more likely to smoke and drink than other Pacific Islands people, and less likely to exercise on a regular basis (ibid, 118). As with eating habits, the above lifestyle factors become established during adolescence and carried into adulthood (MOH, 1998b, 42). Therefore it is crucial that healthy behaviours – that is, regular activity, non-smoking, and safe use of alcohol - are adopted during the period of youth.

"Anyone with children or teenagers will know how hard it can be getting them outside and doing something. And its getting harder" (Dekker, 2000, 18).

Boyd Swinburn of the New Zealand National Heart Foundation states that “many of today’s children are so sedentary they risk ill health and shorter lives” (quoted in Dekker, 2000, 18). Along with an increased susceptibility to cardiovascular disease, early onset obesity leads to an increased risk of many health conditions including hypertension, type II diabetes, respiratory and psychological problems: “[o]verweight children are likely to have poor self-esteem, exercise less, try to diet, fail – all contributing to even poorer self-esteem” (Dekker, 2000, 18).
It is important to acknowledge that obesity and overweight in young people is not just a Pacific Islands phenomenon. Increased sedentism and a high consumption of processed foods is in fact affecting the health of young people throughout the world, particularly those in Western environments. In the United States of America, one in five young people is overweight: “since the late 1970’s, the prevalence of overweight has almost doubled for children – and more than doubled for adolescents” (Whitney & Rolls, 1999, 522-523). The British Heart Foundation (quoted in Dekker, 2000, 18) has stated that “British children are so lazy and inactive compared with youngsters even ten years ago that they are more likely to die prematurely”. Dekker (2000, 18) adds that “experts in New Zealand believe that obesity in New Zealand children is…reaching epidemic proportions”. A high-fat, fast-food based diet, coupled with a considerable decline in physical activity among young people, is being held as accountable for the increase in early-onset obesity in New Zealand’s young people, and for the associated negative consequences for both their short and long-term health (ibid, 18).

“A couple of decades ago, before parents were conditioned to fear for the safety of their children, kids climbed trees, fished, and roamed about. They were naturally fit. These days, safe from strangers and fattened on junk, they’re right in line to be killed or maimed in their prime by heart disease or diabetes” (Dekker, 2000, 18).

However, in New Zealand the incidence of obesity in Pacific Islands people, and thus the dietary and lifestyle of Pacific Islands youth, should be viewed as a separate issue, due to the fact that many more Pacific Islands adults are obese and contracting life-style related diseases than the New Zealand population in general. Russell et al. (1999, 164) found that Pacific Islands people (males 26.2%, females 47.2%) were the most likely group in the New Zealand population to be obese. In comparison, 27.0% and 27.9% of Māori males and females were obese, along with 12.6% and 16.7% of New Zealand Europeans/Palagi males and females respectively. Furthermore, along with the 26.2% of the Pacific Islands males who were obese, another 59.2 were observed to be overweight (ibid, 185). Along with diet, physical activity is crucial to good health as it helps an individual to maintain a healthy body weight. Scragg et al. (1992 in Bathgate et al., 1994, 118) found that Pacific Islands adults were less likely than non-Pacific Islands people to engage in regular physical activity in the New Zealand environment, however none of the studies included in this thesis have considered the level of physical activity in Pacific Islands youth.

Young people and adults are recommended to engage in thirty minutes of exercise on most days of the week (Sallis, 1993, 210; Hillary Commission, 2000). Sallis (1993, 215) also notes that “[m]any health benefits can be achieved by regular physical activity that is less
vigorous, so regular participation in moderate-intensity activities is recommended". The Adolescent Health and Well-being Survey revealed that 54.2% of the Pacific Islands participants walked somewhere every day, and another 33.3% walked somewhere most days, thereby quite possibly fulfilling the above recommendation. The Pacific Islands participants also indicated that they regularly participated in other physical activities such as playing sport. Approximately 83.3% of the Pacific Islands participants were involved in some kind of physical activities daily or on most days, implying that these teens were physically active, and met the above requirement. Child-minding, cultural activities, and household chores such as vacuuming provide additional avenues through which this requirement may be met, and the Pacific Islands participants engaged in these activities regularly. Another positive finding of the survey was that 70.8% of these participants engaged in sport daily or on most days, and 58.3% exercised to achieve fitness at the same frequency. The results also showed that 59.1% of the Pacific Islands students who participated in the Adolescent Health and Well-being Survey thought that they were fit, which was a higher amount than the 41.9% of non-Pacific Islands who felt the same. The non-Pacific Islands participants had similar levels of participation in exercise and sport. In both cases males were more likely than females to consider themselves fit.

While the above results appear to indicate that the Pacific Islands young people are physically active, there are two important aspects which must be considered. The first of these is the frequency with which they participate in activities which are more sedentary in nature, such as doing homework, reading, and watching television. Both the Pacific Islands and non-Pacific Islands young people also stated that they spent time watching television daily. Only 8.3% of the Pacific Islands participants failed to watch television regularly (once a week or more). The remaining 91.7% watched this every week, with 58.3% watching television daily. Television affects health in two ways: firstly, because "time spent watching television cannot be used for physical activity" (Sallis, 1993, 219); and secondly, because people tend to snack on unhealthy foods while they are watching television (Sallis, 1993, 219; Whitney & Rolfe, 1999, 517). Such foods commonly include those that they see advertised on television, which typically include high-fat snack foods and takeaways. 75% of the Pacific Islands young people did homework daily or on most days, and 45.8% spent time reading. These results infer that Pacific Islands young people may actually be spending more time engaging in sedentary than physical activities. Secondly, it is also important to note that the school environment both provides and opportunity for, and requires young people to engage in sport and fitness activities. Therefore, it is possible that the high rates of activity among the participants of the Adolescent Health and Well-being Survey are linked to the fact that all of the young people involved in the study were at school. This exposes them to physical activity
both in the school environment, and usually in travelling to and from school. Rates of physical activity often decrease in the late adolescent period, after the completion of secondary school: "[a]dolescence is a critical transition period when structured opportunities for physical activity in school are taken away, apparently leading to a rapid decline in the level of physical activity in young adulthood" (Stephens, Jacobs & White, 1985, cited in Sallis, 1993, 215).

For Pacific Islands people, their lower socio-economic status means that they are likely to live in neighbourhoods which provide fewer opportunities for participation in sport and other physical activity. Therefore it is often when people leave school that their level of physical activity decreases. As mentioned earlier, adolescents in lower socio-economic neighbourhoods may not have access to sports clubs and facilities. Therefore schools are likely to be their best opportunity to participate in sport. In addition, the schools in New Zealand recognise that it is important for young people to be physically active, and try to include physical education in the curriculum of all students. The decrease in physical activity on leaving school has its greatest effect on those young people who do not pursue physical activity outside of school. Therefore, as with dietary habits, patterns of participation in physical activity are established during the teenage years.

Previous studies have also shown that people in lower socio-economic circumstances are more likely to smoke cigarettes and/or drink alcohol as this is the one ‘luxury’ that they can afford (Howden-Chapman & Cram, 1998, 10). As shown in Chapter Four, in 1996 31% of Pacific Islands people in New Zealand aged fifteen and over smoke cigarettes regularly (StatsNZ, 1998, 23). Further, the rate of smoking among Pacific Islands people is declining more slowly than it is among Europeans/Palagi (Bathgate et al., 1994, 114). 45.8% of the Pacific Islands participants of this study considered themselves to be regular smokers, as did 45.2% of the non-Pacific Islands respondents. Where non-Pacific Islands males and females were equally likely to smoke regularly, 63.6% of Pacific Islands females and 30.8% of males regularly smoked cigarettes. Around half of both the Pacific Islands and non-Pacific Islands ‘smokers’ smoked more than one packet of cigarettes per week.

A 1998 study into the prevalence of smoking among New Zealand forth formers revealed that “...daily smoking remains highest in Māori students, followed by Pacific, then European, with Asian having the lowest prevalence” (Laugesen & Scragg, 1998, 4). According to the results of this study Pacific Islands (and Asian) girls who attended the movies regularly had the highest rates of smoking (43% and 17% respectively) (ibid, 5). Therefore the findings of
the Adolescent Health and Well-being Survey support the claim that young Pacific Islands females are one of the most likely adolescent groups to smoke cigarettes.

Although studies have indicated that Pacific Islands people drink less alcohol than other New Zealanders (Bathgate et al., 1994, 117; ALAC, 2000, 5), Pacific Islands people see alcohol as having a very negative influence upon their health. As well as having physical affects, alcohol affects the health of Pacific Islands families, for example by reducing the amount of disposable income they have to buy nutritious food, by exposing them to violence, and because of addiction (Bathgate et al., 1994, 118). An Alcohol Advisory Council of New Zealand (ALAC, 2000, 5) newsletter item indicated that Pacific Islands people are more likely to ‘binge drink’, which involves drinking five or more drinks on one occasion. Table 7.2 shows the incidence of binge drinking in Pacific Islands people in comparison to other New Zealand population groups.

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Percentage of this population who drink alcohol</th>
<th>Percentage who ‘binge-drink’</th>
</tr>
</thead>
<tbody>
<tr>
<td>European</td>
<td>87</td>
<td>20</td>
</tr>
<tr>
<td>Māori</td>
<td>72</td>
<td>36</td>
</tr>
<tr>
<td>Pacific Islands</td>
<td>45</td>
<td>36</td>
</tr>
</tbody>
</table>

*Source: MOH, 1999a, 1.*

This table shows that while Pacific Islands people are considerably less likely to drink alcohol, they are considerably more likely to binge-drink than European/Palagi New Zealanders, and as likely to do this as Māori. Such behaviour is said to risk both physical and psychological health to a greater extent than small amounts of alcohol taken regularly (MOH, 1999a, 1).

Chapter Three revealed that Pacific Islands people (particularly men) have increasing rates of admission to psychiatric hospitals, that approximately one third of these admissions are for alcohol and substance-related problems, and that Pacific Islands men are more likely to be readmitted than New Zealand men in general. Pacific Islands people consider alcohol to be the central cause contributing to these admissions (Bathgate et al., 1994, 117). In terms of physical health, Pacific Islands people have higher than average rates of gout, which is specifically linked to a high consumption of alcohol; and their rate of liver cancer is three
times higher than the national average (ibid, 156). These findings indicate that alcohol consumption is having a negative effect on the health of Pacific Islands people in New Zealand.

The Adolescent Health and Well-being Survey revealed that while 69.6% of the Pacific Islands students had tried alcohol only 39.1% drank this regularly. Further, boys and girls were likely to consume alcohol in relatively similar accounts. In comparison, 87.1% of the non-Pacific Islands participants had tried alcohol, with 32.3% drinking this regularly. The male non-Pacific Islands participants were considerably more likely than the females to drink alcohol on a regular basis. These results indicate that the Pacific Islands young people involved in this study were slightly less likely than their non-Pacific Islands counterparts to have tried alcohol, but that similar numbers of those who had tried alcohol drank this regularly. However the Pacific Islands females were more likely than the non-Pacific Islands females to drink alcohol regularly. The studies by Fuamatu and associates, along with other researchers, did not consider the alcohol consumption of Pacific Islands young people, therefore the only basis for comparison of alcohol intake is the 1993 Household Health Survey (cited in Bathgate et al., 1994). The results of the Adolescent Health and Well-being Survey show that the Pacific Islands young people were slightly more likely to drink alcohol than the non-Pacific Islands participants of this study.

39.1% of the Pacific Islands participants and 38.7% of the non-Pacific Islands participants had tried drugs other than cigarettes and alcohol, and in both groups three-quarters of those participants who had tried other drugs also drank alcohol and/or smoked cigarettes regularly. This finding indicates a correlation between these activities.

7.4 Socio-economic Determinants of Health

Aim: To show that Pacific Islands health status, including dietary and lifestyle choices that affect health, is grounded in the wider New Zealand social and economic context.

"It is difficult to disentangle the effect of socio-economic status and race/ethnicity, because ethnic minorities are more likely to be poor" (Sallis, 1993, 216).

As shown in Chapter Two, Pacific Islands young people are likely to be raised in low income homes, and thus disadvantaged in terms of their educational opportunities, income and employment, and potential for good health. For example, Pacific Islands young people growing up in poorer neighbourhoods in New Zealand are more likely to be exposed to environmental risks including pollution and violence. Further, financial pressures within the
family reduce the likelihood that Pacific Islands young people will have access to recreational activities, health services, and even a nutritious diet. Pacific Islands people perceive their low socio-economic status as affecting their health due to an increased exposure to alcohol and violence within the family (Bathgate et al., 1994, 24).

Housing costs are the largest fixed cost that a family must meet every week, and often in order to meet these costs others such as food and health care are sacrificed (Manukau City, 1993, 2; Bathgate et al, 1994, 28; NHC, 1998, 31). To reduce the impact of housing costs upon the budget, low income families generally live in poorer quality housing, and sometimes take measures such as sharing accommodation and splitting the costs. Overcrowded houses pose a risk to health due to an increased exposure to infectious diseases. In addition housing design can compromise health. For example, dampness in homes can lead to respiratory diseases including asthma, and poor design can increase the risk of injury within the home (NHC, 1998, 47). Chapter Three showed that infectious and respiratory diseases, and unintentional injuries, were the leading causes of hospitalisation for Pacific Islands people in New Zealand, particularly for adolescents and children. These health conditions are typical of families who live in poor housing conditions due to their low socio-economic status (MOH, 1997a, 9; Howden-Chapman & Cram, 1998, 35-37; NHC, 1998, 45-47).

The 1996 Census revealed that Pacific Islands people are the most likely group in the New Zealand population to share accommodation, either with other families or with extended family members; and that on average Pacific Islands households contained 4.27 members. In contrast the overall average New Zealand home houses only 2.8 people (Cook et al., 1999, 12). Both budgetary constraints and familial obligations contribute to overcrowding in Pacific Islands peoples’ homes. Pacific Islands people commonly accommodate relatives visiting from the Pacific Islands, often for extended periods (MOH, 1997a, 7).

The participants of the Adolescent Health and Well-being Survey lived in Christchurch neighbourhoods that are known to have residents from lower socio-economic backgrounds. The survey upheld the claim that Pacific Islands people are likely to live in overcrowded homes. The mean number of members in the households of the Pacific Islands participants was 7.1 people, whereas non-Pacific Islands participants’ homes had an average of 4.8 members. 12.5% of the Pacific Islands participants stated that they lived with members of their extended family, compared with only 3.2% of the non-Pacific Islands participants.

Lack of income is also one of the main factors contributing to the poor diet of Pacific Islands people in New Zealand. As mentioned above, a nutritious diet will be sacrificed to meet other
costs. In addition, income affects the quality of the diet because less nutritious foods are often cheaper (Manukau City, 1993, 2). For example, mince is considerably less expensive than steak, but a lot higher in fat. Baked goods and takeaways, which are generally high in sugar and fat, are perceived as less expensive than fresh fruits and vegetables, and other grocery items, especially Pacific Islands foods. These foods make up a large proportion of the diet of Pacific Islands people in New Zealand, and because they contribute to the incidence of obesity and other conditions, health is compromised as a result (Bell & Parnell, 1996, 435; Fuamatu, 1997, 6).

Finally, as indicated in section 7.3, studies have shown that people in lower socio-economic circumstances are less likely than others to participate in sport and leisure activities due to a lack of both financial and environmental resources. That is, their opportunities to engage in physical activity are limited by financial factors such as not being able to pay for sports lessons or equipment and clothing, and by a lack of outdoor spaces and sports facilities in the neighbourhood (Howden-Chapman & Cram, 1998, 16). This fact could limit the potential for Pacific Islands young people to participate in physical activity, particularly once they have left school, and could have a negative affect on their long-term health. Therefore, as a result of a low income, and the need to pay other costs, the low socio-economic status of Pacific Islands families limits their ability to pursue a healthy lifestyle, both by limiting their ability to purchase nutritious foods, and by neighbourhood affects such as a lack of access to recreational facilities. Access to appropriate health services may also be compromised. Thus the low socio-economic status of Pacific Islands people in New Zealand is having a negative effect upon the health of Pacific Islands youth.

7.5 Diet and Health

Aim: To show that the dietary choices and lifestyle behaviours of Pacific Islands young people are likely to impact negatively upon their long-term prospects for health.

Adolescence is a time of rapid growth (Morris, 1985, 49; Reid, 1993, 55; Whitney & Rolfes, 1999, 522). During this time all of the body’s organs are affected by hormonal changes. It is also a period when males and females become unique, as is shown in the bodily changes typical of each gender: males will attain a high bone and muscle mass, grow approximately eight inches and gain around forty-five pounds; while females will grow only six inches and gain thirty-five pounds. During adolescence fat assumes a larger percentage of the body weight of females than it does in males (Whitney & Rolfes, 1999, 523). This period of rapid growth is accompanied by an increase in nutritional needs. The adolescent body requires more food both to sustain energy levels and to maintain adequate levels of the specific
nutrients used in growth. The energy needs of adolescents vary depending on their body size, rate of growth, and the level of physical activity of the individual concerned. Typically, boys have higher energy needs both because they develop more lean muscle mass, and because they grow more quickly. Girl’s energy needs increase in adolescence, but to a lesser extent, because they do not grow as much, or for as long a period (ibid, 523).

Whitney & Rolfes (1999, 530) believe that cardiovascular disease begins in childhood, and that “behaviours that influence the development of obesity and of cardiovascular disease are learned and begin early in life. These behaviours include overeating, eating high-fat foods, physical inactivity, and cigarette smoking”. Murphy (cited in Dekker, 2000, 18) states that “if children don’t learn healthy eating habits in early life its hard to learn them later”. Therefore good food choices in young adulthood are paramount to long-term good health. Those children and adolescents who have a poor diet, and are overweight or obese, are more prone to developing atherosclerosis:

“During adolescence...fatty streaks may begin to turn to fibrous plaques [in the arteries]. By early adulthood, the fibrous plaques may begin to calcify and become raised lesions, especially in boys and young men. As the lesions grow more numerous and enlarge, the heart disease rate begins to rise, and the rise becomes more dramatic at about age 45 in men and 55 in women. From this point on, arterial damage and blockage progress rapidly, and heart attacks and strokes threaten life. In short, the consequences of atherosclerosis, which became apparent only in adulthood, have their beginnings in the first decades of life” (Whitney & Rolfes, 1999, 530).

The fact that Pacific Islands young people in New Zealand are brought up to follow Pacific Islands eating habits, combined with their higher exposure to unhealthy foods such as takeaways, chips and sweets, means that adolescent as well as adult Pacific Islands people have a tendency to become overweight. In terms of diet, along with encouraging healthier bread/baked products, low-fat dairy products, and a reduced consumption of takeaways and high-fat snack foods, one significant way of improving dietary quality is to increase consumption of vegetables and fruits.

Pacific Islands people are also more likely to be affected by obesity, related diseases, and their complications, due to the fact that they have less access to health services, resources and knowledge. Although around one third of both the Pacific Islands and non-Pacific Islands Adolescent Health and Well-being Survey participants indicated that they knew of someone (either a friend, family member or acquaintance) with obesity, coronary heart disease, and/or type II diabetes, the results of this survey did not conclusively show whether or not the young people actually knew of anyone with these conditions, or if, in fact, they knew what these conditions were. The results did however imply that given their current diet, the Pacific
Islands young people in particular could be setting themselves up to encounter these non-communicable diseases in the long-term. The issue therefore becomes how to bring health to Pacific Islands people in New Zealand, and encourage them to engage in behaviours that will enhance their health. This is discussed in the next section of Chapter Seven.

7.6 Avenues for Improving the Health Pacific Islands Young People in New Zealand
Aim: Given that health behaviours adopted during adolescence are carried into adulthood and have a direct bearing upon health, to explore avenues for promoting health to Pacific Islands young people in New Zealand as a way of increasing their long-term health prospects.

"Public health has been defined as 'the science and art of preventing disease, prolonging life, and promoting health through organised efforts of society (Acheson, 1988). Public health action involves essential long-term investments in better health. Successful activities will reduce the risk and impact of injury and disease, improve quality of life, prolong life, and may reduce the need for health care services" (MOH, 1997d, 12).

The New Zealand government via the Ministry of Health has stated that among its for improving the health of New Zealanders, two key intentions are:

(i) To improve, promote and protect the health of Pacific people
(ii) To improve, promote and protect the health of young people (ibid, 9).

As stated in Chapter One, behaviours adopted during adolescence are often carried into adulthood, and have a long-term bearing upon health. Therefore, the two goals stated above are inextricably linked, and to achieve improved health prospects for all Pacific Islands people in New Zealand, health needs of Pacific Islands adolescents need to be defined, recognised, and appropriately addressed (Heckert et al., 2001, 3). Once this process has been completed, suitable health promotion methods can be created and implemented. The remainder of Chapter Seven describes the concept of health promotion, and looks at potential ways of promoting health to Pacific Islands youth.

7.6.1 Defining Health Promotion

"Health promotion is particularly important in adolescents because health behaviours established at this stage affects the health of individuals later in life, as well as the health of future generations" (Maskill, 1991, 26).

Health promotion is defined in the Ottawa Charter (WHO, 1986) as "the process of enabling people to increase control over, and to improve, their health". This means establishing resources which inform people about the health affects of different behaviours, and ways to maximise their health; along environments which are conducive to health. Maskill (1991, 26) adds that "health is promoted through broader social, economic and environmental policies".
such as employment schemes and legal provisions, as will as more explicitly through health promotion and health education programmes and other forms of health information". According to the Ministry of Health, "[a] health education resource is a means which helps to get across a health message to people who want the information. If it has been developed as part of a comprehensive programme, it is likely to be more effective than if developed in isolation" (MOH, 1997c, 14). Therefore health promotion resources, along with healthy environments, must be created at a national as well as local level. Downie et al. (1996, 59-60) have determined that there are seven possible dimensions of health promotion. These are outlined in Table 7.3 below.

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Preventative services</td>
<td>Immunisation, cervical screening</td>
</tr>
<tr>
<td>2 Preventative health education</td>
<td>Smoking advice</td>
</tr>
<tr>
<td>3 Preventative health protection</td>
<td>Fluoridation of water</td>
</tr>
<tr>
<td>4 Health education for preventative health protection</td>
<td>Lobbying for compulsory seat-belts/cycle helmets</td>
</tr>
<tr>
<td>5 Positive health education</td>
<td>Building life-skills with groups</td>
</tr>
<tr>
<td>6 Positive health protection</td>
<td>Implementing workplace safety policies, such as non-smoking offices</td>
</tr>
<tr>
<td>7 Health education aimed at positive health protection</td>
<td>Campaigning for protective legislation</td>
</tr>
</tbody>
</table>

Source: Downie et al., 1996, 59-60

Health promotion, and creating environments which support and enhance health, can be implemented by a variety of agencies at a national, regional, and local level. At a national level it is the responsibility of such agencies to establish legislation which will enhance and protect health; whereas regional and especially local agencies and services are more likely to be concerned with implementing this legislation. Some examples of the departments and services involved in the process of health promotion are provided below.

National agencies involved in health promotion include both government departments, along with non-government agencies such as the National Heart Foundation, the Hillary Commission, the Alcohol Advisory Council of New Zealand (ALAC), Plunket, and the police. In terms of Pacific Islands health, it is important that recognition of the specific features of the health of Pacific Islands people in New Zealand, and the qualities contributing to their health
status, are recognised and dealt with at a government level. In recent times one move towards a greater recognition of the health of Pacific Islands New Zealanders has come through the inclusion of the category ‘Pacific Islands people’ in health statistics. This means that their current health status can be assessed, and in the future any change in this health status can be monitored. While the Ministry of Health needs to name Pacific Islands health as a priority, and work towards this, other ministries also have to become involved in improving Pacific Islands people’s health. For example, the Ministry of Pacific Islands Affairs is required for the co-ordination of resources and contribution of ideas, the Ministry of Education needs to ensure that school curriculums are appropriate for Pacific Islands students, and the Ministry of Youth Affairs needs to take an interest in the development of Pacific Islands young people (Calvert, 1997, 49). A very recent example of a policy designed to improve the health of Pacific Islands people was the introduction of a scheme to reduce over-crowding and improve the quality of housing in Auckland (NZPA, 2001, 2).

An example of a youth health issue that has been recognised and faced in New Zealand is the New Zealand Youth Suicide Prevention/Kia Piki te Ora o te Taitamariki programme, which is designed to combat suicide among New Zealand’s young people. This is a mainstream initiative which has also recognised that Māori adolescents are killing themselves at a higher rate than New Zealand youth in general (MYA et al., 1998). Thus it includes specific interventions which are appropriate for Māori young people. Similar interventions could be established to deal with obesity and the related diseases which are limiting the long-term potential for good health among Pacific Islands young people.

At a regional level, transitional health authorities, along with regional and district councils, iwi organisations, tertiary institutions, Crown Health Enterprises (CHEs, such as Crown Public Health in Christchurch), and a number of other organisations are involved in protecting the health of that regions population. Such agencies have a variety of roles in their region, including the implementation of legislation and national and regional policies, organising and overseeing community initiatives to enhance health, and providing funding to community groups. For example, a regional council is responsible for monitoring air pollution and water quality, and ensuring that these are maintained at a safe level (MOH, 1997d, 13). In Christchurch the Hillary Commission, Community Trust, and Canterbury Public Health Research Unit are all involved in funding health both research and other organisations that benefit health, such as sports groups. An example of a regional group designated to promoting health to Pacific Islands people in Christchurch is the Pacific Health Promotion Team, who comprise a branch of Crown Public Health. This group organises Pacific Islands health days, works with special groups such as women and young people, co-ordinates with other
community groups and individuals involved in Pacific Islands health research and promotion, and co-ordinates community health programmes. The group also enlists the help of other Crown Public Health groups, such as the peer education unit, to devise ways of promoting health to Pacific Islands people in Christchurch. Established in 1999, the Pacific Trust Canterbury, is a second example of a group devoted to promoting health to Pacific Islands people in this region.

Finally, at a community level, schools, churches, marae, general practitioners and health clinics, work places, community centres, pharmacies, self-help groups (such as victim support), sports clubs, and families and extended families all have an influence upon health (MOH, 1997d, 15). For example, primary schools which prohibit their pupils from bringing soft-drinks to school and sell only healthy drinks such as juice and water, are protecting the health of young people. Community-based opportunities for enhancing health are discussed further in section 7.6.2.

7.6.2 Promoting Health to Pacific Islands Young People

Edwards & Chapman (2000, 206) state that “Adolescent health promotion aims to reach people while they are still undergoing a process of identity development – to assist them to adopt lifestyles with lasting health benefits and to avoid making harmful short-term decisions”. Rather than seeking health, and consciously making choices conducive to health, young people are likely to base their behavioural decisions on the actions of their peers and family members. Therefore, the most successful way of promoting health to adolescents is to provide an environment where the choices that people make are beneficial to their health.

While it is important that government legislation allows for health, this thesis is more concerned with groups that have a direct influence over young people health.

“There are many factors noted to influence the food choices and nutritional intake in this age group, including general nutrition knowledge, socio-economic status, urban or rural residence, family composition, cultural and religious events, participation in sport and food advertising (Worsley et al., 1993; Fuamatu et al., 1996, Maskill et al., 1996, cited in MOH, 1998b, 2).

Fuamatu (1997, 8) determined that Pacific Islands young people received information related to health behaviours from a number of sources including doctors, dentists, nurses, their family, school, books, magazines, television, church, and their friends. Of these sources, friends, family members, their church, school, and doctors deemed the most important (ibid, 8). Question 36 of the Adolescent Health and Well-being Survey asked the young people to identify the sources where they received information about different behaviours affecting health, namely nutrition, exercise, smoking and alcohol. The information provided by the
participants is depicted in Figures 6.21 and 6.22. Most often these groups are a feature of the teen’s immediate environment. Based in Figure 6.21, Figure 7.1(overleaf) shows how the sources where Pacific Islands young people receive information about health (in this case nutrition) can be separated into a number of groups. These are: school sources, friends and family, sporting and cultural organisations, health services, the church, and the mass media, along with various other sources.

**Figure 7.1**

**Sources of Information Related to Nutrition - Grouped**

The remainder of Chapter Seven then describes how these different aspects of the local environment have a direct bearing on Pacific Islands young people’s health, and explores how such avenues could therefore be implemented in the process of health promotion.

### 7.6.2.1 The Role of Schools in Promoting and Protecting Health

*"The delivery of a comprehensive health education programme is one way a school can actively promote behaviour and values that contribute to a safe physical and emotional environment" (ERO, 1997, 29).*

New Zealand adolescents spend around thirty hours in school weekly, and so by providing for healthful behavioural choices a school can have a positive influence upon a young person’s health. As Sallis (1993, 225) states: “The school environment can be arranged so that it facilitates healthy eating and physical activity”. Whitney & Rolfes (1999, 524) concur that “health education programs...are most effective when they include education in the classroom, heart-healthy meals in the lunchroom, fitness activities on the playground and parental involvement at home”.
The New Zealand syllabus for health education in secondary schools has seven key objectives. These are:

- to each students to maintain positive and healthy relationships;
- to build self esteem and self confidence;
- to provide sex education;
- to teach about anger management;
- to eliminate drug, alcohol, tobacco and substance abuse;
- to encourage good nutrition;
- and to help young people to deal with grief (ERO, 1997, 20).

Based on these aims, schools in New Zealand are expected develop their own programmes for health education. Health lessons can either be held separately or integrated into other lessons, including science, home economics, physical education and social studies (ibid, 27). However, the ERO report also notes that in New Zealand schools “health education is not generally taken seriously as an area of learning”, and that while year nine to ten students receive a reasonable amount of health education, this quickly dwindles so that senior students receive very little if any health lessons (ibid, 27).

Questions 36 of the Adolescent Health and Well-being Survey revealed that both Pacific Islands and non-Pacific Islands young people received health information from their school – either from teachers, guest speakers, or the school counsellor. The results indicated that the Pacific Islands young people were more likely to learn about smoking and alcohol at school than they were to learn about nutrition and exercise (Figure 6.21). The non-Pacific Islands young people indicated that they had learned about all four of these behaviours at school, with teachers being their most important source of information. Bearing in mind that Papanui High in particular promotes itself as a school which emphasizes health in its curriculum (Papanui High School, 2000), this result could imply that there was a difference in the way that health is taught at Aranui and Papanui High Schools, or an ethnic difference.

Along with educating young people about behaviours which affect their health, the school is responsible for providing a place where young people can adopt healthful lifestyle and nutritional behaviours, and engage in regular physical exercise. Sallis (1993, 225) contends that even if schools cannot teach young people how to choose healthy foods, they still have a responsibility to provide a healthy environment. Sallis’s studies in the United States of America revealed that “...schools are sources of
junk food, possibly because students have demanded vending machines and stores that sell foods that taste better than cafeteria fare" (ibid, 230); and Fuamatu et al. (1996, 45) found that Pacific Islands teens were more likely to buy sweets and chips at school, usually because these were cheapest. Thus, by providing healthy foods at cheap prices in their canteens, and promoting physical activity – in particular activity that can be carried on outside of the school environment, schools can provide opportunities for health that adolescents may not be exposed to in their everyday environment.

As shown in Chapter Two, Pacific Islands people tend to live in specific areas, such as South Auckland, certain neighbourhoods in Wellington, and Aranui and Linwood in Christchurch. Therefore specific schools (in Christchurch Aranui High School Papanui High School, and Cathedral College\(^\text{\textsuperscript{11}}\)) tend to have a higher number of Pacific Islands students, whereas others have few if any Pacific Islands students. This means that effective health promotion and monitoring in these schools could reach a high proportion of the country’s Pacific Islands youth. However, Chapter Two also revealed that Pacific Islands young people had lower levels of educational achievement than other New Zealanders, and tend to leave school earlier (MinPac, 1999, 38). This means that schools have a reduced opportunity to provide nutritional information to Pacific Islands young people, or to allow them to engage in healthful behaviours such as physical activity (Sallis, 1993, 221). Therefore ways of increasing Pacific Islands students access to health-related information, along with the benefits of a healthy school environment should be considered.

If the school is to be a source of information for Pacific Islands young people, it must provide information in a way that is acceptable to the student’s family. For example, schools in New Zealand dispense information about sexual health. The aim of such education is to teach young people how to act responsibly, to practice sex safely, and to avoid teenage pregnancy or contracting a sexually transmitted disease. However, in Pacific Islands cultures talking about sex is taboo (Bathgate et al., 1994, 49). Thus Pacific Islands children are often not allowed to attend these classes, and despite the efforts of educators, the young people do not receive information that could in fact benefit their health\(^\text{\textsuperscript{12}}\). Mr Walker also stated that the only way of reaching Pacific Islands young people in the high school was to successfully communicate with their

\(^{11}\) As indicated by Mr Walker, deputy principal of Linwood High School. After the completion of this research.

parents, and that communication was usually only effective if carried out in the correct Pacific Islands language. Thus it is crucial that Pacific Islands youth health promotion is aimed not just at young people, but at changing the behaviours of their families.

### 7.6.2.2 Achieving Health Through Family And Friends

"In Pacific Culture, the young people learn from their families – from their sisters, brothers, father and uncles. The Pacific community, along with health providers need to make changes so Pacific young people see us making those changes to our lifestyles which will help address these disparities" (MOH, 1999b, 1).

In all cultures the family is the main source of knowledge about nutrition and food, with young people most often assuming the dietary practices of their parents. Therefore, the Ministry of Health notes that the living situation of an individual during adolescence is noted as an having an important influence on their food choices, with families "serving as role models that reinforce and support the acquisition and maintenance of eating behaviour" (MOH, 1998b, 2). Rozin (1984, cited in Sallis, 1993, 218) notes that the "diets of adolescents and their parents resemble one another because there have been 12 to 17 years of exposure to family influences". However:

"Adolescence differs from infancy and early childhood in that health problems are determined more by voluntary actions are less by passively acquired infection. Adolescents have greater autonomy to make decisions and act in ways that profoundly affect their health. Eating, exercise, rest, learning, recreational activities, smoking, drinking, and the use of other drugs, and sexual relations are just some of the areas in which young people make choices" (Friedman, 1999, 2).

Fuamatu (1997, 10) states that while adolescents typically begin to make their own food choices, it is important that parents supervise the foods that their children eat: "[s]elf-monitoring can be complimented by encouraging more parental and familial control over their teenagers selection and consumption of foods and drink". However this may not be the case for Pacific Islands young people in New Zealand because: "[m]any young people who live in ethnic minorities in their societies are caught between two cultures. The values of their families may be somewhat different from that of the mainstream society in which they live or work" (Friedman, 1999, 4). Anae (1997, 133) also acknowledges that Pacific Islands/Samoan young people in New Zealand are caught between two cultures. She states that Pacific Islands young people, particularly those born in New Zealand,

"...are aware of two different knowledge systems which sets them apart from their parents and island-born 'aiga. They have access to two different lifestyles and oscillate between the two or embrace one while denying the
other. They experience identity confusion at not being accepted by Samoan 'aiga and/or New Zealanders...".

Therefore, Pacific Islands young people are likely to be caught between trying to assert their autonomy (as is expected in New Zealand society), and the familial obligations established by their parents.

In his studies into the health of Samoans, Alan Howard (1986, 398) found that "...Samoan culture places a heavy emphasis on familial and communal obligations, and encourages group efforts at problem identification and resolution". Further, there is "an emphasis in child-rearing on obedience to adult authority". Thus Pacific Islands young people are not raised to make autonomous decisions and follow their own will, but rather to base their behaviours within the family context. A participant of one health-related study in Auckland stated: "[I]ndependence seems so important for Western societies, but for us, nah, 'cause individualism is not encouraged nor is it important. I'd rather be with my family than being all alone, even if I get old..." (research participant, quoted in Tupuola, 1993, 185). Therefore while adolescence is considered by Western health professionals to be a time when people begin to take responsibility for their health choices, including which foods they eat and when, Pacific Islands young people are more likely to follow the behavioural patterns of their family (Fuamatu, 1997, 10).

The implication of young people following the dietary and lifestyle habits of their parents is that if these habits are detrimental to health, then the children in the family will be likely to adopt these also. As Chapter Four revealed, Pacific Islands people in an urban New Zealand environment consume a diet that is high in fat, salt and sugar, with a high proportion of fast foods, and poor quality meat and baked goods; and is low in fruits and vegetables. Further, Pacific Islands people are unlikely to undertake health-enhancing cooking methods such as trimming the fat of meat, of using polyunsaturated oils and spreads.

Fuamatu (1997, 8) found that along with parents, friends influence the eating behaviours of Pacific Islands teens. The Ministry of Health (1998b, 2) confirms that during adolescence people are likely to adopt the behaviours of their peers, rather than just following their parents actions. Fuamatu et al. (1996, 48) note that in terms of food, Pacific Islands youth typically swap and share lunch items, and purchase snacks foods similar to their friends. Further, the concept of sharing lunch items is a product of Pacific Islands culture (ibid, 48). In terms of health promotion peers may affect
Pacific Islands youth if they eat healthy foods or participate in sports. Perhaps more importantly, along with family, peers offer adolescents a basis for social support.

Bathgate et al. (1994, 49) state that the health status of Pacific Islands young people may be affected by strict parenting because, for example, Pacific Islands parents refuse to allow education about sex and so Pacific Islands girls have high rates of teenage pregnancy. Similarly, health is affected when the freedom attached to attending the movies allows the girls the opportunity to engage in unhealthy activities such as smoking (Laugesen & Scragg, 1998, 7). This thesis has shown that Pacific Islands adults are making unhealthy food choices, and doing so more often that other New Zealanders. Therefore along with other influences Pacific Islands young people are consuming an unhealthy diet in the home because they are eating the foods that their parents select, and these are becoming integrated into their lifestyle. However, Vainikolo et al. (1993, 9) note that “the desire to see children and grandchildren growing up health could be an important health incentive” in that Pacific Islands adults will adapt their behaviours in order to protect the health of youth. Therefore the importance of teaching health dietary and lifestyle behaviours to Pacific Islands adults is paramount.

7.6.2.3 Accessing Pacific Islands Parents: Church and Community Initiatives

"Religion plays an important part in Pacific Islands cultures" (MOH, 1997c, 50). As shown earlier in this chapter, education about nutrition is most effective when it targets the behaviour of adults, as young people are most likely to have the same dietary habits as their parents. Therefore, to promote health through the family the behaviour of the parents needs to be adapted to incorporate healthier foods choices and lifestyle behaviours. Within Pacific Islands communities, it is widely acknowledged that by far the best avenue for providing health information to Pacific Islands adults and young people is the church. As Swinburn et al. (1997, 22) note: “[f]or Pacific people living in New Zealand, the church is the main centre for the community and is the logical setting for a community intervention programme”.

As shown in Chapter Two, 89% of all Pacific Islands people in New Zealand belong to a religious group (MinPac, 1999, 14). Attending church enables Pacific Islands people to meet regularly with people who share their ethnic backgrounds. The Adolescent Health and Well-being Survey indicated that while only 22.6% of the non-Pacific Islands young people were involved in church or youth group activities on a regular basis (once a week or more), 95.8% of the Pacific Islands young people
participated in these weekly. Of these students 50% participated in church or youth group activities daily, and an additional 20.8% participated on most days. In addition, 29.2% of the Pacific Islands young people had received information about smoking or alcohol from their church minister, 4.2% had received information about exercise, and 16.7% had received information about nutrition. In all of these cases, less than 6.5% of the non-Pacific Islands participants indicated that their church minister had been an information source. Therefore one probable way in which both Pacific Islands young people and their parents can be reached—either with existing or specialised programmes—is through the church.

To date in New Zealand and other Pacific countries a number of church-based community health programmes have been implemented to try and combat the high incidence of non-communicable diseases in Pacific Islands people. The Tutakimoa Lifewise Project, for example, was a church run community-based programme aimed at improving the problem of obesity in Rarotonga. The project involved participation in exercise classes and organised sports such as volleyball; nutrition lessons teaching the nutritional quality of foods as well as healthy cooking methods; the development of home gardens; and optional monthly weigh-ins. A retired nurse from the community was responsible for co-ordinating the programme, and other community members took on important roles. The project was also significant as it had the support of both health professionals and the Cook Islands government (Swinburn, 1993, 10). A similar programme, named the Hele 'Ai Mai (Come and Eat) Project, dealt with obesity and related conditions among Samoans in Hawai‘i (Odom, 1998, 384). This project is significant, because like Pacific Islands people in New Zealand, those in Hawai‘i are typically living in a Western environment.

From 1995 to 1997 a community-based health awareness programme, named the Ola Fa‘autaauta Project, was undertaken between three Samoan church congregations in Auckland (Swinburn et al., 1997, 22). Such congregations are utilised because they provide access to Pacific Islands people, and are set in a forum where the participants feel comfortable and thus better able to take part in the programme. The Ola Fa‘autaauta Project included aerobics classes, nutrition education, cooking demonstrations, lessons on budgeting and shopping for a family, diabetes education and support, and a regular newsletter. The convenors of the project also attempted to involve Pacific Islands community members in implementing the programme, for example young people were trained as aerobics instructors, and drivers were selected from the congregation to bring people to the church for special sessions (ibid, 22).
One aim of the project was “to get ministers to reinforce healthy living behaviours in their parish. [Because] Ministers play a central role in determining the behaviours of their parishioners and setting the standards for that community” (ibid, 22).

The Public Health Commission (1995, 14) concurs that church leaders and pastors have an important role in getting health messages to Pacific Islands communities, and in helping others (such as research teams and health professionals) to do this. Fuamatu (1997, 8) determined that young people identified the church as having an important influence over their food choices: “[t]he church that the family belonged to held significant views about the consumption of foods and drink”. Furthermore, the teens heeded any advice because they felt that their church ministers knew what was best for them.

The church can also have a very direct influence on the health of congregation members by supporting positive health messages with healthy foods. The feast which traditionally follows the Sunday church service has been recognised as a forum for promoting health to Pacific Islands people. The feast is an opportunity for Pacific Islands people to interact, as well as to indulge in Pacific Islands foods that they often do not eat during the week. Sallis (1993, 216) notes that it “is usually possible to improve the healthfulness of cuisine while maintaining cultural identity”. For example, by providing foods at the Sunday feast which are cooked using healthy methods, the quality of the Pacific Islands diet could be enhanced. As the Ola Fa’autauta Project revealed:

“Nutrition education was...far more powerful if combined with a church ‘policy’ for healthy food at church gatherings and feasts. Targeting the nutrition education towards the caterers of church functions and getting the church leaders to lend their support to healthier foods at feasts is likely to lead to the most widespread and long term changes in diet. Over the course of the Ola Fa’autauta project there were substantial changes in the foods presented at church functions such as more fruit and vegetables, meat dishes with less fat, and smaller quantities. With time, these changes will hopefully filter down to a family level” (Swinburn et al., 1997, 24).

7.6.2.4 Using Sports And Cultural Groups To Enhance Youth Health
Aside from church groups, two other community groups that Pacific Islands young people might be involved with are sports groups and cultural groups. Sallis (1993, 230) contends that “[a]ll organizations involved in youth activity, including sports leagues, should address the health-related physical activity needs of participants”. Therefore the potential for promoting health to Pacific Islands young people through such groups should be explored.
The *Adolescent Health and Well-being Survey* revealed that Pacific Islands young people had high rates of participation in sport. This is positive in terms of health because physical activity decreases the risk of obesity and related diseases. However, Scragg et al., (1992, cited in Bathgate et al., 1994, 118) found that Pacific Islands adults are the least likely group in the New Zealand population to exercise. Sallis (1993, 215) notes that activity levels decline dramatically over the adolescent period, and that this decline continues throughout adulthood. Furthermore, school provides an opportunity to engage in sport and other physical activity that is lost when the adolescent leaves school. The *Adolescent Health and Well-being Survey* showed that while the young people were participating in sport, few exercised purely for fitness. This implies that when the opportunity to participate in sport is taken away, the teen will no longer exercise. This thesis has also shown that this is particularly true for people who are socio-economically disadvantaged, because people in poor communities have less opportunities to exercise – either due to high levels of risk in the community (pollution and/or violence), or reduced access to sporting and recreational facilities. Therefore before sporting groups can be utilised as an avenue for promoting health to Pacific Islands people in New Zealand it may first be necessary to increase such facilities, and thus their ability to participate in such groups.

"Many of the activities that adolescents commonly engage in out of school require facilities, such as fields, basketball courts, and dance studios. For adolescents with limited transportation and money, there are sizable barriers to the use of many facilities" (Sallis, 1993, 215).

Lay (1996, 99) notes that Pacific Islands young people have high rates of participation, and typically high levels of achievement in sports such as rugby, touch rugby and netball. Where Pacific Islands young people are involved in sporting groups, educated coaches could be instrumental in improving the health of Pacific Islands youth. Healthy advice about eating and regular exercise could be presented, perhaps with a focus on maintaining a healthy weight for optimal performance in sport. Question 36 of the *Adolescent Health and Well-being Survey* revealed that around one third of the Pacific Islands adolescents received nutrition and exercise-related advice from a sports coach. They were unlikely to receive information about alcohol or smoking. Therefore, to promote health to Pacific Islands teens, sports coaches could be trained to impart such health-related information. Further, because Pacific Islands sporting groups are typically linked to the church (ibid, 99), they are in fact another means through which positive health messages imparted by church leaders could be reinforced.
Along with sporting groups, Pacific Islands cultural groups provide an opportunity for Pacific Islands teens to come together. Chapter Two reported that Pacific Islands youth culture is having a positive effect on Pacific Islands young people by enabling them to take on board different aspects of their culture. Cultural groups promote social cohesion by allowing Pacific Islands youth to define themselves and establish an identity within the New Zealand environment. One form through which young people display their cultural heritage is art – including painting, sculpture, jewellery, and even fashion. A second is through performance. Furthermore, through dance an cultural performance, cultural groups encourage Pacific Islands young people to participate in physical activity.

David Lay (1996, 43-44) holds that the yearly Māori and Pacific Islands Performing Arts Festival as a positive example of the way cultural groups can benefit youth. This festival is a competition between different Māori and Pacific Islands ethnic cultural groups from Auckland secondary schools. The festival began in the 1970s when teachers at one school decided that they would encourage students to perform (sing and dance) so as to “preserve, or in some cases establish, identity” among Māori and Pacific Islands students (ibid, 44). The festival, and cultural groups in general, are used as a way of preserving language and legends, songs, dances and chants, and of passing precious customs down through the generations. (Lay (1996, 45) also contends that such groups enhance family unity because parents are often involved with teaching songs and dance routines, making costumes, and so on. Further, parents and grandparents experience pride in their children and their culture when watching the youth perform. Therefore cultural groups can benefit Pacific Islands youth health by strengthening family relationships and enhancing adolescent’s feelings of self-worth. They also provide an opportunity for physical activity which may carry on after the adolescent finishes school. Because they are typically an activity that parents approve of and even encourage, cultural groups could potentially be used in promoting health to Pacific Islands youth- possibly by way of an educated leader, or in the format of information showing the participants how activities engaged in during cultural groups sessions are beneficial to health. By taking any available opportunity to inform young people about the benefits of physical activity and a healthy diet, sporting and cultural groups could both be implemented in bringing health to Pacific Islands youth.

7.6.2.5 The Role of Health Professionals
Within the community, health services also have a responsibility to monitor the health of Pacific Islands people. The role of health professionals includes: care and support,
screening for disease, health education, and immunisation (MOH, 1997d, 47). Gray (1994, 51) found that Pacific Islands young people were more likely than any other adolescent group to visit a general practitioner for all of their health needs (that is, for both general and personal services). However, as Bathgate et al. (1994, 27-28) note, at present mainstream health services in New Zealand are failing to meet the health needs of Pacific Islands people due to cultural restrictions, such as language barriers, the inability of Pacific Islands people to discuss personal matters, and the Pacific Islands preference for dealing with illness using a variety of methods including family knowledge and traditional healers. For example, Pacific Islands youth do not visit mainstream health services because doctors “invade their privacy” (Gray, 1994, 44). Further, as Metge & Kinloch (1999, 26) note, when it comes to health Pacific Islands people “like to take plenty of time to think about and gather opinions about an issue before committing themselves to a decision”. Howard (1996, 408) concurs, adding that in many cases Pacific Islands people will only seek medical treatment as a last resort, when all other avenues have failed. This has led in places to a somewhat negative perception of Pacific Islands people by Western health professionals, and thus culture is again prohibiting Pacific Islands people from receiving appropriate health care.

Given that health services are failing to reach Pacific Islands people in New Zealand, the Public Health Commission (1995) asserts that “mainstream health professionals need to be educated in the cultural perspectives of Pacific people”. This includes acknowledging that Pacific Islands people have their own specific health needs, and further, that while the needs of different Pacific Islands groups may be similar they are not the same (ibid, 13). Therefore it is important that resources and health information materials are developed for Pacific Islands people and that Pacific Islands people are included in the process of planning and developing such resources so that appropriate images and messages are used. For example, materials for Pacific Islands people should include Pacific Islands images such as the tapa cloth (MOH, 1997c, 34). This has been attempted in terms of nutrition with the Healthy Food Shell (Appendix VIII-B). Although Pacific Islands culture is oral and oral and pictorial communication is best, supporting printed materials should be made available. Furthermore, it is crucial that these are translated accurately (ibid, 35). This process involves the combined efforts of both national and local agencies. Where national agencies develop the resources, local general practitioners and health clinics are required to distribute the information to Pacific Islands people. For example the National Heart Foundation of New Zealand publishes a newsletter entitled “Pacific Islands Heartbeat” which deals
specifically with Pacific Islands health for Pacific Islands people. The magazine includes reports on recent events and key community members, along with nutrition information for a healthy heart. For example, one such magazine described ways of reducing the unhealthy attributes of coconut while still using this food (NZ Heart Foundation, 1999, 1). The magazine presents the information in English, Samoan, Tongan, Niuean, and Cook Island Māori. However, while this is a useful resource it will not benefit Pacific Islands people unless they have access to it. Therefore one way for community health clinics to promote health to Pacific Islands people might be to subscribe to this magazine and ensure that Pacific Islands visitors to the clinic receive each issue.

As they are neither adults nor children young people have been identified as having specific health needs, and thus as requiring health services which cater specifically to these (Sporle, 1993, 4; Gray, 1994, 8; Maskill, 1991, 27). The Adolescent Health and Well-being Survey revealed that young people received information about nutrition, exercise, smoking and alcohol from a variety of health professionals, including dieticians, nurses and staff at health clinics. However, non-Pacific Islands young people were both more likely to visit health professionals, and more likely to receive information from them. The survey also revealed that 62.1% of the non-Pacific Islands participants, as opposed to only 18.8% of the Pacific Islands young people, chose the health services that they used. 81.4% of the time the Pacific Islands young people's parents made this decision for them, sometimes taking into account the opinion of the teen or the school. The implication of this finding is that the non-Pacific Islands young people would probably have more freedom to discuss any issues with health professionals, whereas the Pacific Islands young people would be more limited in what they could say, particularly if they thought that the information would get back to their parents. One Pacific Islands participant from Aranui High School also indicated that she was not comfortable using health services in Christchurch because she did not like sharing information with "white people".

As a result of his Auckland study Sporle (1993, 12) also determined that "the young people most in need are those least likely to seek help. They include the socially disadvantaged, such as members of ethnic minorities, adolescent migrants, the homeless and the unemployed". As an ethnic minority group with the highest rates of unemployment in New Zealand and a typically low level of socio-economic status, it is very likely that Pacific Islands people aged ten to twenty-five are not receiving adequate attention from existing health services. This fact is concerning both in terms
of general health issues and because: "[t]he role of health professionals and the health care system in promoting healthy dietary and physical activity behaviours is potentially important" (Sallis, 1993, 229). Because young people have specific health needs, and the health needs of young people differ from those of both Māori and European/Palagi youth, it is crucial that health services and resources are created and made available for Pacific Islands youth. This will enable better distribution of information to the teens, and increase their long-term potential for good health.

7.6.2.6 The Mass Media: A Global Health-Information Source

"Adolescents are very vulnerable to external pressures, particularly from the media and their peers" (Reid, 1993, 55).

"...older adolescents in particular report[ed] receiving information on nutrition from the mass media rather than health professionals" (Edwards & Chapman, 2000, 207).

When asking the participants to indicate the sources which provided them with information about health, Question 36 of the Adolescent Health and Well-being Survey referred to a number of mass media sources. These were: television, videos, newspapers, the internet, and magazines. As depicted in Figures 6.21, 6.22, and 7.1, after parents and teachers both the all of the survey participants were most likely to receive information about nutrition, exercise, alcohol and smoking from media sources. In both cases the most common source was television, followed by videos, magazines, newspapers, and then the internet.

Although not necessarily a 'local' avenue for health promotion, the case of the media must be considered in this section because of the important influence that this has upon the behaviour choices of teens, in particular those which relate to health. The media has in fact been criticised as having a very negative affect upon young people’s health, encouraging risky behaviour as well as an unhealthy diet (Whitney & Rolfes, 1999, 530; Sallis, 1993, 219). It is difficult to judge the quality of the information that the adolescents involved in the Adolescent Health and Well-being Survey were receiving from these sources, and whether this information would in fact be beneficial to health. For example the figures listed show that videos tended to be a source of information about smoking and alcohol, but rarely exercise or food. Quite possibly videos portray images which may be negative to health – such as the idea that smoking is ‘cool’.
As noted earlier in this chapter (see section 7.3), "television viewing is correlated with snacking between meals, consumption of the types of foods advertised on television, and attempts to influence the purchasing power by the mother" (Dietz and Gortmaker 1985, cited in Sallis, 1993, 219). Therefore television affects health both by adding to sedentism among children, and negatively influencing their food choices. However, acknowledging that children and young people are affected by messages portrayed in both programmes and advertisements may allow for these to be adapted to take on a more responsible attitude towards public health. For example, legislation passed in March 2001 prohibited repetition of adverts and irresponsible food advertising to children. Similar legislation that affects that health of young people includes a ban on all cigarette advertising, and the ‘5+ A Day’ and ‘Where is That Drink Taking You’ advertising campaigns. However as the media promotes foods that are bad based on taste rather than nutritional value (Sallis, 1993, 219; Whitney & Rolfs, 1999, 517; Edwards & Chapman, 2000, 210); and tends to play such ads repetitively, it is likely that television has a detrimental affect on Pacific Islands young people’s health.

Maskill (1991, 26) states that influential leaders such as celebrities and sporting heroes should be used by the media as positive role models when promoting health to teens. In terms of Pacific Islands youth health, people in their twenties of Pacific Islands descent promoting positive health messages could be used to promote healthy messages. Such role models might include: Bernice Mene, David Tua, Tana Umaga and various other rugby stars, Stephanie Tavevihi, and King Kapsi, who has himself professed a desire to only produce music with a positive image (Howells, 2001, 33). For example, in terms of promoting health Jonah Lomu could be put to better use advertising fruit and vegetables than a Big Mac.

Along with television, role models can be utilised in various other forms of media including printed media such as pamphlets, posters, and magazine articles and adverts. Such sources have a much smaller audience than television, but are useful because they tend to target a specific group (Edwards & Chapman, 2000, 207). In their Australian study into the use of magazines as a tool for health promotion Edwards and Chapman (2000, 209) also found that:

“A wide range of health topics was covered [in the magazines]...These included nutrition; physical activity, mental health (e.g., stress, depression, anorexia nervosa); skin care and skin conditions (e.g., sun protection, acne, cold sores, warts); women’s and men’s health issues; reproductive health (e.g., contraception, sexually transmitted diseases, pregnancy); adolescent
development; drugs (e.g., tobacco, alcohol, illicit drugs); alternative medicine; dental hygiene and care; and allergies and sleep problems (e.g., bed wetting, listlessness, snoring)."

Therefore magazines could be created for Pacific Islands young people which bring them positive health messages, possibly in the format of ‘Tearaway’, which is an existing newspaper-style magazine for young people in New Zealand.

The influence of the mass media on young people’s health, and thus the need for responsible programming and legislation to protect children (and potentially young people) highlights the importance of the government and other national organisation when it comes to promoting and protecting health. Furthermore it shows how many different factors influence young people’s health, and thus an environment which monitors the behaviours of young people and allows for healthful decisions is crucial. That is, if Pacific Islands young people are to be bombarded with advertisements for fast-foods then parents should monitor their intake of such foods, and along with community leaders should teach young people how the over-consumption of such foods will affect their long-term health status. Health professionals, sports coaches, and church ministers can all be instrumental in this process.

This section has shown that community, regional, national and even international organisation contribute to health choices via the messages that they impart and the environments that they create. In terms of Pacific Islands adolescent health, community agencies including schools, churches, health services, and sports and cultural groups are all crucial to health. Along with providing health information and resources, these can benefit health by providing a healthful environment. Of all avenues through which Pacific Islands youth can learn about healthy behaviours, their parents are the most important information source. Therefore Pacific Islands parents must be taught, via the above agencies, how to lead a healthful lifestyle, and pass healthy information and habits on to youth, thus setting them up for good health in the long-term.

7.7 Chapter Summary
Chapter Seven has revealed that the behaviours of Pacific Islands young people in New Zealand have a direct bearing upon their long-term health, and how many of their dietary and lifestyle behaviours may in fact be having negative long-term consequences for health. Such consequences are perpetuated by the Pacific Islands socio-economic context, which limits the behavioural choices that Pacific Islands people can make, along with the access to health
information and services. Health promotion, the process of establishing and distributing resources which inform people about the effects of behaviours, and encourage behaviour change (where necessary) to enhance health, can be instigated at a community level to optimise the health of Pacific Islands teens. By exploiting various avenues including churches, sports and cultural groups, and school and family environments, health can be promoted to Pacific Islands teens. This chapter has discussed the findings of this research, both in terms of the Adolescent Health and Well-being Survey results, and supporting literature, and shown both the dietary and lifestyle behaviours that negatively affect Pacific Islands adolescent health, and potential avenues for promoting healthy behaviours to Pacific Islands youth so that their long-term health prospects could be improved.
CHAPTER EIGHT
Conclusion

The principle aim of this thesis was to conduct research into, and provide a comprehensive overview of, the health of Pacific Islands young people in New Zealand with a particular emphasis upon their dietary and lifestyle behaviours. Such research has been identified as necessary because Pacific Islands people in New Zealand have a poor health status. High rates of non-communicable diseases among Pacific Islands people have been linked to their consumption of a diet containing foods that are high in total energy, fat, salt and sugar, but low in nutrient quality, along with low rates of participation in physical activity. Further, the eating patterns of Pacific Islands adults become established during the period of adolescence. Therefore, in order to counter the high incidence of non-communicable diseases among Pacific Islands people in New Zealand, the health-related behaviours of Pacific Islands adolescents must be recognised and addressed appropriately.

Two main methods were undertaken to achieve this stated aim. Firstly, a review of existing reference materials and studies which have considered Pacific Islands health, and the importance of food to Pacific Islands people, was carried out. The literature review revealed that studies into the dietary behaviours of Pacific Islands young people were scarce, and those considering lifestyle factors appear to be non-existent (Fuamatu, 1997, 6); and that in order to improve the health of Pacific Islands people an understanding of youth health issues is necessary (Heckert, 2001). Based on these findings the second phase of this research involved conducting research into the health of Pacific Islands young people. This research took the format of a self-administered questionnaire, which was completed by fifty-five Pacific Islands and non-Pacific Islands adolescents at two Christchurch secondary schools. The survey provided a plethora of useful information, and provides an insight into the dietary and lifestyle behaviours of Pacific Islands young people in the New Zealand context.

By summarizing the key findings of the literature review and the Adolescent Health and Well-being Survey, Chapter Eight will provide a brief overview of the work presented in this thesis, and a conclusion to this research.

8.1 Charting a Picture of Pacific Islands Youth Health
Chapter Four of this thesis asserted that "[f]ood is the meaning of all things" for Pacific Islands people, and discussed the importance of food as a mechanism for acknowledging and teaching Pacific Islands customs, as well as a means for Pacific Islands people to express and
accept respect and love. The significance of food for Pacific Islands people has been the essence of this thesis, and the basis for the argument that Pacific Islands adult health is dependant upon the nutritional habits that are established during youth. Therefore while national health agencies determine that unintentional injuries (falls, motor vehicle accidents), cancer, infectious and respiratory diseases, sexual health issues and mental health (alcohol and substance abuse, attempted suicide) are those most pertinent to Pacific Islands youth, this thesis contends that DIET is the one thing that has the greatest impact upon the health of New Zealand Pacific Islands people.

This thesis has shown that while the health issues listed above may account for the mortality and morbidity of Pacific Islands youth, for Pacific Islands adults it is obesity, and disease related to overeating and the consumption of unhealthy foods, that are have the most profound affect upon their health. The most widely recognised example of a non-communicable disease affecting Pacific Islands people is type II diabetes, which is associated with a number of serious complications including blindness, amputations, and premature death. The youthful age structure of the Pacific Islands population in New Zealand means that the size of the population of Pacific Islands adults is set to increase significantly. Therefore is current disease patterns continue, in the future a much higher proportion of the adult population of New Zealand will likely suffer from obesity or a related disease.

As this thesis has shown, mainstream health services are often ineffective in reaching Pacific Islands people, who require access to health services and personnel adept at meeting their specific health needs. Therefore if current disease patterns do persist, then not only will Pacific Islands people continue to die from diseases that are largely avoidable, but more Pacific Islands-centred health services will be required to cater to this population group. Thus it is necessary to acknowledge and attempt to address the incidence of unhealthy dietary and lifestyle behaviours in youth as a way of countering, or at least preparing the resources for, poor health in future generations of Pacific Islands adults in New Zealand.

The research undertaken for this thesis included both a review of previous studies into the body composition and nutritional habits of Pacific Islands young people in New Zealand, and independent research into the dietary habits of Pacific Islands adolescents in Christchurch. The background research revealed that Pacific Islands young people are both taller and heavier than other New Zealanders of their age, and tend to eat a diet that consists of unhealthier foods. Further, the facets which contribute to the poor health status of Pacific Islands people in New Zealand include dietary choices, cultural factors, and the socio-
economic circumstances in which Pacific Islands people generally live. The main findings of this research are listed below in accordance with these three categories.

**Dietary Features**
- Pacific Islands young people eat unhealthy bread products including white bread, and other baked goods.
- Pacific Islands young people rarely eat vegetables or fruit, and do not reach the recommended dietary intake of these foods.
- PI young people are more likely to eat fish regularly.
- Pacific Islands young people eat more takeaways than is recommended. More than half of the research participants ate these daily, or sometimes more than once a day. These were also consumed as a typical evening meal by the Pacific Islands participants. The non-Pacific Islands participants did not eat these at a typical meal, and usually only had one meal of takeaways per week.
- Eating takeaways limits an adolescents ability to choose foods low in fat and salt.

**Cultural Factors**
- Pacific Islands young people attribute cultural significance to food- this is shown by the foods that they eat when guests visit (‘Samoan foods’). Further, Pacific Islands foods were considered a ‘favourite’, and ‘significant’ to the participants. Eating food provided is a way of accepting love and respect.
- Pacific Islands teens were eating more than one lunch and dinner a day, but no breakfast – this result probably shows that Pacific Islands young people define meals differently than Europeans, based on the foods eaten rather than the time of day.

**Socio-economic Variables**
- A low income limits the foods that Pacific Islands young people eat, for example: meat is sacrificed when money is scarce; fruit is reserved for the elderly and those who are unwell; and Pacific Islands foods cannot be purchased and eaten regularly because they are too expensive.
- Low income areas typically have less recreational facilities, particularly after the completion of school, and this may limit the amount of exercise that Pacific Islands youth engage in.

Dietary and lifestyle habits are based on environmental features, along with the behaviours of family members and peers. Such habits are typically adopted during the adolescent period, and are maintained throughout the lifespan. Therefore in charting a picture of Pacific Islands
youth health it is necessary to look not only at the health issues accounting for the hospitalisations of Pacific Islands teens, but to look at how the behaviours that they engage in during this period will affect their health throughout life. Based in the findings of this research, as listed above, it would appear that the overall picture of health for Pacific Islands adolescents in New Zealand is somewhat bleak.

8.2 Re-mapping the Pacific Islands Youth Health Future

The problems associated with a high fat diet and sedentary lifestyle are not unique to Pacific Islands youth. In fact, as Chapter Seven revealed, early onset obesity is becoming a significant health issue for young people living in Western environments throughout the world. American and British youth, along with Māori and European New Zealanders, have all been affected by the influx of fast-food restaurants and labour-saving devices (such as cars and remote controls) over recent years. However, this thesis has shown that the case of Pacific Islands young people is unique for three main reasons. Firstly, the diet of Pacific Islands adolescents contains an even higher proportion of unhealthy foods. Further, their socio-economic status contributes to the poor quality of their diet, with healthy foods such as meat, traditional foods, vegetables and fruit being sacrificed when money is scarce. Secondly, Pacific Islands culture requires that people eat. At feasts and even family meals a vast quantities of food must be provided and eaten to fulfil a set of cultural requirements that other young people are not exposed to. Finally, Pacific Islands people are genetically predisposed to a large body size, and within the Western environment, where unhealthy foods are abundant and exercise limited, their body composition typically results in Pacific Islands people becoming overweight. Given that obesity of both socially and culturally acceptable to Pacific Islands people, and that Pacific Islands youth are unlikely to recognise this as a health issue, they are less likely to seek information about, or engage in behaviours that will protect their health.

This thesis has contended that it is necessary for both national and local agencies to recognise that dietary behaviours contribute to the poor health status of Pacific Islands people, and that adolescent dietary habits must be monitored as a way of protecting the health of Pacific Islands adults in the long-term. Further, to achieve better health for Pacific Islands people in New Zealand, Pacific Islands young people must be provided with culturally appropriate information about behaviours which will enhance their health, and exposed to environments which promote healthful choices. Along with health services, schools, churches, and cultural and sporting groups were identified as environments where Pacific Islands young people could learn about and engage in healthy behaviours. Furthermore, such agencies have a responsibility to educate Pacific Islands parents as well as young people. This is particularly
important given that the family unit is central to Pacific Islands culture, and Pacific Islands young people are more likely to adopt behaviours if these are supported and encouraged within their family.

The future picture of Pacific Islands health could be enhanced by increasing exercise among Pacific Islands youth, and improving their dietary quality. The best way to establish and maintain healthful behaviours is to ensure that these adhere to existing cultural norms. For example, rather than discouraging feasts, teachings people that traditional foods can be provided but cooked with low-fat methods, will be a more successful way of instigating behaviour change. Similarly, cultural forms of exercise, such as dance and Pacific Islands sports teams, should be encouraged. As Sallis (1993, 230) states: "[a]ll organizations involved in youth activity... should address the health-related physical activity needs of participants".

While adolescents typically subscribe to the same beliefs as their parents, and engage in many of the same behaviours, this period of life is a time when independence is asserted and individuals begin to assert their autonomy, thus establishing an identity separate from that of their family. Traditionally, the assertion of independence has been attributed to Western youth and has been less of an issue for Pacific Islands people. However Pacific Islands young people in New Zealand are increasingly likely to have been born in New Zealand, and New Zealand raised. It is not uncommon for conflict to occur in Pacific Islands families when adolescents attempting to indulge in the same freedom allowed to their non-Pacific Islands counterparts come up against strict Pacific Islands parenting. Such conflict has been exposed for its negative affects upon health, such as high rates of teenage pregnancy and smoking. However, in re-mapping the Pacific Islands youth health future, it is important to note that growing up in New Zealand is enabling Pacific Islands young people to learn, to an extent, that skills of autonomous decision making, and that this may in fact be beneficial to their long-term health. For example, by not having to rely on family members for income, accommodation, or for health-related information, stress may be reduced, and health enhanced (Howard, 1986, 210). This generation is also unique from Pacific Islands adults in that they have greater language and literacy skills, as indicated by increasing rates of participation and achievement by Pacific Islands people in secondary and tertiary education. As shown in Chapter Two educational achievement allows for a healthful diet and access to recreational facilities as well as to health services. Along with greater acceptance in New Zealand of Pacific Islands people as a legitimate population groups (as shown by the category 'Pacific Islands people' in health statistics), the recent emergence of a strong self-identity among Pacific Islands youth means that in the future they will be less affected by the stigma
and solitude experienced by previous generations of Pacific Islands adults, and better equipped to succeed and be healthy in New Zealand society.

8.3 Concluding This Research

Fuamatu (1997, 6) claimed that “there is a need to monitor the dietary intake of Samoan [sic] teenagers to address ensuing health problems such as diabetes and high blood pressure already prevalent in the older population”. This thesis has contributed to the existing body of knowledge about this topic by providing evidence that Pacific Islands young people in Christchurch consume a diet that is comprised largely of takeaways and other unhealthy foods, contains few vegetables, and is therefore likely to having a negative affect upon long-term health; and by showing that culture influences the way in which Pacific Islands young people perceive and select the foods they eat. In achieving the aim stated in Chapter One of this thesis, an overall impression of the health of Pacific Islands young people in New Zealand has been provided, along with a description of the ways in which the dietary and lifestyle behaviours of Pacific Islands young people are potentially compromising their long-term health. This thesis has established that Pacific Islands adolescents follow unhealthy dietary and lifestyle behaviours which will have long-term consequences for their health, with the results of the Adolescent Health and Well-being Survey providing evidence which supports this claim.

Thus the research described within can be utilised in assessing and monitoring the dietary and lifestyle behaviours of Pacific Islands youth, to recognise potential areas of need, and in developing resources and services where these needs exist. By fulfilling these tasks, the research presented in this thesis can be used to reduce the likelihood of non-communicable disease among Pacific Islands young people in New Zealand as they age, and benefit their overall long-term health.
REFERENCES


Injury Prevention Research Unit. *Questionnaire*. Auckland: Injury Prevention Research Unit.


Ministry of Health. 1997b. Do We Really Need This Resource? Wellington: Ministry of Health/Manatū Hauora.


1 Patricia Kinloch and Patricia Laing the same person.


<table>
<thead>
<tr>
<th>GLOSSARY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Adolescence</strong></td>
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<tr>
<td><strong>'Aiga</strong></td>
</tr>
<tr>
<td><strong>Atherosclerosis</strong></td>
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<tr>
<td><strong>Body Mass Index (BMI)</strong></td>
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<tr>
<td><strong>Cardiovascular Disease</strong></td>
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<tr>
<td><strong>Cerebrovascular Disease</strong></td>
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<td><strong>Chop Suey</strong></td>
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<tr>
<td><strong>Chronic Diseases</strong></td>
</tr>
<tr>
<td><strong>Coronary Heart Disease</strong></td>
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<tr>
<td><strong>Degenerative Disease</strong></td>
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<tr>
<td><strong>Deficient</strong></td>
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<tr>
<td><strong>Determinants of Health</strong></td>
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<tr>
<td><strong>Diabetes Mellitus</strong></td>
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<td><strong>Diet</strong></td>
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<tr>
<td><strong>Eating Disorder</strong></td>
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<tr>
<td><strong>Fa’aSamoan</strong></td>
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<tr>
<td><strong>Fa‘i</strong></td>
</tr>
<tr>
<td>Term</td>
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<tr>
<td>----------------------</td>
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<tr>
<td>Gout</td>
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<tr>
<td>Health</td>
</tr>
<tr>
<td>Health Promotion</td>
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<tr>
<td>Health Status</td>
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<tr>
<td>Heterogeneous</td>
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<tr>
<td>Homogenous</td>
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<tr>
<td>Hypertension</td>
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<tr>
<td>Hyperuricaemia</td>
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<tr>
<td>Infectious Diseases</td>
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<tr>
<td>Insulin</td>
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<tr>
<td>Iron Deficiency Anaemia</td>
</tr>
<tr>
<td>Iwi</td>
</tr>
<tr>
<td>Lu</td>
</tr>
<tr>
<td>Maoro</td>
</tr>
<tr>
<td>Modernisation</td>
</tr>
<tr>
<td>Morbidity</td>
</tr>
<tr>
<td>Mortality</td>
</tr>
</tbody>
</table>
Non-Communicable Disease  A disease that is not capable of being transmitted from one person to another. Also known as chronic and degenerative diseases.

Nutrition The science of foods and the nutrients and other substances they contain, along with their actions within the body (including ingestion, digestion, and metabolism). A broader definition includes the social, economic, cultural, and psychological implications of food and eating.

Obesity A state of being extremely overweight, characterised by excess body fat. In European New Zealanders obesity is signified by a BMI of 30 or more. This measure has been dismissed as relevant to people of other ethnic backgrounds, including Pacific Islands people.

Oka Boneless, raw fish diced and marinated in onion, lemon and coconut milk.

Pacific Islands People The term used by Department of Statistics reports on the Census of Population and Dwellings to cover “those persons who (at the time of the census) stated a Pacific Island ethnic groups as either their sole ethnic group, or as one of several ethnic groups” they belonged to. Preferred terminology for this thesis.

Palagi Pronounced pa-langi. The name used by Pacific Islands people in New Zealand to refer to New Zealand Europeans. Also papalagi; originally a Samoan term.

Pisupo Tinned corned beef

Pneumonia An illness caused by inflammation of the lungs.

Public Health The science and art of promoting health, preventing disease and prolonging life through the organised efforts of society.

Recommended Daily Allowance (RDA) The average amount of a nutrient that should be consumed daily to meet the known nutrient needs of practically all healthy people.

Respiratory Disease Diseases affecting the respiratory system (airways and lungs), including asthma, bronchitis, and infections.

Social Cohesion The degree to which individuals are integrated with, and participate in, a secure social environment.

Socio-economic Status This term refers to a complex mix of social and economic circumstances of an individual or group of individuals. Measures of socio-economic status include indices of social class, income, occupation, employment status, area of residence, housing quality, household composition and social integration.
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taro/Talo</td>
<td>A starchy root vegetable staple in the diet of people living in Pacific Islands countries. Use is equivalent to that of the potato in New Zealand. Taro is the term typically used in Samoa. Talo is used in both Tonga and Nuie. The commonly accepted term in New Zealand is Taro.</td>
</tr>
<tr>
<td>To’ala</td>
<td>The life force (Samoa). Located in the abdomen.</td>
</tr>
<tr>
<td>Tonai</td>
<td>A feast eaten on Sunday after church (Samoan).</td>
</tr>
<tr>
<td>Tulou</td>
<td>A Samoan word used similar to ‘excuse me’.</td>
</tr>
<tr>
<td>Umu</td>
<td>A traditional Samoan method of cooking, similar to the Māori hangi.</td>
</tr>
<tr>
<td>Well-being</td>
<td>A state of being or doing well in life; a happy, healthy or prosperous condition.</td>
</tr>
<tr>
<td>Western</td>
<td>Pertaining to Western or European countries as distinct from the Eastern, includes the United States of America.</td>
</tr>
<tr>
<td>Westernisation</td>
<td>To make Western in character; to make another race Western in ideas, institutions and so on.</td>
</tr>
<tr>
<td>World Health Organisation (WHO)</td>
<td>An international agency that is a part of the United Nations, expressly concerned with promoting health and well-being.</td>
</tr>
<tr>
<td>Young People</td>
<td>A term used to refer to people aged between ten and twenty-four years of age (WHO) or between fifteen and twenty-four (NZ Government publications). The intent of this term is to encompass all young people in this stage of life, regardless of any differences in physiological, psychological or cultural development.</td>
</tr>
<tr>
<td>Youth</td>
<td>As with adolescence, this term applies to people in the developmental stage between child and adulthood.</td>
</tr>
</tbody>
</table>
LIST OF APPENDICES

I  HEC Letter of Consent
II Letter to Schools
III Map Showing NZDep96 Ratings: Christchurch
IV *Adolescent Health and Well-being Survey*: Information Sheet
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VII A  The Healthy Food Pyramid
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APPENDIX ONE

Human Ethics Committee - Letter of Consent
16 September 1999

Lisa Hayes
C/- Dr Neemia-Mackenzie
MacMillan Brown Centre for Pacific Studies
UNIVERSITY OF CANTERBURY

Dear Lisa

Thank you for forwarding your revised documents to the Human Ethics Committee.

The Human Ethics Committee advises that your research proposal “The health and wellbeing of Pacific Island adolescents in Christchurch” has been considered and approved.

Yours sincerely

[Signature]

Isobel Phillips
Secretary
APPENDIX TWO

Letter to Schools

Lisa Hayes
MacMillan Brown Centre for Pacific Studies
University of Canterbury
P.O. Box 4800
CHRISTCHURCH

5-10-99

To: The Principal/Deputy Principal

Dear Sir/Madam,

I am a student at the University of Canterbury and I am currently researching adolescent health and well-being. In particular I am looking at nutrition and lifestyle habits of Pacific Islands adolescents in an attempt to recognise any behaviours that may contribute to non-communicable diseases in adulthood. I would much appreciate the opportunity to come to your school to administer the attached questionnaire, and gather data for this research project.

For my research I am approaching four Christchurch schools in an attempt to survey approximately 100 adolescents. To compare Pacific Islands adolescents with other Christchurch teens I require students of all ages and ethnicities, however I would appreciate being assigned to classes with a reasonable proportion of Pacific Islands students.

Questions in the survey cover the following topics: personal details, nutrition, nutrition and health, exercise and leisure activities, cigarettes, alcohol and other drugs, and health information and services. The survey will take thirty to forty minutes to administer to a class. Approval from the University of Canterbury Human Ethics Committee has been granted for this project.

To ensure that the students feel free to give honest responses it is essential that I can offer them complete confidentiality. It is therefore preferable that no teachers are involved with carrying out the surveys, although they can remain in the classroom while the students fill out the questionnaires. As a further privacy measure the students will not be required to give their names. Instead of asking the participants to sign a consent form I will inform them that by filling in the questionnaire they are giving their informed consent to participate in the survey, and to have the results published in the future. Any published results will not identify the students in any way.

Because this topic deals with health I understand that you may also require approval from your school board. If this is necessary, or if you require any additional information please contact me at university, phone 364-2987, extension 7977.

I hope you will be able to assist me in my research, and look forward to hearing from you.

Yours sincerely,

Lisa Hayes.
APPENDIX FOUR

Adolescent Health and Well-being Survey: Information Sheet

You are invited to participate as a subject in this Adolescent Health research project by completing the following questionnaire. The aim of this survey is to gather information about different health and life-style habits. The results of the survey will then be used to assess both the positive and negative health effects of these habits.

You will be asked a number of questions about the foods you eat, how you spend your spare time, and various other things that effect your health. There are approximately 40 questions in the survey and it will take you about half an hour to complete. To answer the questions you will need to tick a box, enter information into a space, or write a few words. Please answer carefully and honestly.

All answers are completely confidential and anonymous.

The information you give will be used for the purposes of my research only, and the answers will only be read by me. None of the information will be passed on to your teachers, parents, or any other parties. In the future the results will be adapted for my thesis, and may be published, but there will be nothing to link the information back to you.

For reasons of confidentiality, I am not asking you to provide any identifying information such as your names, or to sign a consent form. However, by filling in the questionnaire you are giving your informed consent for me to use your answers in my research, and publish any results I gather. You are welcome to withdraw your participation at any time, and also to withdraw any information you have provided. If certain questions make you uncomfortable please leave the spaces blank and continue with the rest of the survey.

My name is Lisa Hayes, and I can be reached at the University of Canterbury ph: 664-2987, extension 7977. Please feel free to contact me if you wish to discuss any concerns you may have about your participation in the survey.
APPENDIX FIVE

Adolescent Health and Well-being Survey

Section 1: Personal Details

1. Are you Male? □
   Female? □

2. How old are you? □

3. Which of these best describes your ethnicity?
   - European/Pakeha □
   - Maori □
   - Pacific Island □*
   - Asian □*
   - Other □*

   * Please specify country ____________

4. Were you born in New Zealand? Yes □ ▶ go to question 5
   No □

4a. Where were you born? ________________________________

4b. How long have you lived in New Zealand ________________

5. What language does your family speak at home?
   a. English □
   b. Maori □
   c. Another language □ ▶ which language? ____________
   d. English and another language □ ▶ which language? ____________

6. How do you best describe your living arrangements?
   a. Two parent household □
   b. One parent household □
   c. Extended family/whanau □
   d. Living with friends □
   e. Other □ ▶ please specify __________________________

7. How many people do you live with? □

8. In general, do you feel that you have a healthy lifestyle?
   Yes □ No □

9. Are you healthy? Yes □ No □
### Section 2: Nutrition Information

10. How often do you eat the following meals?

<table>
<thead>
<tr>
<th></th>
<th>more than daily</th>
<th>daily</th>
<th>every few days</th>
<th>weekly</th>
<th>fortnightly</th>
<th>almost never</th>
<th>never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast</td>
<td></td>
<td></td>
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<tr>
<td>Lunch</td>
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<tr>
<td>Dinner</td>
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<tr>
<td>Dessert</td>
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<tr>
<td>Snacks</td>
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</tr>
</tbody>
</table>

11. How often do you eat the following foods?

<table>
<thead>
<tr>
<th></th>
<th>more than once daily</th>
<th>daily</th>
<th>every few days</th>
<th>weekly</th>
<th>fortnightly</th>
<th>almost never</th>
<th>never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breads &amp; cereals</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Fruits</td>
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<tr>
<td>Vegetables</td>
<td></td>
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<tr>
<td>Meats</td>
<td></td>
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<tr>
<td>Fish</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Dairy products</td>
<td></td>
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<tr>
<td>Snack foods</td>
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<tr>
<td>Takeaways</td>
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<tr>
<td>Soft drinks</td>
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</tr>
</tbody>
</table>

12. Who is responsible for grocery shopping in your household?

- a. Your mother  
- b. Your father  
- c. Another adult  
- d. A sibling  
- e. You  
- f. Someone else  

   ➔ please specify who
13. Who usually cooks your evening meal?
   a. Your mother [ ]
   b. Your father [ ]
   c. Another adult [ ]
   d. A sibling [ ]
   e. You [ ]
   f. Someone else [ ] → please specify who________________________

14. On an average night, what do you eat for dinner? ______________________

15. When your family has people over for a meal, what is usually served?

16. Are any foods more important to you than others?
   No [ ] → go to question 17
   Yes [ ]

   16a. Which foods are more important to you? ______________________

   16b. Why are these foods important?

   16c. How does this affect your food choices?_____________________

17. What are your favourite foods____________________

18. If there are any other details about your diet that you would like to share please note them below (eg if you are a vegetarian)

____________________________________
____________________________________
____________________________________
____________________________________
____________________________________
____________________________________
Section 3: Nutrition and Health

19. How often do you do the following:

<table>
<thead>
<tr>
<th></th>
<th>more than daily</th>
<th>daily</th>
<th>every few days</th>
<th>weekly</th>
<th>fortnightly</th>
<th>almost never</th>
<th>never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Read food labels</td>
<td></td>
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<tr>
<td>Choose low-fat foods</td>
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<tr>
<td>Choose low-salt foods</td>
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<tr>
<td>Worry about your diet</td>
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<tr>
<td>Think about nutrition when choosing foods</td>
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</tbody>
</table>

20. Listed below are a number of diet-related health conditions. Please tick all relevant boxes to show if you, any of your relatives, or any other people you know have ever been diagnosed with any of these conditions.

<table>
<thead>
<tr>
<th>Condition</th>
<th>You</th>
<th>A friend</th>
<th>A family member</th>
<th>Someone you know</th>
<th>Don't know anyone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anorexia or bulimia</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Obesity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iron deficiency or anaemia</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coronary heart disease</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type-II diabetes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

21. Do you know any of the symptoms of iron deficiency and anaemia?
   Yes □ → please list the symptoms you know
   No □ → go to question 22

22. Do you know any of the symptoms of type II diabetes?
   Yes □ → please list the symptoms you know
   No □ → go to question 23

23. Do you believe that you have a healthy body weight?
   Yes □
   No □
   Don’t know □

24. Are you happy with your current body weight?
   Yes □ → go to question 25
   No □ → are you
     a. trying to lose weight? □
     b. trying to gain weight? □
     c. not trying to change? □
Section 4: Exercise and Leisure Activities

25. Do you believe that you are physically fit?  
   Yes ☐  No ☐  Don't know ☐

26. How often do you participate in the following activities?

<table>
<thead>
<tr>
<th>Activity</th>
<th>Daily</th>
<th>Most days</th>
<th>Weekly</th>
<th>Monthly</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walking</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Household chores</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Playing sport (either team or individual)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Exercising for fitness</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Watching television</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>School activities</td>
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<td>Homework</td>
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<td>☐</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>Paid employment</td>
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<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Church /youth group</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Hanging out with friends</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Reading books, comics, newspapers or magazines</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Minding other children</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Visiting family &amp; relatives</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

Section 5: Cigarettes, Alcohol and Other Drugs

27. Have you ever tried smoking a cigarette?  
   Yes ☐  No ☐

28. Have you ever smoked cigarettes regularly?  
   Yes ☐  No ☐  --that is, at least one cigarette per day for a month

29. About how many cigarettes do you currently smoke in a week?  
   ☐

30. Have you ever drunk alcohol?  
   Yes ☐  No ☐

31. Have you ever drunken alcohol regularly?  
   Yes ☐  No ☐

32. About how many drinks of alcohol do you currently drink in a week?  
   ☐

33. Have you ever had so much alcohol that you were sick or passed out?  
   Yes ☐  No ☐

34. Have you ever tried any other kinds of drugs such as solvents or marijuana?  
   Yes ☐  No ☐
Section 6: Health Information & Services

35. Have you ever received any information about nutrition, exercise, smoking and alcohol?  
   Yes ☐  No ☐

36. What were the sources of this information? Please tick all relevant boxes:

<table>
<thead>
<tr>
<th></th>
<th>Nutrition</th>
<th>Exercise</th>
<th>Smoking</th>
<th>Alcohol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Siblings</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parents</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Teachers</td>
<td></td>
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<tr>
<td>Guest speakers at school</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Pamphlets</td>
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<td></td>
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</tr>
<tr>
<td>School Counsellor</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Friends</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sports Coach</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dietician</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Nurse</td>
<td></td>
<td></td>
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<tr>
<td>Church Minister</td>
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<td>Supermarket</td>
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<td>Teaching kits</td>
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<td>Health Clinics</td>
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<td>Newspapers</td>
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<tr>
<td>Magazines</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other*</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

*please specify______________________________________________

37. About how often do you use health services in Christchurch?  
   ____________________________________________________________

38. Please list some of the Christchurch health services you most often use (e.g. nurse, doctor, school councillor) —
   ____________________________________________________________
   ____________________________________________________________

38. Who chooses the health services that you use?
   a. A parent ☐
   b. You ☐
   c. Someone else ☐ Please specify who (e.g. friends, a teacher) __________________________________

39. In general, are you happy with your access to health services in Christchurch?  
   Yes ☐  No ☐

Thank You For Your Participation In This Survey!
APPENDIX SIX

Aranui High Schools: Pacific Islands Students Information Sheet

Pacific Island Students at Aranui High School

About the Students:
Aranui High School hosts a large number of Pacific Island (PI) students. During 1999 there was approximately 120 recognised PI students at Aranui High School, both in the main school and also the Academy programmes. The majority of PI students at Aranui High School are from Samoan descent, with many of these students fluent in two languages, English and Samoan. Other minority PI groups include Tongan, Niuean and Fijian students. Most of the PI students at Aranui High School are pleasant and easy going. A large number of the PI students are musically talented whilst others are successful sports people.

Teachers in Charge:
Mrs Taufao Leota (upstairs K Block)
Taufao is a Samoan teacher and acts as the Pacific Island Liaison between school and home. Taufao has numerous years experience in this field and also spend part of her time tutoring Samoan at Linwood High School.

Mr Kaylib Gorrie (downstairs K Block, K3)
Kaylib is a second year teacher who has Samoan ancestry. He is in charge of the Samoan Culture Group and in 1999 was the teacher in charge of the Pacific Island Homework room. His teaching field is Science and Biology.

Homework Room 2000:
In 1999 the school initiated a Samoan PI specific Homework room. This programme was aimed at providing a quiet, safe, staffed facility for Samoan and PI student to study after school. It was a non-compulsory programme that was highly successful in the first half of the year. This year a similar but different Homework room will be running in K2 and K1 (referral room) during terms one and three. It is hoped that all students, and especially minority groups such as the PI students of the school, will use this time to study for exams, complete homework and utilise the Successmaker computer suite. This room will be staffed by Kaylib Gorrie and John McGowan (referral room teacher).

Samoan Culture Group:
In 1999 Mr Gorrie and Mrs Leota co-ordinated and oversaw the Samoan Culture Groups activities. Both teachers will be in charge of this group in 2000, with tutoring coming from Samoan community outside of the school. Many of the senior academy students will be acting as role models to the junior students and this group will take part in Open night, prize giving and inter-school competitions. In 1999 a Samoan Culture Group contract was initiated and it is hoped that 2000 will see a similar agreement between, tutors, students, senior leaders and teachers. If you have any questions regarding the Samoan Culture Group please feel free to contact Mr Gorrie or Mrs Leota.

Working with PI Students:
As previously mentioned most of the PI students at Aranui High School are pleasant and easy going. However some are a little more challenging. Many teachers here at Aranui High School have found their own methods of dealing with challenging PI students and no doubt you will too. Here are some possible strategies:
Expect from students the following behaviours (adapted from 1999 Samoan Culture Group Contract):

Behaviour
(a) Respect for leaders, teachers and tutors.
(b) Respect for all other group members.
(c) NO Foul language- in English or Samoan and NO Violence.

Samoan students may display a tendency to frequently display 'off task behaviours', and confrontation is not advised as this may result in further defiance. Removal of non-aggressors in confrontational situations is advised. Try and ignore bad behaviour as many PI students are starved for attention and will misbehave just to be noticed; instead praise good behaviour. Samoan students are quite competitive, arrange in class competitions, group cc operation activities are recommended. For more advice on this area see Mr Gorrie, Mrs Leota or Mr McGowan.
APPENDIX SEVEN - A

The Healthy Food Pyramid

EAT LEAST

EAT MODERATELY

EAT MOST
APPENDIX SEVEN - B

The Healthy Food Shell

EAT MOST
KAI KE LAHI
SOONA AI
KAI MAKA
KAI FAKALAHI
KAI LAHI
KANIA VAKALEVU
NA VUANIKAU

EAT MODERATELY
KAI FAKAFUOFUA
AI FUAFUA
KAI AKARAHIA
KAI FAKALAFALATI
KAI FAKATATAU
ME VAKRAUTA GA

EAT LEAST
KAI FAKASISI
AI FAAETEETE
KAI AKASI
KAI TAIOOLE
KAKUA NA KANA VAKALEVU