

**The implications of stress and the effect it has on
Māori who have type 2 diabetes in Aotearoa/New
Zealand**

by

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Whakatauki/Proverb

The following Māori whakatauki/proverb speaks succinctly to me as I faced the challenges which this study presented me with; I have cherished each attainment along the way.

**Ko te pae Tawhiti whāia kia tata,
Ko te pae tata whakamaua kia tina.**

Seek out the distant horizons, and cherish those that you attain.

The most important thing in life is people and their wellbeing. The following Māori whakatauki/proverb encapsulates this thought insightfully.

He aha te mea nui?

He tangata!

He tangata!

He tangata!

What is the greatest thing?

It is people!

It is people!

It is people!

Abstract:

In this review I will show the connection between diabetes, stress and barriers to care and the impact these have on Māori who have type 2 diabetes.

I have undertaken an extensive literature review, which focused mainly on indigenous peoples, and more specifically on Māori. I explored the connection between all the factors involved and combined these with reflections from my own clinical practice experience.

My conclusion will show that stress, diet, exercise and barriers to care place a heavy burden on the lives of Māori who live in Aotearoa/New Zealand, suffering from the dis-ease of diabetes. By empowering them to face their situation and see this from a wellness rather than an illness perspective, they can take control of their diabetes and so will live a healthy, longer life, ensuring quality time with their mokopuna/grandchildren.

Key Words:

Diabetes mellitus, Māori, stress, diet, exercise, barriers to care and Community health nursing.

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Aku mihi nui ki a koutou.

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Dedication:

To my Tupuna/ancestors who sat around me comforted and warmed me and whispered the words I could not find during those long hours.

To the patients and whanau/families who gave me the inspiration and trusted me as I grew in knowledge and continue to be challenged by the passion I have for them to lead a better life.

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Section 1:

Introduction to the study:

Introduction:

At present the incidence of diabetes among Māori and Polynesians is higher than in the rest of the population of Aotearoa/New Zealand (A/NZ). Statistics are indicating a dramatic increase in this disease in the years to come with similar disproportions. A history of colonisation, together with higher stressors, appears to be some of the reasons for the disproportionate incidence of diabetes among Māori. Good outcomes are required to change this balance.

Purpose of study:

This study is about the impact stress has on Māori who have diabetes, how it affects their diabetes management and, in particular, how it alters the blood glucose levels (BGL). The purpose of this study is to research relevant literature which will substantiate this. It is anticipated that the findings will concur with the experiences I have found in my practice.

Reason for choosing the topic:

The high incidence of diabetes among Māori lead to my present employment, which was the newly created position of Māori Diabetes Nurse Educator for Nelson, in January 2006. I chose to consider this particular avenue of study as it became more apparent to me, that many of the patients whom I visit have higher BGL when they are stressed. The high fluctuations in BGL lead my inquisitive mind to ask the question, "why?" I focused on this fact in my journaling and I soon discovered that stress had a very important part to play in these fluctuations. This helped formulate the title for my research report.

Background:

Definition of Diabetes mellitus:

Diabetes is about the dysfunction and failure of the islet beta cells in the pancreas. Laliberte (2004, p. 10) states that type 2 diabetes “is an endocrine disorder, a blood related disease and a metabolic problem.” While the history of type 2 diabetes usually starts with obesity leading on to impaired fasting glucose, some people who are obese do not get diabetes. The beta cell function starts to decline ten years before symptoms become apparent. In fact, 50% of beta cell function is gone by the time type 2 diabetes is diagnosed. Alongside beta cell dysfunction is peripheral insulin resistance, which causes the liver to produce more glucose and in turn increases hyperglycaemia. Adipose tissue affects the metabolism of glucose and fats due to the production of different substances. This in turn causes an increase in plasma free fatty acids, leading to the development of type 2 diabetes and hypertension. Adipose tissue synthesizes and secretes adiponectin which improves insulin sensitivity. Adiponectin production through diet and weight loss could stimulate this and so in turn could treat or protect people from type 2 diabetes (Clarke, 2005).

Definition of Blood glucose levels:

Mosby's (1994 p. 205) definition of blood glucose/sugar is “one of a group of closely related substances.....that are normal constituents in the blood and are essential for cellular metabolism, the concentration of glucose in the blood represented in milligrams of glucose per decilitre of blood”. Patients manage their diabetes by measuring their BGL and altering their intake of food and output of energy.

Definition of Stress:

Stress within the context of this review will also cover words like depression, anxiety, burden, worry, tension or trauma. Stress as defined by Brown (1993, p3091) is “a condition or adverse circumstance that disturbs, or is likely to disturb, the normal physiological or psychological functioning on an individual”. Stress is a normal factor in everybody’s life; it is how this stress is managed that is an important question.

Statistics for Māori who have diabetes:

Māori are the indigenous, Polynesian people of Aotearoa/New Zealand (A/NZ). The Ministry of Health (2002) predicts that by 2011, diabetes for the population of A/NZ will increase dramatically, especially in Māori and Pacific Island peoples. In 1996 a total of 81,491 people had diabetes. Sixteen thousand two hundred and five (19.8%) of these people were Māori. It is predicted by 2011 this number will increase to 144,913 in total, and for Māori 37,851 (26%). At present the Ministry of Health (2002) predicts that for each person diagnosed with Type 2 diabetes, there is one that has yet to be diagnosed.

It is estimated that approximately 140,000 New Zealanders have been diagnosed with type 2 diabetes and it is surmised that there are about another 50% who are undiagnosed. The Māori population seem to develop Type 2 diabetes approximately 10 years earlier than other New Zealanders, with a higher incidence around the age of 45 years. Māori are more likely to die from diagnosed diabetes than the rest of the population of A/NZ, with respective figures being 6 for men and 10 for women. “Higher than normal blood sugars lead to heart disease, kidney failure, blindness, male impotence, and stroke. In 2005, 113 diabetes-related lower-limb amputations were performed on Māori” (Te Karaka, 2007, P9). The health service of A/NZ offers a free annual diabetes check for everyone, sadly only 40% of Māori use this service.

The chosen study:

Format of presentation:

Having already quoted the statistics for Māori and type 2 diabetes, I will now determine the reasons why this disease is prevalent among Māori and make some recommendations to improve the health status of the indigenous people of A/NZ. I have identified the following elements which contribute to the prevalence of diabetes among Māori. They are stress, barriers to care, diet and exercise, relocation from original homelands. My main recommendations are improved diet, regular exercise, reduction of stress levels, better monitoring of BSL, reduction of alcohol intake, cessation of smoking and education of health professionals on culture and minimising barriers to care.

Literature review:

I have undertaken an extensive literature review, using the key words: type 2 diabetes, Māori, stress, diet, exercise and barriers to care. I extracted this data from literature via Victoria University Library, Google, relevant books, magazines and health journals. The articles and literature targeted were mainly focused on indigenous peoples, and more specifically Māori.

Analysing the literature vis-à-vis with my experience;

I combined this literature search with reflections from my clinical practice experience which will lead to my recommendations. My analysis of the literature focused mainly on all the key words used in my search and compared this with my practical experience, which refined my recommendations for a wellness rather than an illness focus. These recommendations, if carried out, will ensure better quality of wellbeing, which in turn will lead to longer life, a lower incidence of diabetes among Māori and this will guarantee Māori more time with their mokopuna/grandchildren.

Section 2:

Historical and Cultural Influences on Health and Well-being.

Literature Review:

There are similarities between Māori and other indigenous peoples' health throughout the world. Within this section I will discuss these similarities.

Indigenous Health:

From the literature sourced, type 2 diabetes affects other indigenous peoples throughout the world in a similar way to Māori. For example, Karter, Stevens, Herman, Ettner, Marrero, Safford et al (2003) did some research in the United States of America (USA), on why people did not carry out self-monitoring of blood glucose (SMBG). The greater barriers were language and financial ones. Many of these people, who identified as indigenous, had lower education levels, lived in poorer neighbourhoods, and also received the least intensive pharmacological treatment. Perhaps there was bias from the providers, as many of these people reported being smokers and heavy alcohol drinkers, much the same as some of the Māori community in A/NZ, - almost as if to say, 'if you do not care about your own health, why should I?'

Socio-economic status can greatly impact on indigenous peoples' health as discovered by Gracey (2007) who talks about the poor health of Indigenous people in Australia. In some instances this is reflected in A/NZ in the Māori community too. Poor health can be seen as another barrier to care when;

“social factors like poverty, inferior housing, severe overcrowding, poor standards of domestic and community hygiene, racial discrimination, educational disadvantages, high unemployment rates and heavy dependence on social welfare along with limited access to affordable and nutritious food and poor understanding of health and nutrition all increase the risk of chronic disease in indigenous people” (p 16).

Welch (2006, p21) talks about this in the article he wrote for the Listener. He says “Māori are dying younger than Pākehā....because they are poorer, colder, sicker and more socially disadvantaged, are less likely to get help and – not least – because they live in a predominantly Pākehā world”. This all stems back to those three words ‘racism, discrimination and colonisation’.

Whilst there is a level of poverty in A/NZ which does impact on Māori who have diabetes, it does not reflect the same level of poverty as in South Asia where there is the story told of a “mother who sold her five-year-old child to buy medicines for her diabetic husband” (Ramachandran 2001, p 1).

Literature research also shows a high incidence of diabetes among indigenous peoples. A study compared the health status of indigenous populations of A/NZ and USA to that of the dominant European/White populations. Sadly, the findings showed that overall Māori were more disadvantaged than their Native American Indian counterparts in the USA. Both showed an almost threefold higher diabetes prevalence than the majority population of their respective countries. Interestingly, the mortality rates for diabetes were lower in A/NZ than in the American Indians/Alaska Natives (Bramley, Herbert, Tuzzor, & Chassinl 2005).

Migration has been shown to be a contributing factor to an increased incidence of diabetes. Possibly the migration of Māori from their original homelands could be put into this category of migration. Diabetes affects people in different ways and cultural perceptions can also have a great influence. In Viet Nam, where Mull, Nguyen, & Mull (2001) did a study in which they found that diabetes is relatively uncommon, there is an increasing prevalence of this disease when Vietnamese migrate to the USA, which is perhaps attributable to higher calorie diet and more sedentary lifestyle. Many Vietnamese believe that worry and sadness, instigated by stress, brought on diabetes. In their own country Vietnamese perspire heavily and they believe that this removes toxins. In the USA they perspire less, due to a more regulated climate and air

conditioning, which they believe, makes them more vulnerable to the onset of diabetes. An added factor is the pressures of migration.

According to Mull et al (2001, p4), "Clinic physicians said that in their own practice, a strong cultural belief that worry can worsen diabetes symptoms, led them to avoid lengthy discussion of complications". Many ethnic groups see health as a state of equilibrium and that excess and deficiencies cause illness and "diabetes is often believed to be caused by eating excess sweets (particularly sugar) brought on by stress and worry, or a form of punishment for immoral behavior" (Tripp-Reimer, Choi, Kelley, Enslin, 2001, p16). This immoral behavior could be seen within the Māori culture as friction or disagreement within the whanau/family. This is an example of how cultural beliefs can have an impact on diabetes.

Another reason that ethnic groups could be suffering from this chronic disease, and needs to be considered, is the "thrifty gene". Many indigenous people, over many generations, farmed, hunted, gathered and fished for food. In so doing they experienced times of feast and famine. To adapt to this changing need the 'thrifty gene' developed. This allowed for storage of fat during the feasting times to see them through the famine times (Durie 2003; Clarke 2005; Gracey 2007; Ramachandran 2001, and Vines 2001).

Most indigenous peoples have a holistic approach to the universe, similar to Māori, where everyone is connected to each other. Within the American Indian communities, there is a perception of wholeness and interrelatedness that is basic to their culture. They see themselves as being at one with all of creation and not as separate individuals as Western society does (Durie 1994). Like Māori, American Indian peoples see themselves as being made up of four aspects, much like the Whare Tapa Wha Model - four walls of the house (Durie 1994): mental, physical, emotional and spiritual. "Prior to the 1950's, type 2 diabetes as a chronic illness in Native communities was a rare occurrence" (Struthers, Kaas, Hill, Hodge, et al. 2003, p2). Because of

the world view model of native communities, type 2 diabetes can have a major impact on both the individual, family and the community, which can create a state of disequilibrium for all.

Original cultural belief systems were greatly affected by colonisation which brought with it a western model of health.

Effects of colonisation:

Colonisation had a huge impact on Maori health. For Māori, the epidemic of diabetes started back in the early 1900's, when they were moved from their marae, their homeland, to urban dwellings. One whakatauaki/proverb emphasises this, as stated by Dr Pita Sharples (2007 p 2-3);

“He tangata I kakahuria ke te rimu noana e kore e ora ki te noho tuawhenua; which means literally: a person covered with seaweed will not survive dwelling inland. It gives a sense that for a person accustomed to living by the seaside and feasting on kaimoana/seafood, they will have difficulty in adjusting to living inland in an entirely different environment”.

When Europeans came to these lands, A/NZ, things changed, and today we see that indigenous/ethnic people have become reliant on fast foods, and high-risk behaviours like poor nutrition, alcohol abuse, cigarette smoking and a sedentary lifestyle (Gracey 2007). Westernised lifestyles also dictated regular meal times which Māori did not/do not often adhere to.

Durie (2003) states that, pushed by the European to low lying villages, Māori left behind them fern roots, kūmara, fish, birds and berries, and they progressed to foods like flour, sugar, tea, salted pork, potatoes, along with smoking, alcohol and drug misuse, less exercise, over-eating, and long-term unemployment. While infectious diseases declined and population decline slowed, urbanisation brought about other health risks with this change in life-style and genetic influences. Coupled with this, is the fact that most Māori lived in the more deprived

areas in A/NZ. This fact remains true today also. Durie's research shows that people who live in deprived areas and have low income are more prone to diabetes.

Colonisation and cultural imperialism have created an historical backdrop for obesity, resulting in diabetes. Smoking and physical inactivity have also created negative health in Māori, such as diabetes. This is often referred to as post-colonial traumatic stress syndrome (Durie 2003).

Another one of the results of colonisation is that, we, as Māori, "live in a western environment, largely dominated by Caucasian influences, and Māori, Pacific and Asian physiologies struggle to cope" (Black, 2006, p23). While most European's philosophy is to do well or do right in the care which they give, at times understanding where a person is coming from inhibits the care health professional's give. This misunderstanding often happens unintentionally. This can create a barrier not only between nurse, general Practitioner (GP) and other health care team members, but also between whanau/family too.

Whilst the clock of colonisation cannot be turned back, we still need to look at the results of this episode in history, learn from it, and move forward more positively, particularly in the area of diabetes, and take a more holistic approach ensuring well health for Māori.

Diabetes and Maori:

For Māori, like other indigenous peoples around the world, diabetes has increased mortality and morbidity rates. "In the 1996-1997 New Zealand Health Survey, Māori were more than twice as likely as Pākehā to be diagnosed with diabetes (8.3% compared to 3.1%) and 4.5 times more likely to die from diabetes" (Durie 2003, pg.186.)

Sanderson (2004, p S42) states "type 2 diabetes mellitus has reached epidemic proportions in New Zealand". The need to address this is apparent. In minority ethnic groups this proportion is higher. Therefore a more holistic approach is needed, to understand and come to grips

with a knowledge of cultural and physiological issues, so that a more successful diabetes education can be implemented, ensuring whanau/family and individuals' health beliefs and cultural practices are understood by all health professionals.

Statistics obtained in May 2007, from Al Norrish, Public Health Analyst, point out some interesting facts about diabetes in the Nelson-Marlborough (NM) area as shown below:

“Type 1 diabetes incidence.

There were 136 new diagnoses of type 1 diabetes in NM between 1996-2005, of whom 6 identified as Māori (4%). Māori are therefore under-represented in type 1 diabetes incidence, which is consistent with national trends.

Type 2 diabetes prevalence.

There is an estimated 495 Māori with type 2 diabetes living in NM in 2006 (source: MoH prediction formula). By contrast with type 1 diabetes, Māori are over-represented in type 2 diabetes prevalence.

Get-checked attendances.

During 2006, 160 Māori attended “Get Checked” reviews (152 for type 2 and 8 for type 1 diabetes). This represents 31% of the estimated number of Māori in the district with diabetes. It is approximately half the annual review coverage rate for non-Māori and this has changed little over the period 2002-06.

Of the 160 Māori who attended an annual review during 2006:

- 30% had poor glycaemic control, defined by an HBA1c \geq 8% (n=48) (note that 18% also had an HBA1c \geq 9%)*,
- 73% were obese with a BMI $>$ 30 (n=117)*,
- 65% had a retinal examination within 2 years (n=104),
- 20% were smokers (n=32)*,

- 57% were taking angiotensin-converting enzyme (ACE) inhibitor medications (n=91),
- 57% were taking statin medications (n=91),
- 39% had microalbuminuria (n=63)*.

For those factors marked with an asterix *, there was a significant difference between Māori and non-Māori that indicates an increased risk of diabetes complications for Māori.

Most of these trends have changed little over the period 2002-06, except for the prescribing rates for ACE inhibitors and statins, which have increased steadily over time”.

Get-Checked is a Ministry of Health initiative to encourage people who have diabetes to have an annual check-up with their GP’s, this is a free service.

The Nelson Marlborough District Health Board (NMDHB) hospital admissions records about diabetes were unreliable because firstly, the patient may not have been admitted with diabetes being the primary cause of admission and secondly, ethnicities may not necessarily be recorded correctly.

When a patient is hospitalised the primary symptom is often easily diagnosed and treated and if a secondary condition exists, for example diabetes, this is often not taken into consideration or diagnosed as another disease that is also present. Given the number of Māori who have a psychiatric diagnosis, there is a need to closely monitor them for other health issues, as they are at high risk for the symptoms of diabetes. Regular screening and monitoring of diet, exercise and weight gain will alleviate the risk of “glucose homeostatic disturbances and dyslipidemia” (Poulin, Cortese, Williams, Wine, & McIntyre, 2005, p5).

Not having a complete health assessment when having a diagnosis of diabetes is a barrier to care. While the focus is on diabetes, other signs

of, for example, depression, can be overlooked, minimised or misdiagnosed. The other side of this also needs consideration. Being diagnosed with depression or a mental illness can often mean that other health concerns are put to one side and not considered when treatment is chosen, as discussed in Saver, Van-Nguyen, Keppel, & Doescher (2007). Depression is sometimes not acknowledged in the diagnosis of diabetes and vice versa. Literature is growing that documents racial disparities in mental health treatment. Some clients are receiving antidepressants which could lead to hyperglycemia and carbohydrate craving; this appears to be happening for racial minorities like Latinos in America (Sambamoorthi, Olfson, Wei, & Crystal, 2006). I have not found any studies which state that this is happening in A/NZ. After reading this particular article, I spoke to the nurses who are the main caregivers of mental health clients and whanau/family, whom I visit, and give education on diabetes to. They are aware of these links between some medications, hyperglycemia, carbohydrate craving and their relationship to depression and diabetes. At times these nurses struggle with other health professionals, in trying to broaden their scope of knowledge encompassing the aforementioned factors.

Depression, in conjunction with diabetes, can be seen as a psychosocial barrier to care due to the long term outcomes, such as poor glycemic control, cardiovascular status and the diabetes complications that may well arise. This can trigger low levels of self-management, due to the depression. Diabetes-related quality of life is low self-efficacy, which in turn can lead to low levels of family social support (Glasgow, Toobert, & Gillette, 2001). Many Māori, who have diabetes, sadly experience this. They know they have diabetes, yet they continue to live their lives oblivious to it, as they do not see any outward signs of this disease.

Māori need constant encouragement to regularly monitor their BGLs in order to better manage their diabetes. A study of Māori, Pacific Island and Europeans in A/NZ by Zgibor & Simmons (2002) divided the barriers to taking BGL into five areas: internal psychological,

educational, internal physical, external physical and external psychological. The results showed that external physical barriers were the strongest. The findings showed that finances and access to services would affect patients in their ability to care for their diabetes. Whilst finance/cost is not normally a major factor barrier to care in A/NZ, it does need to be taken into consideration; cost does become a major hurdle for people of lower socio-economic status in other countries where medical insurance is required (Karter et al, 2003). People in A/NZ on a benefit of any kind, do struggle with the financial barrier.

Many Māori are overweight, eat the wrong food, and lead sedentary lives. This is not helped by professionals giving particular information, for example, dietary goals, when the information does not take into consideration the cultural or educational aspect of that whanau/person's life.

“Approximately 52% of New Zealand adults (age 15 years and older) and 31% of children (ages 5-14 years) are overweight or obese...prevalence of overweight and obesity are highest among Pacific peoples, followed by Māori, and then New Zealand European and others” (Utter, Scragg, Schaaf, & Fitzgerald, 2006, p50).

There is much research written about the disparities existing among the different cultures in A/NZ, in particular, Māori, who have the poorest health status.

In saying this, Professor Tony Blakely, Director of the Health Inequalities Research Programme at Otago University, Wellington, states that the “death rates linked to ethnic and socio-economic factors were no longer widening and may even have narrowed between 1996-2004. This contrasted with increasing disparities throughout the 1980's and 1990's” (Fairfax, 2007, p.14). Whilst this is true the higher death rates for Māori compared to European remain unacceptably high.

Much of what has been written so far could well be brought together by the diabetes causal continuum (Durie, 2003). This could give relevance to the problem which diabetes presents for Māori. The fact is that there is no short term answer to resolving this epidemic which is shortening our whanau/family life.

The diabetes causal continuum according to Durie (2003, p.187) is the interaction of a variety of causative factors. At one end of the scale are aspects such as “abnormal molecular and cellular processes”, whilst at the other end are institutional and governmental policies. Personal histories and standard of living conditions are in between these two ends of the spectrum.

Table 12.1 Diabetic Causal Continuum

Short-distance factors			Long-distance fact
<i>Cellular causes</i>	<i>Personal causes</i>	<i>Ecological causes</i>	<i>Political and Constitutional causes</i>
Metabolic factors	Obesity	Socio-economic	Macro-policies
Genetic influences	Smoking	disadvantage	of state
	Lack of exercise	Housing	Position of
	Nutrition	Access to goods	Indigenous peoples in society
	Lifestyle	and services	

(Durie 2003, p 187).

More and more Māori are being diagnosed with this potentially killer disease. Would the Māori models of health be an avenue of thought to consider as a way of reducing the incidence of diabetes among Māori?

Māori models of health:

There are a number of models of Māori health; for example, Te Wheke, Ngā Pou Mana and Te Whare Tapa Wha. I will give a brief description of each model.

Te Wheke – The octopus:

The concept of Te Wheke as a Māori model of health was discussed by R. R. Pere at the Hui Whakaoranga in 1984. The eight tentacles of the octopus represent a particular dimension of health: Wairuatanga (spirituality), Taha Tinana (physical), hinengaro (the mind), Whanaungatanga (extended family), Mana Ake (uniqueness of individual), Mauri (life principle), hā a Koro mā a Kui Mā (positive awareness of ancestors), whatumanawa (healthy expression of emotion), Waiora (total wellbeing) the last being the eyes. The head and body represent the whole family unit. (Durie 1994).

Ngā Pou Mana – four supports:

This health model includes: retention of mana, cultural integrity, a sound economic base and a sense of confidence and continuity. The four supports are Whanaungatanga (family), taonga tuku Iho (cultural heritage), te ao tūroa (physical environment) turangawaewae (land base). This places greater emphasis on the external environment and the significance of oral tradition. (Durie 1994)

Te Whare Tapa Whā - four walls of a house:

For Māori, health is not an individual or separate matter, as contextualised in te whare tapa whā model (Durie 1994). This model compares health with the four walls of a house - all four being necessary for the health and well being of the person. The four walls are Wairua/spiritual, Hinengaro/mental, Tinana/physical and Whanau/family. (Durie 1994)

I find this a very suitable model to use within my practice.

Section 3:

Practical Implications and Recommendations.

Outcomes:

Implications of stress:

As stated earlier stress is a part of everyone's life; the way in which patients manage stress and their diabetes is the key to their wellbeing.

This study will offer health professionals, who work with Māori who have diabetes, a deeper insight into identifying the stressors which clients have and ways of managing this in their everyday lives.

While there is no such thing as a stress free life, even though we all hope to attain this, managed stress is actually good for us. Laliberte (2004, p.219) states "Too much stress isn't good for anyone, but it may be especially bad for people with diabetes".

"There are two types of stress – emotional and physical", states Pask (2007, p. 20). Firstly there is emotional stress, which happens to most people at some point in their lives. For some, dealing with this can result in eating the wrong food. It is called comfort food, for example; biscuits, chocolate and lollies. It is food that has a high Glycaemic Index and is high in carbohydrates, fat and energy. While this can give you a sense of calm and comfort, it only lasts for a short time. Because this produces immediate reaction, we often reach for more of the same kind of food. This sets off guilt and anger at oneself and initiates a chain of events which is hard to break. For people with diabetes, learning to deal with this is an important skill and vital for well health. Curbing this way of dealing with stress can help alter actions taken in the past. Good examples of changing behaviour could be talking to someone, doing some physical activity or going for a walk.

Secondly there is physical stress. This can often occur after a serious injury, such as a car accident. At times like these, more protein and

energy is needed for the body to heal. The type of food intake at this time requires the correct nutrients to ensure physical repair.

Research studies on the effects of stress and diabetes are recorded back in the late 1980's and early 1990's; "both the etiology and the control of diabetes.....and chronic abnormalities in diabetic blood glucose caused neuro-psychological impairments" (Cox & Gonder-Frederick, 1992, p. 1). Some researchers believed in the relationship between depression and diabetes and also speculated that these may be a factor in symptoms such as elevated cortisol, decreased norepinephrine and serotonin, or cerebrovascular disease (Cox & Gonder-Frederick, 1992).

It is well recognised that stress in many cases does have a negative effect on health, and that clients with type 2 diabetes have an increased risk. "The experience of stress is associated with the release of counter regulatory hormone and energy mobilization often resulting in elevated glucose levels" (Surwit, van Tilburg, Zucker, McCaskill, et al, 2002, p. 31). Also Mendez & Belendez (1997) quote from Balfour, et al. (1993, p.1370) who state: "There is also some evidence that stress can indirectly affect metabolic control by interfering with adherence behaviour, which in turn affects metabolic control". It is almost like a catch 22 syndrome, where the stress affects the diabetes and the diabetes affects the stress. "Stressful life events are associated with elevated BGL and poor self-care" (Siamak 2005, p1) in many people who have type 2 diabetes.

Ismail, Winkley, & Rabe-Hesketh, (2004, p.2) did a "systematic review and meta-analysis of randomised controlled trials of psychological interventions to assess the effectiveness of psychological therapies in improving glycemic control in adults with type 2 diabetes". This came about because they felt there was an association between adherence difficulties, psychological problems and poor glycemic control. Within A/NZ this appears to be an ongoing concern too. While the findings showed "that adjuvant psychological treatment can be effective in

improving certain features of diabetes control” (p.11) it was not clear what therapy was of most benefit.

Part of the psychological stress with patients is not being able to deal with the diagnosis of diabetes; studies show that people with diabetes are affected twice as much as people without it (Peyrot, Rubin, Lauritzen, Skovlund, Snoek, Matthews, and Landgraf, 2006). Yet stress is not always recognised and therefore not treated. Within the primary care setting visiting the GP when one is well does not happen. I have often found within the (NMDHB) area where I work, that yearly check-ups look at the physical person and not at the mental well-being of that person. The impact of cost and time for visits is noticeable within A/NZ.

Outlined in the latest Diabetes magazine (Winter, 2007), in the wellbeing section, are the implications that depression can have for people with diabetes. These include:

- Increased blood glucose levels
- Higher risk of heart, eye, kidney and nerve complications
- Higher risk of premature death
- Less likelihood of following medication or healthy eating plans
- Reduced social activity and quality of life
- Lower productivity at work or school
- Decreased physical activity and increased likelihood of obesity
- Greater likelihood of smoking or alcohol abuse. (p12)

For Māori part of the stress they experience is to do with accessing care. For many this is a barrier, as suggested by Baxter, (2002, p.51) “There is likely no one solution that will address the range of barriers to access of health care for Māori with diabetes”. There is not one stereotype of Māori; just as there is not on stereotype of non-Māori. The deciding factors of health are all the underlying conditions which

encourage or promote good health or alternatively damage health, as specified in the document TUHA-NZ (2002, p21) “The conditions in which people live and work affect their health and longevity”.

He ta kakaho e kitea

He ta ngakau, e kore kitea

A bend in the kakaho (reed) may be seen

A bend in the heart cannot be seen, (Māori proverb)

As barriers to care can cause stress to patients and thus hinder effective management of this dis-ease the next section will look at this problem in more detail.

Barriers to care:

Every person has a culture and within this structure all are prone to prejudice. Everyone sees the world and its peoples through their own cultural lens. It is important that the medical profession take this important factor into consideration in their provision of health care, treatment and healing as West (1993) & DuBray, (1998) state in Struthers et al (2003). Struthers et al (2003) also say;

“Culture is as much a structure as economics or politics; it is rooted in institutions such as families and communities. This in turn affects individuals, family, or a community response to a crisis, such as a chronic illness, like Type 2 diabetes” (p. 9).

Misunderstanding and sometimes unconscious bias occurs on the part of health professionals, who must take some responsibility for these disparities (Bacal, Jansen, & Smith, 2006). Funnell (2006) also says that having a good understanding of various ethnic cultures would improve patient-provider relationships.

Prejudice, such as racism by health professionals, can hinder education too. Their prejudice is often in the form of inherited prejudice about a particular culture, and how the health professional perceives

the world of the client and whanau/family. As stated by Vincent, Clark, Zimmer, & Sanchez, (2006) who did a study on Mexican Americans in the USA, the education is focused on the white; middle-class population and the ethnic people's understanding or perception is not taken into consideration.

While education is the key to self care and self management, barriers to this include lack of time by the GP or nurse, the information given is sometimes inadequate, and/or not targeted to the level of understanding of the client and whanau/family.

Effective communication with Māori regarding diabetes prevention needs to take into consideration the following well-documented barriers to change, namely budgetary constraints, low literacy levels and information which is not appropriate to tikanga/customs Māori. (Win, ND).

Ethnocentrism has also been woven into our health system, sometimes unconsciously, and this can create barriers to peoples of other nationalities, disregarding their values and belief systems, unintentionally. Ways in which this is done includes the following:

- Patients who do not practice healthy behaviors “don't care about their health”
- Biomedicine is “right”
- Science is the only appropriate basis for practice
- Traditional beliefs should be changed rather than built upon
- People should and will follow directions given by health practioners
- Adherence failure is the patient's problem

(Tripp-Reimer et al 2001, p.14).

There continues to be a need to consider cultural factors when caring for people with diabetes. The patient's culture is seen as a problem for

some health providers. For many decades now the importance of people's culture has been recognised. Often this factor is not addressed in practice. Rather, we "problematize" the patient and the culture. Ethnic people's culture is marginalized and this minimizes the health providers' responsibility to address the cultural implications of the patient. As Jansen & Smith (2006) discuss, the barrier could be removed if the health professionals would recognise that western medicine alone does not hold all the answers.

As Struthers et al (2003, p.9) state "Cultural knowledge leads to cultural sensitivity and culturally appropriate interactions and interventions. This creates a therapeutic relationship between the practitioner and the community". Culture is an integral part of people's lives and completes the woven tapestry, together with economics and politics. This in turn weaves culture into all social institutions including whanau/families and communities. As a result this has an impact on how individuals, whanau/families and communities react or respond to crises which can and do include chronic illness, such as type 2 diabetes.

There are also the cultural expectations and attitudes between male and female; older and younger generations see things differently too. So cultural expectations can be generational as well as gender based. In my work I give education and awhi/support to all clients who present themselves to me, irrespective of gender or age.

Whilst cultural knowledge is an important component in the treatment of diabetes, medical institutions, like the primary health care (PHC) or district health board (DHB)'s, need to be aware of their own structures which continue to be a barrier for many Māori (Jansen & Smith, 2006). Once out of the emergency situation, less than optimal care is provided and barriers seemingly are put back in place. This is demonstrated by the lesser number of blood tests ordered by doctors in the PHC areas, as well as minimal effective treatment plans, less referrals to physiotherapy and rehabilitation in general. The provider/patient relationship has something to do with this in that communication

between them is not always clear. When people do not share the same cultural background, there is often less discussion because of communication barriers, and less empathy and thus a lesser standard of care and reduced attention to building and maintaining a good relationship. This in part comes from the health care system which originates from a dominant Western/European culture, which values individualism as opposed to whanau/family oriented decisions. "The lack of a shared background or understanding inhibits the therapeutic relationship and this in turn impacts on the care received" (Jansen & Smith, 2006, p.300). This is often done unintentionally by health professionals because of a lack of cultural understanding or social harmony.

The Diabetes Attitudes, Wishes and Needs, (DAWN) study was used by Peyrot et al (2006) to gain the perceptions of patients and providers of care for people with diabetes. This study was done over 13 countries. The care of people with diabetes was seen by both patients and providers as less than optimal and that the chronic-care model has yet to be fully implemented in all countries where the study was done.

The conclusion of Simmons, Lillos, Swan, & Haar, (2007, p.492) in the study they did on barriers to diabetes care, states that patients thought that psychological issues were the most important barriers to diabetes. Examples of this were "strictness of the diabetes regimen, including dietary, exercise, self-glucose monitoring, and clinician review and medication activities". The international DAWN study confirms these findings. Funnell's (2006, p.155) analysis of the reports published in the DAWN studies in 2005-2006 state that the barriers to adequate glucose control and self-management behaviours were to do with psychosocial problems, which most health professionals have intuitively known for many years. Yet still the current health care system is not well "equipped to handle and support chronic illness care".

Toobert, Glasgow, Strycker, & Barrera, (2003) used The Problem Areas in Diabetes (PAID) scale to measure quality of life in a study they did in the USA, together with the Mediterranean Lifestyle Programme (MLP) and others, to see if a group of postmenopausal women with type 2 diabetes, could change their lifestyle and so improve their glycemic control. Adherence was found to be a significant barrier to coping with diabetes.

Many Māori in Nelson, who have diabetes, also struggle with adherence. This can and does lead to poorer health, which adds to the burden they already carry.

Implications of diet and exercise.

As stated above, by Durie (2003), many Māori left the way of life they were accustomed to as hunter gatherers. Dietary intake and lifestyle changed in the post colonial era also. This was a contributing factor in diabetes becoming very prevalent among Māori. Today health professionals are recognising the implications of this lifestyle change and are beginning to address diet and exercise as a means of decreasing the incidence of diabetes among Māori and at the same time, using these means to help Māori who have diabetes to manage the disease better.

Within my practice, medical treatment is only one aspect of care. There is an educational component, centred on diet and exercise, which I see as a necessary inclusion on the patient's appointment. This is part of the whare tapa wha health model, as discussed earlier.

A factor in keeping to a new diet when diagnosed with diabetes can create feelings of anger, frustration and or sadness. This is caused by having to give up the kinds of food that the patient likes to eat and can cause them to feel worse about themselves, (Vincent, et al, 2006).

Six ways to end emotional hunger, as suggested by Pask (2007) are: to eat breakfast, lunch and dinner every day; make it a habit to eat only when seated at the dining table; remove temptation; know your

weakest times and places; understand what prompts you to eat; and write a list of different choices of things to do rather than eating.

A study undertaken in A/NZ looking at the dietary habits of Māori and Pacific Island tamariki/children, showed that tamariki/children and youth who skip meals, eat more snacks and buy food to compensate for what they do not get at home (Utter, 2006). Previous to this another study by Scragg et al as cited in Utter (2006), showed A/NZ children who missed breakfast and lunch were more likely to be obese and had a high body mass index. Encouraging whanau/family to have breakfast, lunch and tea, as discussed above, could well enhance healthier lifestyles.

Within my work I promote a healthy diet for a person with diabetes and encourage the whole whanau/family to use this diet also as it is healthy for them as well. In the past, and to some extent the fact remains today, having to prepare a different diet for whanau/family who have diabetes is stressful for both as discussed in Mau, Glanz, Severino, Grove, et al (2001), Glasgow et al (2001) and Leichter, Dreelin, & Moor (2004). Also the cooking smells of unsuitable food for people with diabetes could and can create a desire to eat this type of food. If they give into this temptation to eat this type of unsuitable food it will increase the stress and increase the BGL as a result.

Eating healthily and doing regular exercise improves and extends one's life considerably. Diet and regular exercise are important components in everyone's life, particularly for Māori, who are prone to being overweight and sometimes lead sedentary lives. As reported in New Zealand Guideline Group (2003, P. 79) "Māori with diabetes may face particular challenges in making dietary change". To accept this challenge some Māori avoid hui and social gatherings to maintain a healthy life, but in doing so feel socially isolated, as they consider it to be rude, not to eat the kai/food that is offered by their hosts.

Given the sedentary lifestyle which many Māori have adopted over the past couple of decades, it is difficult to find innovative ideas to motivate them to improve their health and general lifestyle. It is well documented

“that physical activity and physical fitness can reduce mortality and morbidity” (Schrop, Pendleton, Mc Cord, Gil, et al, 2006, p.2).

Win, (ND) did a study on the diabetes prevention videos available in Christchurch A/NZ in relation to Māori needs and understanding. This was done to find the gaps in nutrition-related educational videos for Māori and if there was a need to up date them. She states:

“Māori share a unique cultural heritage, but the heterogeneity of this culture must be recognised when attempting to effectively communicate with Māori.... And the way to meet the needs of Māori, culturally specific characteristics, namely language, tikanga Māori and role models need to be addressed in order to culturally tailor health messages so they are acceptable and effective for the targeted Māori audience” (p.2).

Whilst the production of educational and motivational tools in an appropriate format is very important, targeting cultural belief systems is just as important and can be a challenge, because, in most Pacific Island peoples and to a lesser degree in the Māori communities, slim is not the ultimate goal to be attained. Rather the opposite is true, where a more robust size is very acceptable. This also explains why Māori and Pacific Islanders consume large portion sizes at mealtimes, which includes more protein, total fat, saturated fat and cholesterol (Metcalf, Scragg, Tukuitonga, & Dryson, 1998).

Another interesting perspective on a more robust size is highlighted in a recent study published in the New England Journal of Medicine from the USA, which was conducted over a period of thirty two years. This quantitative analysis look at “the nature and extent of the person-to-person spread of obesity as a possible factor contributing to the obesity epidemic” (Christakis & Fowler, 2007, p.370). The findings showed that obesity spreads through social ties; that is if a person became obese there is a 57% (95% confidence interval (CI), 6 to 123) chance that their friend would become obese too. It also stated if one sibling became obese there was a 40% (95% CI, 21 to 60) that the other also

would. And if one spouse became obese there was a 37% (95% CI, 7 to 73) chance that the other would also. Interestingly, people of the same sex had a more effect on each other than those of the opposite sex. "The spread of obesity in social networks appears to be a factor in the obesity epidemic" (Christakia & Fowler, 2007, p. 378).

For Māori making a change to their diet is especially hard, given the fact that whanau/family play a central role to the collective and individual wellbeing. Many admit that Māori food isn't good for their diabetes, and while it depends on how it is cooked, diabetes still impinges on their lives. Income and the purchase of certain types of food is at times very difficult for many Māori, as most belong to low income households and the food requirements of the whole whanau/family comes first (Ministry of Health, 2003).

For the Māori community it is a constant problem to attend Hui or Tangi at one's local marae when you have diabetes. While many marae are changing the food they prepare and the method of preparation for these gatherings, the expectation remains, kai moana (food from the sea), pork, mutton, chicken, beef, and all the trimmings, including desert, will be on the table. To exclude oneself from these occasions can affect the hinengaro/mental wellbeing, not to mention ostracizing oneself from whanau/family. This is an ongoing challenge as the expectation is to attend these hui/meeting and or tangi/funeral, and no single answer in the short term will give a satisfactory outcome.

One study, carried out on the East Coast of the North Island of A/NZ, looked at lifestyle factors in relationship to whanau/family who were newly diagnosed with type 2 diabetes. This group was seen as a high risk group and it was felt by the researchers that it was a good representative, cross-section of Māori population in rural A/NZ. Findings showed that whanau/family who lived in a rural area, were more active physically than their counterpart who lived in towns or cities. The importance of giving positive rather than negative messages was emphasised. Linking traditional dietary intake from the past, like

fruits, vegetables and whole grains, together with exercise and weight loss would be beneficial (Mann, Tipene-Leach, Pahau, Joseph, Able, McAuley, et al, 2006).

Another study was carried out on an urban marae to ascertain the affects of a lifestyle programme. Information was disseminated on education about diabetes, a healthy lifestyle support programme, which included the importance of exercise sessions. The intention was to capture 'hard-to-reach' and 'high-risk' populations. One of the outcomes was to persuade the marae to run the programme itself; this was achieved as well as making the marae a smoke-free venue. The concern still remains, about how to connect with those 'hard-to-reach' whanau/family, (Simmons & Voyle 2003).

The cooks at the wharekai/eating house at local marae need to promote healthy eating habits, as opposed to providing fatty foods for hui/meeting and tangi/funeral, in the same way as the local schools are now beginning to introduce and provide healthy foods for students. If the cooks continue to send out the wrong messages about fatty foods, nothing will change. Perhaps this is an issue which Marae Trustees could address. It is recognised that a marae has a special place and meaning for Māori. This could be the starting place, as suggested by Simmons & Voyle (2003) for empowering Māori to constructively work at maintaining a good equilibrium in healthy living. Peer support on marae, to maintain a healthy lifestyle and give up unhealthy ones, will see healthier generations in the future. Within the area of Nelson, we have an urban marae, similar to the one in this study. It has been and continues to be the hope of the staff to promote more activities around healthy lifestyle and better well-being, by encouraging whanau/family to step up to this challenge and be a part of the hui/meetings that are run there.

There has been very little breakthrough as a result of the health promotion experts' educational information about diet which they have disseminated to communities. It is only in recent years that nutritional

standards are beginning to be focused on rather than just safety and contamination issues. One wonders, what would have happened, as discussed in Durie (2003), if the Tohunga Suppression Act of 1907 had not been passed into law. Would traditional healing practices, including tapu and noa, have helped to combat health problems in today's world and helped put into place a better social environment? For example; could a rāhui/ban be placed on food types, which are tasty but harmful? And could a rāhui/ban be imposed on food types due to their abundance and the fact that they pose a health risk?

Durie (2003, p.237) also posed another interesting theory relating to the mouth being declared a tapu organ in an effort to restrict the amount of food and drink consumed, basing it on necessity. Harmful agents such as – excessive food, high-fat diets, alcohol, cigarettes and caffeine could be minimised. Also “if the mouth were tapu and children were brought up to treat it accordingly then as adults they might be a little more cautious about its role as the gatekeeper for health”.

At times, appointments are made for whanau/family to see, for example a dietitian. The amount of information given at this appointment is often too much to absorb and the whanau/family goes into information overload. Often the result is that they go away confused and give up trying to implement the diet recommended.

Seeking a thorough medical whanau/family history is also important. Once diagnosed with diabetes, whanau/family need regular education on the implications that this will have for them for the rest of their lives. Special emphasis needs to be placed on healthy diet and regular exercise, as obesity is a very real risk. As stated throughout the literature, a major factor in the development in type 2 diabetes is obesity and the lack of exercise.

Some whanau/family think that by restricting the amount of food eaten in a day will solve their weight problems and they try to achieve this by missing out on meals. Whilst this may cause weight loss, it can contribute to their diabetes unwellness. Another factor is some miss

meals because they belong to a lower socio-economic group as discussed in Utter et al (2006).

Diet alone is not sufficient to control diabetes. It is only one aspect of a holistic approach to managing the disease. Another important factor is physical activity. Physical activity is one of the most effective ways of controlling diabetes, (Laliberte, 2004). Muscles use glucose for energy, in the same way that a car uses fuel. Once the supply of glucose in the muscle is used, the body moves glucose from the liver and then the blood stream, hence BGL decreases. For Maori with type 2 diabetes, knowing and understanding this concept and putting it into practice with regular physical activity, will enhance the quality of their life.

Some of the obstacles that stop Māori from improving their lifestyle seem self-evident to many people, yet this is not a simple process for them. Whanau/family always comes first. This can be a major stumbling block. Lack of time contributes to this because of a busy lifestyle. Unhappiness with weight and appearance often prevents a person from joining a gym or taking up walking as a form of exercise. For some, getting started is not the problem. Staying motivated and persevering with that decision to make changes appears to be a stumbling block for many. Not having the energy, feeling constantly tired, lack of whanau/family support or someone to care for the children, changeable weather if walking, together with safety concerns, can all compound the lack of motivation and intensify 'the just can not be bothered' attitude.

Exercise, together with a changed diet, is one of the cornerstones of managing diabetes; research shows it does improve glycemic control, (Barclay, 2006). Also Black (2006) says, that while the public health message has been about diet, exercise and weight control, it has been hard for individuals to put this into practice.

Win (ND) did a research on what visual messages about nutrition, via video, were available and suitable for Māori. The research showed gaps in the current educational videos, so recommendations from this

study suggest that new and up to date videos be made. While many of the suggestions have already been discussed within this text - like decreasing fat intake, increasing fibre intake, portion control and barriers to change - like cultural belief, motivational issues have not. These include “Māori music, humour, language, Māori people and Māori kai/food as ways of including tikanga/custom Māori” (p.4). It is important too that the videos include positive messages which support change slowly. This also needs to focus on Māori nutrition, based on a whanau/family approach.

It is very difficult to resist the marketing temptations in the supermarkets and local dairies where convenience foods fill the shelves. Strong regulations need to be put into place for the food industry to take new healthy messages on board “to produce a tasty but healthy diet” (Vines, 2001, p.30). This of course could be to the producers’ interest, as one day these same people could be forced to pay damages like the tobacco companies, due to the products making consumers fatally ill. Tuck shops and cafeterias in schools have already begun this process of providing healthy food for students.

Snacking is a common trait among Māori and Pacific Island children especially when they have skipped breakfast. This in turn leads to higher rates of obesity and diabetes. I recently admitted a 12 year old on to my books who presented these habits. As she was 20 kilograms over weight for her age, the GP was concerned that this child presented with symptoms that initially looked like diabetes, particularly as her grandfather has diabetes. Over the coming months, education on diet and exercise will be given to this child’s whanau/family to prevent diabetes from occurring.

A team from the University of Otago, led by Endocrinologist, Dr Jeremy Krebs, has begun a two year study, funded by The Health Research Council, to investigate what is the best diet to reduce weight, in people with type 2 diabetes and having ascertained this, how best to keep the weight off. This sort of study has never been done before and its

results could have major implications in controlling obesity and escalating diabetes in A/NZ (Milne, 2007).

Importance of whanau/family:

Whanau/family is an important central aspect of Māori life. Within the context of this review the word whanau is used. This is a Māori word and means family or extended family. Within the Māori context, client, patient, person are always supported by other whanau.

For many whanau/family stress is a part of their everyday life, in fact many would not know life without it. I believe that they not only carry their own stress but the stress of their tupuna/ancestors as well.

Many patients and whanau/family suffering from stress/depression also suffer from “lack of motivation and hopelessness about the future.” This is “in addition to physical manifestations of fatigue, insomnia and disruptions in appetite” (McGinnis, McGrady, Cox, & Grower-Dowling, 2005, p.2148). Some days no amount of encouragement or bantering can assist a person out of such stress/depression. The sun could be shining, the birds could be singing in the trees outside the window, but the ‘diabetes overwhelms’ is still the governing factor.

Struthers et al, (2003) talk about the people they studied being overwhelmed with the diagnosis of diabetes too. Diabetes ‘overwhelms’ would be a key barrier to self care and general quality of life for many people who have diabetes. It can “often trigger a negative cascade” (Rubin, 2001, p.3). It affects the whole whanau/family emotionally and genetically and “the way all those people relate to the person with diabetes affects how that person manages it” (Rubin, 2001, p.5 & 6). The health care system does not allow time or money for the emotional process, which “disallows the necessary transformation from a previous state of health to living with and managing a chronic illness”.

The hectic schedule of many general practitioners (GP) within most communities prevents them from spending enough time with client and whanau/family. One aspect of this inhibits the doctor or nurse from

really getting to know the whanau/family and patient in an indepth manner, and to ascertain how they are truly coping with diabetes and its complications. Part of the indepth whanau/family knowledge, should include stress within relationships at home or within the extended whanau/family, as discussed by Trief, Morin, Izquierdo, Teresi, et al (2006) in the study they undertook in the USA. This study dealt with the relationship between marital quality and diabetes outcomes. They found that “marital stress, less marital cohesion, and less marital satisfaction” (p.327) correlated with poor BGL and higher blood pressure. Their findings indicated that health care providers should support people with diabetes in stressful relationships, which in turn would lead to improved BGL.

Glasgow et la (2001, p.38) in their review of the literature, puts a different perspective on whanau/family, by saying it can be risky to rely on family and friends as they may well have “limited information about diabetes regimens and so therefore be unable to accurately evaluate the extent of the patient’s adherence”. The whanau/family may not have been at all the educations sessions given to the patient. Perhaps what information was given could well be inconsistent with the values and beliefs of the family and friends. The patient could well be “keeping something” from whanau/family so as not to upset routine in the whare/home or more importantly refrain from adding any further stress to the whanau/family as a whole. By inhibiting their thoughts and feelings about their dis-ease they could well be protecting themselves and others from the painful reality of diabetes, (Susanna, 2002). In so doing they will elevate stress and in turn elevate BGL.

Whilst hiding the disease from whanau/family can be unproductive, and this combined with their lack of education, can be a stumbling block, the language, used by professionals is often too technical for the average lay person to understand. They are often too embarrassed to question the professional in case this would make them look or feel stupid.

The patients' focus is on lifestyle and social problems, whereas the health providers' focus is on the pathophysiological aspect of education about the disease. One of the outcomes of the study by Vincent et al (2006) was the fact that many of the respondents and families felt that they were kept in the dark through lack of accessible self-management information. This posed a major barrier for them. Knowledge, however, does not always help self care as discussed in Simmons (2001), if there are other things going on in a person's life; for example, financial issues, whanau/family issues or cultural commitments. If any of these issues are present, then self care may not be a priority. It is not enough to know what diabetes is. It is important to educate patient on how to self care and to deal with complex health systems. It is imperative to support patient and whanau/family to navigate through the maze of the health care system. The biomedical culture through which health care is delivered can make it difficult for people with diabetes to self care. Ethnic cultural groups struggle with self care.

Part of the cultural struggle for the patient is whanau/family who can easily escape this dis-ease by going shopping or spending time with friends etc. whereas the person with diabetes lives with it twenty four hours a day, seven days a week, and three hundred and sixty five days a year. While doing all the hard work of monitoring blood glucose levels, sticking to a different lifestyle that is different to the people around them, it can just seem too hard. While doing this it does not always have the outcome they expect, as described by Rubin (2001, p.2) "continuous, unpleasant demands and unpredictable results" in what he calls "diabetes overwhelmus": this "often triggers a negative cascade" and people just end up thinking "to hell with it". Often stress kicks in at these times, having to measure blood sugar/glucose levels, remembering to take medications, take regular exercise, and being attentive to what their food intake is, can lead to more depression due to feelings of being overwhelmed and anxious (Lustman, Anderson, Freedland, de Groot, et al, 2000).

Many whanau/family within the area where I work, do not see themselves as sick or unwell, until something happens that necessitates the need to go to the doctor. Even then not all their ailments are discussed due to the fact that the doctor is too busy or that the client would not like to impose upon the doctor's time. When visiting the doctor, whanau/family may be informed that they are a *bit* overweight, or their cholesterol is a *bit* high, or they have a *bit* of diabetes, so the message they get is 'it is not so bad, or do not worry about it now' and they usually make a joke of it. I have gleaned from patients, when discussing their health in general, the above responses about some health professionals and so the patient is reluctant to further impose on these health professionals.

Practical Implications from the literature search:

As a result of my literature search I have deemed the following implications relevant to my concluding recommendations.

The learned helplessness model of depression would seem to suggest that it reinforces a person's inability to cope with future stressful situations which could be controlled. The inability to cope can then lead to depression as a result of which there is poor self-management and lack of compliance with treatment. Therefore, negotiating contracts for treatment options and controlling negative thought patterns have been found to be extremely effective for increasing empowerment in Māori with diabetes (Clarke, & Goosen, 2005).

Several studies show that negative emotions such as anxiety, anger, depression and stress can be linked to poorer health (Richman, Kibzansky, Maselko, Kawachi, Choo, & Bauer 2005, p. 427) and that positive emotions can be "associated with health outcomes beyond the effects of negative emotions" and can in fact enhance health and wellbeing. While this study was undertaken in the United Kingdom (UK) this can resemble much of what has happened in A/NZ in the past and to some extent, to the present day. Emotions from past generations/tupuna, affect how many Maori present themselves today,

as discussed in Durie (1994). Walking alongside patients within my practice, challenges me to look for other ways of encouraging and supporting them to let go of these negative emotions from the past and walk in today's world, ensuring tamariki/children and mokopuna/grandchildren will not carry this burden too.

Psychological services have recently been introduced to the Nelson region for people who have diabetes. This type of service and its impact on people with diabetes has been well researched. One such study by Leichter et al (2004) from the USA supports the potential benefits of psychological services, as does Simmons et al (2007), and suggests that they should be an integral part of the multidisciplinary health care team. One of the positive outcomes as a result of the introduction of this service has been improved BGL. As discussed previously, psychosocial issues influence BGL.

Research has shown psychological treatment can be effective in the primary care setting, and thus can improve blood glucose levels, as Peyrot et al (2006, p.1) state "Psychosocial strategies are important parts of the diabetes care provider repertoire; understanding their determinants may facilitate efforts to increase their use...mental health treatment is associated with reductions in depression and HbA1c levels". Within the area in which I work, it is becoming apparent that spending time listening to and gaining an understanding of where the client and whanau is coming from on the day of the visit can often build stronger, trusting relationships and in turn a willingness on the client's and whanau/family part to listen to the advice given.

Empathetic listening with a cross-cultural ear would enhance the health professional's knowledge of the patient. But as Tripp-Reimer et al (2001) state, if the health professional is unskilled cross-culturally, then community leaders need to be involved. Using paraprofessionals is of paramount importance in networking with different cultures to establish links with different ethnic minorities. It is important not to overuse these key people as burnout could be the result. Tact is also required on the

part of the paraprofessional as they could be seen to acquire too much information about their own community.

There is no such thing as a single comprehensive plan for everyone who has diabetes. Individual plans discussed and agreed upon with patient and whanau/family would be a good place to start, once diabetes has been diagnosed. As suggested by Hjelm, Bard, Nyberg & Apelqvist (2005) in a study they did in Sweden on beliefs about health and diabetes in men of different ethnic origin, they recommend that teaching needs to be individualised and that gender and cultural differences need to be taken into consideration. Within my practice the tane/men are my biggest challenge, as they do not see unwellness until a major symptom presents itself.

Another aid to better self management deduced from the study undertaken by Schwedes, Siebolds, & Mertes, (2002) in Germany and Austria, using the SMBG together with an eating diary and counselling programme, showed an improvement in BGL, a changed HbA1c and a better understanding and awareness of the disease of diabetes.

In a study undertaken by Simmons, Upjohn and Gamble (2000) it was noted that calendar blister packs (CBPs) for medications could play a role in improving metabolic control. This ANZ study did not indicate that this was additional to other improvements in care.

The setting up of a support group for people who have diabetes can be another way to encourage adherence. The strength of a group can help solve any problems through concerted effort. When everyone is working towards the same goal, it becomes easier to achieve, and as a consequence, this goal is more easily sustained. "With consideration to the important place of marae in Māori culture, it is proposed that marae offer particular potentialities as venues for health screenings, health education, and healthy lifestyle programmes and initiatives" (Simmons & Voyle 2003, p.48). Whilst this is the ideal, there is no one single solution to the challenge of this increasing incidence of diabetes.

As discussed earlier whanau/family is an important central aspect of Māori life. I have found that when attending appointments to see health professionals having whanau/family with the client ensures two sets of ears listening to the education-consultation, and is also a support for the client, ensuring a better chance of compliance to suggestions of changing lifestyle and eating habits, as discussed in Mau et al (2001); having 'ohana (family) support' ensured regular physical activity, and diet changes. The stress of having to make such changes in one's lifestyle is shared. Yet there is another side to this stress of whanau/family support, where the 'nagging wife' or the 'demanding husband' or the 'bossy daughter' becomes too much for the person with diabetes, and so they give up the changes for better and longer lifestyle and revert back to previous habits.

Another factor is the economic situation; the general cost of living can hinder client whanau/family from accessing the health professional (Tripp-Reimer et al, 2001). We are fortunate in A/NZ to have most of our medicines and some medical care paid for, but there are still instances where finance, the lack of it or bad financial management, causes further stress to the client and in turn the whanau/family. For some Māori the cost of going to the GP for repeat prescriptions is beyond their budget. A client of mine just couldn't bring herself to go to the GP as she had a bill of over \$300 and was too embarrassed and scared that they would turn her away. Although there is no cost for the yearly 'get-checked' in A/NZ, she still could not bring herself to go for this check-up in anticipation of the perceived outcome that might happen. Often, too, Māori just do not seek help unless their condition interferes with their social or personal activities of daily living.

Chronic conditions, such as diabetes, are not always well-cared for in the institutional health care system. The fact is, that most healthcare systems are designed to deal with acute health problems rather than chronic health conditions, and so provision for chronic conditions, such as diabetes, is inadequate. The NMDHB recently released (August,

2007) a Draft Document entitled Maximising outcomes for People with Chronic Conditions in which they state:

“Chronic conditions account for more than 60% of all deaths and their prevalence is growing. Māori, those people with lower socio-economic status and Pacific Islanders are disproportionately affected by chronic conditions. This results in earlier morbidity and premature mortality for this section of our population as a result of this disease burden” (p.3).

Something else the NMDHB, in fact all DHB's throughout A/NZ, could take into consideration, is the fact that many Māori are seen as having close social networks, Christakis & Fowler (2007, p. 378) “people are connected and so their health is connected”. Both good and bad behaviors can spread over these social ties, so one persons' well health could spread to others. Obesity needs to be approached as a public health problem and not just as a clinical problem. This approach could be more cost effective in the long run.

The creation of dependency for people who have diabetes should be avoided at all costs. Management of diabetes should not create dependency on the provider of the service. For Māori “dependency has been part of the post-colonisation experience, and all too often, it has been aggravated by poor health” (Durie, 2003, p.194). Self management should be the goal which every provider should strive to achieve for their clients. This should encourage self-determination on the part of the client which is a predeterminent for wellness. “The prevention of diabetes will not be possible on a wide scale until Māori and other indigenous peoples are able to exercise a greater measure of control over their own environments and their own destinies” (Durie, 2003, p. 194).

Is it not better to avoid the ambulance at the bottom of the cliff, as Gracey (2007) states, to put money into prevention, by promoting healthy living and by earlier detection and intervention, rather than spending limited government resources on expensively treating

conditions that become chronic, disabling and life-threatening? This has begun to happen in the Nelson area. The NMDHB has put aside money to be used over the next five years to promote healthy living. Two ways of doing this is encouraging physical activity and healthy eating. They are using positive health messages, instead of negative ones, through advertising and supporting community activities, as suggested by Mann et al (2006). The positive benefits from these advertised messages, like the importance of weight loss, through exercise and healthy eating habits, such as vegetables, fruit and wholegrain, far out weigh the negative messages surrounding diabetes.

Recommendations:

As a result of my literature research I have been confirmed in my opinion that stress, diet, exercise and barriers to care all have a significant impact on Māori with diabetes in particular their BGLs.

As stated earlier, Māori have the highest mortality and generally poorer health compared to other New Zealanders irrespective of socioeconomic position (Ministry of Health, 2006). Many discussions have taken place in many parts of this country to determine ways to improve this. One improvement could be to encourage more Maori into the health workforce and at the same time enhance the quality of the services provided. The statistics show these are slowly increasing from 3.7% in 1992 to 7.5% in 2004 (Ministry of Health, 2006, p. 47), but more incentives are needed to up-skill and increase this workforce both within the area of Māori providers and mainstream. Perhaps then the health of iwi/tribe, hapu/sub tribe and whanau/family will improve.

For Māori, as suggested in the Evidence Based Best Practice Guidelines (Ministry of Health, 2003) it is important to include whanau/family when putting together a health plan, given the socio-economic circumstances they may be living with. If possible, a Māori provider is sometimes more acceptable and preferable to achieve a better outcome. A Māori provider would have a better understanding and appreciation of the cultural belief system around diabetes and so

may be better able to negotiate change and result in improved outcomes for Māori.

There is an attempt by the Māori community to accept the challenge of diabetes within their sphere of influence. There is an implicit understanding that Māori who have diabetes have strayed from their own Māori cultural influences, and need to be encouraged to return there and feel a pride in their Māori cultural roots once more (Sachdev, 1990).

The literature has demonstrated that stress affects BGL in Māori who have type 2 diabetes. Life-style changes including weight loss, altering their diet, and regular exercise, together with regular monitoring of levels, will improve and increase the span of life in general. The health care system needs to place client and whanau/family in the centre of the wellness continuum. It is imperative that they hear what the patient and whanau/family are saying and what support they need in achieving their goals, rather than imposing a general plan from the professional's perspective.

Within my work environment, being able to support patient and whanau/family on a one-to-one basis, combined with regular contact, has helped, as discussed by Clark, et al, (2004). They also state that when information is personalised and relevant, it will be thoughtfully processed and will stimulate change, especially when the individual's problems and concerns are addressed.

There is a well known adage that knowledge is power, but, as Simmons (2001, p.11) rightly points out knowledge "does not necessarily create an ability to enhance self-care if other priorities and barriers exist". Learning about caring for one's self is not easy for many Māori when they have grown up with an attitude of giving unselfishly of themselves and helping other whanau/family. Whilst Simmons notes that counselling, guidance and support should have a high priority in the treatment of diabetes; many Māori might find this difficult to accept because of their cultural upbringing. They would probably find it easier

to accept the clinical and educational support around diabetes as this does not impact on their personal lives at a deep level. At the same time, the approach to Māori must be more patient-centred if there is to be a successful outcome.

A further complication I discovered in my practice substantiated by other research (Saver, et al, 2007), is that patients receive limited or no education about depression related to their disease, nor are they well-informed about treatment options, nor are their treatment preferences elicited from them. In some cases depression is not identified as this would require more time, effort and money on the part of some health providers. A mental health professional on the team, as suggested by Rubin (2001), would be a great asset, as the team would then be informed and made aware of emotional issues as they present themselves.

In another study undertaken by Shah, & Bijal Mukesh (2006) in the USA, the findings indicate that when stress is related to elevated BGL there is a high risk of depression. Yet when depression is treated it has a “favourable affect on glucose regulation” (Williams, Clouse & Lustman, 2005, p.84) and also delays the onset of diabetes for people who have pre-diabetes. The management of stress and how to cope with it can assist people to live with diabetes without an impaired quality of life. Treatment of depression can promote health and life can even be extended. Williams et al (2006, p.85) goes on to say, “Apart from its effects on specific diabetes end points, depression remains an important focus of clinical care because of its beneficial effects on mood, functioning, and quality of life”. The writers of this article also acknowledge the fact that some of the findings are limited and speculative in nature.

Easy, achievable goals presented by carers are necessary to encourage patients to change their lifestyle. Rubin, Peyort, & Siminerio (2006) also hypothesized that patients who had easier access to health professionals as well as better relationships with these providers would

have a more positive outcome. Funnell (2006) did a review of the DAWN studies undertaken in thirteen countries. Many of the findings are interwoven within the text of my thesis. In 2003 a summit was held in London to look at the findings of these DAWN studies; the five goals identified were:

- “Promote active self-management.
- Enhance psychological care.
- Enhance communication between people with diabetes and health care providers.
- Promote communication and coordination among health care professionals.
- Reduce barriers to effective therapy.

Concrete actions to achieve these goals were identified as:

- Raise awareness and advocacy.
- Educate and mobilize people with diabetes and those at risk.
- Train health care providers and enhance their competencies.
- Provide practical tools and systems.
- Drive policy and health care systems change” (p. 155).

The DAWN study was also used by Bradshaw (2006) for her PhD in the USA. Her findings showed that 41% of the people she surveyed reported poor psychological well being. When she introduced the resiliency training method to diabetes educators, it enhanced the education programmes they gave to patients. The result fostered resilience in the people with diabetes and increased positive life outcomes for them and they became more self-directed in their diabetes care. Rubin, et al, (2006) also used the DAWN study across ten countries; the nearest country geographically to A/NZ was Australia. The results showed better patient-provider collaboration; for

example easier access to education and support, together with psychosocial needs being understood and addressed, this brought better regimen adherence. The researchers believed that these elements “could help protect the health and well-being of the growing population of patients with diabetes” (Rubin 2006, p. 1254).

Durie (2003) has suggested four strategies to combat diabetes in Māori in A/NZ. Outlined below are the strategies he proposes.

Table 12.2 Strategies for Addressing Diabetes in Indigenous Peoples

<u>Strategy</u>	<u>Focus</u>
Macro-political interventions	Elimination of socio-economic disadvantages: recognition of indigenous peoples and Indigenous rights
Adaptation to Modern environments	Changes to lifestyle through the use of codes for living; improved nutrition
Treatment	Early detection; effective screening; providing services that are clinically and culturally relevant
Empowerment	Increased access to education; research, self-management and self-determination

(Durie, 2003, p.190)

Attention at both government and individual levels is required for these goals to be attainable. Diabetes Nelson and similar organisations throughout A/NZ need to continue to lobby the Government to bring about the macro-political interventions mentioned in Durie’s suggestions above. It is very difficult for individuals to bring about governmental change without the support and backing of national organisations like Diabetes New Zealand.

Cultural awareness and the delivery of care in a culturally appropriate manner, is a highly desirable attribute in health professionals. Misunderstanding and unconscious bias by some clinicians could be improved by developing policies relating to cultural competencies, thus ensuring that patients will feel more comfortable within the health care setting. This in turn will lead to better health outcomes (Bacal, et al, 2006). Brown, Garcia, Kouzekahahi & Hanis (2002, p.260) tested “culturally competent diabetes self-management education interventions..... and addressed specific cultural characteristics of Mexican Americans”. The participants were mainly Spanish speaking. Some of the characteristics of the people in this study were and are similar to what many Māori and Pacific Island people experience; for example, low socioeconomic status, limited literacy, and limited access to health care providers. The results of this study showed that increased knowledge of diabetes given in one’s own language can lead to the improvement in metabolic control.

Vincent (2007) suggested a similar outcome would occur for Mexican Americans with the introduction of culturally competent diabetes self-management programmes. Modes of delivery would also be important, taking into consideration the persons’ preferred learning style, whether it is visual, auditory or experiential as suggested by Tripp-Reimer, et al, (2001), in a review of literature on cultural barriers to care. They also suggested more emphasis be placed on the daily management of illness as opposed to a glut of information on pathophysiology. This is one concern I have as an educator, being as passionate as I am about the information I have to impart, I would like them to have all the information I have, yet realise they can not take it all in at one session.

Sadly it is well known that there is no such thing as a short term fix with diabetes, so anything that promotes long term compliance is to be highly recommended. Martin, Schneider, Heinemann, Ludwig, Kurth, Kolb, & Scherbaum (2006) conducted a study in the USA on the relationship between self-monitoring of blood glucose (SMBG) in type 2 diabetes and long-term outcomes. While there were a number of

different ethnic groups within this study the percentages were not given. This cohort study showed by doing SMBG there was less diabetes related morbidity and lower mortality rate in people with type 2 diabetes. An important role for the client and whanau/family is to have good diabetes awareness, remain compliant with medication, diet, exercise, SMBG and be empowered by the health professional in the management of their disease. Martin, et al, (2006, p.277) showed variations in SMBG where, on the one hand, it was related to “significantly higher levels of distress and worries”, whilst on the other, it was “shown to be associated with improved medication compliance”. The conclusion showed that SMBG had “the potential to change patients’ attitudes to their disease”. The doctors who take time to discuss the use of SMBG and its effects have the potentiality to motivate clients to change their lifestyle behaviour. SMBG can be used both as a daily monitoring tool and a self-motivating method of intervention. I can concur with these results from my own practice.

Many of the factors associated with diabetes can be eliminated by improved diet and exercise. Complications of micro-vascular progression can be delayed by lifestyle changes, (Clark, 2004). Many patients on the Māori diabetes register in Nelson are unable to do much physical activity, due to the progression of their disease, age or their general condition. They have been encouraged to do chair exercises, using their arms and legs, while sitting and watching television or listening to their favourite music.

Other than the genetic component, type 2 diabetes is largely caused by lifestyle factors; such as high fat and sugar diet leading to obesity; and a sedentary lifestyle combined with lack of exercise, alcohol and smoking. Yet it is well documented, that people who have diabetes and exercise regularly will improve their glycaemic control. Exercise also has a protective effect on cardiovascular disease (Barclay, 2006). Physical activity will reduce mortality and morbidity in people who have chronic health conditions. It also reduces stress levels and gives people a sense of accomplishment (Schrop, 2006). Whilst all of this is well

documented and very true, as mentioned previously, it is a 'catch 22' situation, in so far as the person who is overweight finds it difficult to do exercise and therefore is unable to control their BGL.

Personality assessment techniques could be another way of assessing risks of poor glycaemic control, as was done in a study by Lane, McCaskill, Williams, Parekh, Feinglos, & Surwit, (2000). The findings of this USA study showed high altruism scores, low neuroticism scores and the personality's facets of anger, hostility, anxiety, depression, self-consciousness and vulnerability. People who exhibit a higher degree of neuroticism are inclined to experience negative emotions including worry, frustration, guilt, sadness, and hopelessness. The study suggests that a little stress is a good thing and being selfish, irrespective of family responsibilities, is an important trait to have controlled BGL's. The preliminary results from this study would suggest that personality traits can affect glycaemic control in diabetes and in the future may lead to new insights into the understanding and management of diabetes. For Māori, who have a different world view, this could be an extremely difficult concept to cope with or comprehend as they believe in interdependency rather than independency, as discussed above.

Conclusion:

As a result of my literature research I have been confirmed in my opinion that stress, diet, exercise and barriers to care all have a significant impact on Māori with diabetes in particular their BGLs.

The literature has shown that Māori are more prone to blood glucose level changes because of their low socio-economic status, obesity, sedentary life style, alcohol and nicotine addiction, fast food and general diet. This has been confirmed by my experience in my practice as a Māori diabetes nurse educator.

I believe in the vital importance of motivational learning/teaching for Māori, preferably tikanga/Māori way. The lack of perseverance among Māori towards long term goals is a challenge so I would recommend a one on one motivational trainer in the battle against diabetes. Psychological services would also be an important adjunct in this same battle and I would see them automatically becoming a part of the multidisciplinary team.

While Māori caring for Māori is an important ideal concept, in saying this, there are not at present, enough Māori health professional providers to fulfil all Māori health needs and so the most suitable and best trained provider will be the next appropriate choice.

I work in the Nelson area as an educator for people with diabetes, in particular Māori, and as I come from the perspective of a wellness, rather an illness philosophy, I would like to use every opportunity to encourage my patients to lead a more fulfilled life enabling them to spend more time with their mokopuna/grandchildren.

The closing words of Dr Pita Sharples to The Royal New Zealand College of General Practitioners Annual Conference 2007 entitled Meeting the Challenge, Kokiringia te Wero sums up the challenge:

“We want you to know that we are here to learn from you, as to how we can work together to urgently improve the ways in which the general practitioner community can work with Māori to better respond to the health needs of Māori” (P.6).

Section 4:

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