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Ngā Ara Whaiora: He Whakaaro Noa.

A study of Māori Health Care Use: An Evaluation of
the Andersen Model.

A thesis presented in partial fulfilment of the requirements for the degree of
Doctor of Philosophy in Psychology at Massey University.

Turitea Campus, Palmerston North, New Zealand.

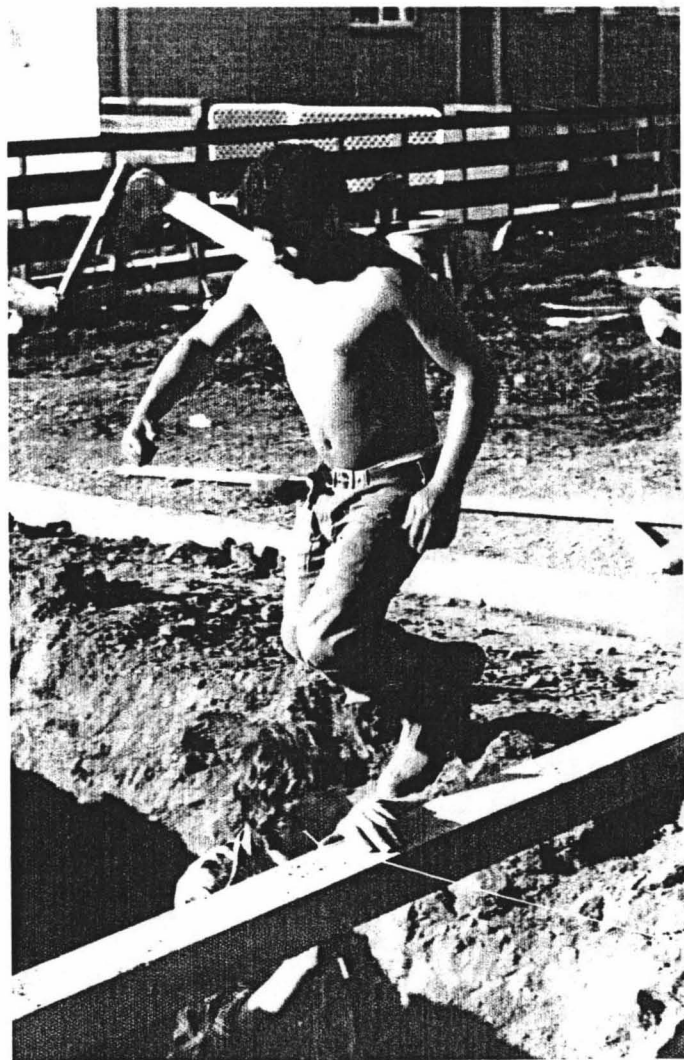
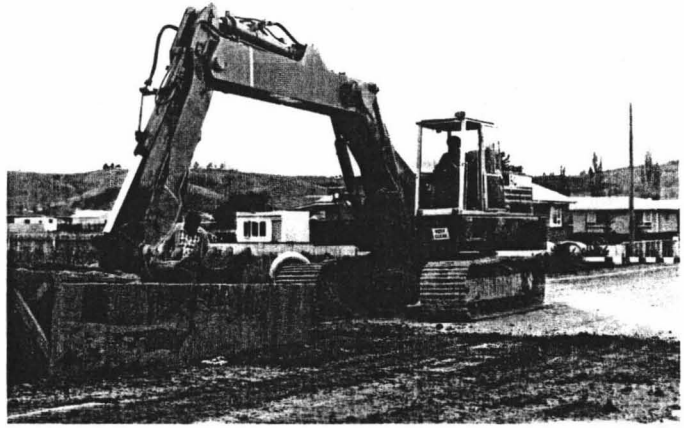
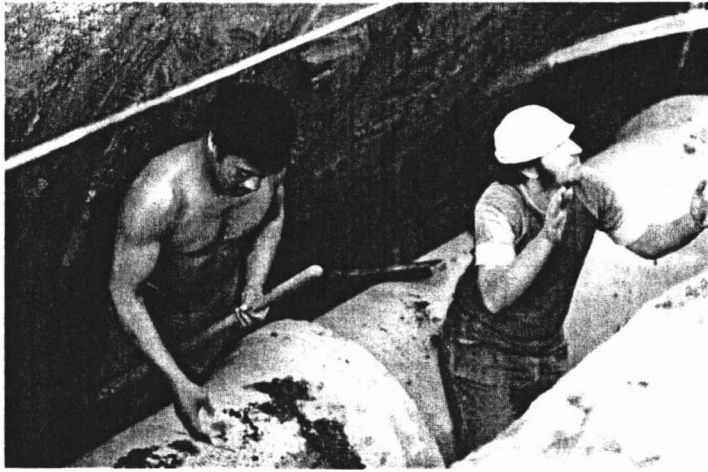
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ABSTRACT

Using interview data the present study applied a leading health care use explanatory model (*the Anderson model*) to a sample of 502 community-dwelling New Zealand Māori adults. To date the Andersen model has been applied extensively in overseas (principally U.S.) research, yet not specifically to an indigenous population such as the New Zealand Māori. The Andersen model proposes that health service use is a function of three components: predisposing, enabling and need characteristics. Using hierarchical multiple regression analyses three overarching research goals concerning the model were investigated:

(1) To test the efficacy of the Andersen model in the prediction of Māori health care utilisation; (2) to extend the model by considering the role of life events as a predictor of Māori health service utilisation; and (3) to extend the model by considering the role of psychological distress as a predictor of Māori health service utilisation. As a further extension on previous work, the present study also sought to: (4) Extend the model by considering the role of traumatic experience in the prediction of Māori health service utilisation. The Andersen model was found to explain between 8.5% and 26% of variability in the sample's use of six types of health care, finding need characteristics to be the major determinants of health care use. Life events was not a significant contributor to explaining use, and psychological distress was effective only in predicting mental health service use. Findings suggest that using aggregate measures of traumatic experience is not a particularly helpful strategy for predicting subsequent health care use by Māori. On reflection of findings and implications the present study concludes with discussion concerning: (1) A need to advance conceptualisations of what constitutes health services for Māori; (2) suggestions for future examination of trauma and Māori health care use; (3) the role of culture in influencing health beliefs and behaviour; and (4) potential barriers to health care access by Māori.



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 Hāere, hāere, e moe.

Ki te hunga ora, me pehea tāku mihi ki a koutou ngā whanaunga,
 ngā kārangatanga maha e awahi nei i ahau i roto i ngā mahi.
 I ngā wā taumaha ko koutou ngā kaiwhakaora i te hinengaro me te wairua.
 Kāore au i te mohio ki ngā kupu tika maku, otira he pono pea te kōrero ā ngā tipuna:

"Kāore nei au i te toa takitahi, engari i te toa takitini".

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Chapter 1: Andersen's behavioural model of health service utilisation - An overview

The model's purpose

The research and analysis of health care utilisation is concerned with answering the following simple question: "When people become ill, some seek professional help while some do not, why?"

The most widely applied model for answering this question has been that of American medical sociologist Ronald Andersen (Aday & Awe, 1997; Andersen, 1968; Hulka & Wheat, 1985; Jewett, Hibbard, & Weeks, 1992; Keith & Jones, 1990; Mechanic, 1979; Rundall, 1981; Wolinsky & Johnson, 1991). Andersen's model was initially applied to help understand why people use health services, to assist defining and measuring access to health care, and to inform policy development to promote equitable access (Andersen, 1995). Since conception in the late 1960s, the theoretical model has undertaken considerable revision but despite growing complexity in generating an increasing number of variables found to influence health care use patterns, the essential features of the model have remained intact (Wolinsky, 1990). The model has been influential in helping understand the variables that either facilitate or impede health care use.

The purpose of the present thesis research is to evaluate this established model in the context of health care utilisation by New Zealand Māori. The current state of Māori health and health care use is reviewed in more detail in the next Chapter. However, the next section provides something of a historical context for the current state of Māori health as a means of justifying the importance of answering the general question: "Why do Māori use/not use health services?"

A background to Māori health

Since British colonisation of New Zealand, Māori people have had a different experience of ill health to other New Zealanders. At the turn of the twentieth century the Māori population had declined to such an extent that extinction of Māori as a people was predicted, even among Māori leaders themselves (Condliffe, 1971). At the dawning of the nineteenth century Dr Featherston, a surgeon and superintendent of the Wellington province, had this to say about the Māori situation: "The Māoris (*sic*) are dying out and nothing can save them. Our plain duty as good compassionate colonists is to smooth their dying pillow. Then history will have nothing to reproach us with" (Buller, 1884, p.54: cited in Pool, 1991, p.28).

In his study of the causes leading to the anticipated extinction of the Māori Dr Newman reported that: "The disappearance of the race is scarcely subject for much regret. They are dying out in a quick, easy way, and are being supplanted by a superior race" (1881, p.477: cited in Pool, 1991, p.67).

European-introduced diseases including both acute infectious diseases like dysentery and acute respiratory diseases like influenza, as well as chronic infectious disorders such as tuberculosis, high childhood mortality rates, combined with the consequences of newly introduced warfare technology and land alienation all contributed to the decline of the Māori population (Pool, 1991; Public Health Commission, 1994). However, the first decade of the 20th century saw the implementation of a primary health care campaign for Māori which had three key elements:

- (1) Use of most advanced biomedical knowledge and techniques available at that time;
- (2) appeal to Māori cultural values; and
- (3) active participation of local Māori councils (Edwards, 1992).

Significant health gains as well as a renewed vitality in cultural identity marked this period as a seeming resurrection of the Māori people. This period of population and cultural recovery was termed by some as the Māori renaissance (e.g., Sorrenson, 1996; Walker,

1990, 1992), and perhaps stands as one of the most remarkable health and population recoveries in world history (Durie, 1994a).

By tracking Māori experience of illness in the twentieth century, three generic epidemiological trends were evident since 1900. Firstly, infectious diseases such as measles, influenza and tuberculosis were the major health threats to Māori in the early part of the twentieth century. Secondly, degenerative diseases such as cardiovascular, cerebrovascular, respiratory, renal, arthritic, diabetic and cancerous diseases became the main health threat to Māori health during the post-World War II period. Degenerative diseases remain a significant health problem for modern Māori. In contemporary times the so-called lifestyle illnesses, and particularly mental illnesses, have become the most noteworthy threats to Māori experience of good health. Indeed, mental health problems are now considered the most prominent collective health concern for Māori people (Durie, 1997a).

Following World War II the Māori population experienced the major social transition of mass urbanisation. Prior to the conclusion of the second World War approximately 80% of the Māori population resided in rural and customary tribal areas. By 1964, 75% resided in urban areas (Smith, 1995). This was arguably the most rapid urbanisation of a national population anywhere in the world (Pool, 1991; Walker, 1992). The Ministry of Māori Affairs outlined adverse consequences of Māori urbanisation, such as disruptions to tribal and family ties, which were compounded by numerous social problems and policies that favoured assimilation into mainstream Pākehā society (Manatu Māori, 1991). Apart from isolating many Māori from their extended family support networks, mass urbanisation also reduced access for younger generations of Māori to knowledge regarding their own culture. Sachdev suggests that the disconcerting increase in Māori psychiatric admissions over the past four decades “may reflect the impact of psycho-cultural stress on the community, with urban migration and acculturation being the two most important aspects” (1990, p.102).

In commenting on Māori health trends in 1984a, Davis wrote:

Concepts of health and health care in New Zealand have evolved in a climate of egalitarianism tinged by the ethos of self-help. It is only now that the adequacy of these values as guides to policy is being questioned and the whole basis of the health care system critically examined as new evidence emerges on the persistence of inequalities linked to differences of social class and ethnic group membership. (1984a, p.919)

Description of the Andersen behavioural model of health service use

The three core concepts of the Andersen model

The Andersen model theorises that use of health services is a function of three sets of characteristics, which are the predisposing, enabling and need characteristics of a given person.

The original model

Although refined considerably since its inception, the three components of the Andersen model as first developed (Andersen, 1968) are graphically depicted below in Figure 1.

PREDISPOSING → ENABLING → NEED → HEALTH CARE USE

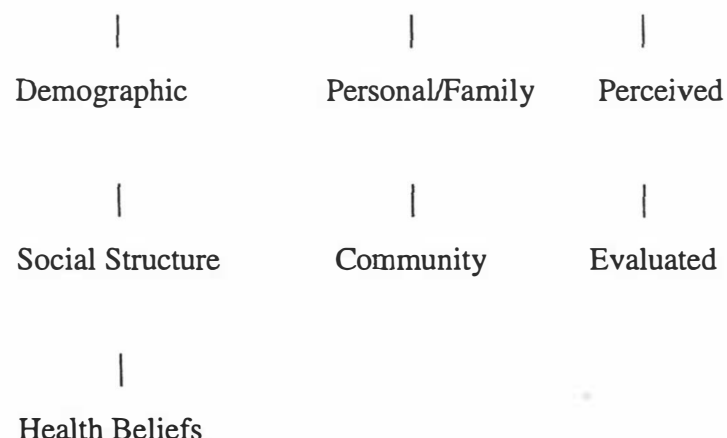


Figure 1: The original Andersen (1968) behavioural model (From Andersen, 1995, p.2)

The three components of the model have been demonstrated in past research to predict health care use with varying degrees of success. Each one is reviewed below.

Predisposing characteristics - the socio-cultural element

Predisposing characteristics refer to propensities for health care use that any person has prior to experiencing an episode of illness. Demographic, social structure and health beliefs comprise the three dimensions of a person's predisposing characteristics. There is a degree of flexibility as to which subheading (demographic, social structure, or health beliefs) variables are classified under and a number of authors have classified them in different ways (e.g., Madison-Smith, 1998; Withers, 2000). However the overarching idea of a predisposing characteristic as a propensity to use health services remains intact.

Predisposing demographic variables

Demographic factors such as age and gender represent inherent dispositions, which suggest the likelihood that people will need certain health care services (Hulka & Wheat, 1985). Accordingly then, one's sex and life-cycle position will predict one's need for certain age- or gender-appropriate health care services; examples of this include older adult physical health-related problems due to somatic or neurological degeneration, or maternity care for women of child-bearing age.

Age has been found to be a consistent predictor of health care use (e.g., Andersen, 1968; Andersen, Kravits, & Andersen, 1975; Wolinsky, 1978; Wolinsky & Johnson, 1991). A positive correlation between age and health care use (e.g., doctor or hospital visits) is thought to be due to higher levels of health problems among the older age groups. On the other hand, Wolinsky (1978) also found that younger married people with smaller families were more likely to visit the family doctor (i.e., G.P.) suggesting an interaction between age and other variables in terms of their impact on health care use. In their study among a *young old* sample (i.e., 65-74 years) and *old old* sample (i.e., 75 years and over) Wolinsky and Johnson (1991) found the older *old* age group to have had fewer bed rest days but were more likely to be in nursing home care.

A number of studies have highlighted the importance of **gender**. Wolinsky and Johnson (1991) noted that older women had fewer bed rest days, G.P. visits, or hospital admissions than older men, and older women experienced superior health to men in the later age groups. Women are higher health care users than men, whilst men have higher levels of hospital admissions (Bernard, Hayward, Rosevear, & MaMahon, 1993; The American National Centre for Health Statistics, 1992: both cited in Withers, 2000). Verbrugge (1989) concluded that women in general experienced higher levels of morbidity for acute and chronic non-fatal illnesses, whilst men had higher levels of morbidity for fatal chronic illnesses.

The health care use effects of **marital status** has also received attention in the literature as being in a close relationship may increase the level of one's available social support. Cafferata (1987) examined the effect of marital status and living arrangements upon formal (e.g., G.P. use or hospitalisation) and informal (sick days) care in a U.S. random sample of 4,560 older adults. Those who lived with others (i.e., either married or in some other joint living arrangement) visited a G.P. significantly less often than those who lived alone. However, Cafferata also found that those living with others had a higher number of bed rest days, concluding that such living arrangements may facilitate alternative care by household members in times of sickness (i.e., informal home care not necessitating medical attention). A variety of access factors have also been considered. Studies have noted the importance of an individual's **access to a telephone** and a **vehicle**, as the ready availability of such resources will facilitate fast and convenient access to health care services (e.g., Gribben 1992; Wolinsky & Johnson, 1991).

The preceding review illustrates (perhaps not surprisingly) that demographic variables such as age, gender and marital status have all been demonstrated to be influential in past health care use research. A similarly broad array of demographic variables will therefore be investigated in the present study.

Predisposing social structure variables

Within Andersen's framework social structure factors are thought to reflect a person's relative position or status within modern society and the associated behavioural patterns or lifestyle to which that person becomes socialised. These factors are thought to influence a person's life chances (Wolinsky, Aguirre, Fann, Keith, Arnold, Niederhauer, & Dietrich, 1989). They are considered to be indicative of a person's general ability to cope, their capacity to command resources to deal with arising health problems, and how health-facilitating their physical environment is likely to be (Andersen, 1995). Examples of predisposing factors germane to social structure include a person's education, and the availability of social contact.

Educational attainment has been found to be the significant predictor of health service use (e.g., Stroller 1982; Wolinsky 1978). The literature on the effects of education on health care use does however, report mixed findings. Wolinsky and Johnson (1991) and Nelson (1993) found no effect of education on G.P. contact. Conversely, Barzargan, Bazargan and Baker (1998) and Cafferata (1987) report that more highly educated men and women have more visits to the G.P.

Although considerable work has been undertaken to investigate the influence of social support upon health care use, the results are somewhat conflicting, with some studies finding positive correlations between the two variables, some finding negative, and others finding no apparent association. Such apparent contradictions may reflect the use of vague or overly general operational definitions of the term social support (e.g., Broadhead, Gehlbach, DeGruy & Kaplan, 1989). Rather than consider social support in any subjective sense, the present study sought to consider the more *objective* notion of **social contact**. Social contact, in essence, refers to the availability and/or frequency of contact with family or friends, and is a predisposing social structure variable that has emerged as a significant predictor of use in more recent times. Nelson (1993) investigated a number of forms of social contact in a national population survey of over 5,000 North Americans over the age of 55 years. Respondents were asked about recent telephone contact or meetings with friends or relatives, recent church attendance and whether they had living siblings or

children. Social contact significantly increased the amount of explained variance for a variety of health care use measures including G.P. visits and hospitalisation, although the effect was moderate.

Predisposing health beliefs

A person's health beliefs refer to their attitudes, values and knowledge about health and health care services. Andersen (1995) suggests that these health beliefs may influence people's perceptions of health care need and subsequent service use. Strain (1991) and Wolinsky and Johnson (1991) have suggested that individuals who **worry** about their health are more likely to engage in health use behaviours, and that those with lower self-perceived **control** over their own health were also more likely to have higher use of health care. They found health worry or perceived control to account for a significant but modest amount of variance in G.P. and general health care use.

Together, the predisposing demographic, social structure and health belief components are said to make up the *sociocultural* element of the model.

Enabling characteristics - the economic element

Irrespective of people's predispositions to use health services, the means of using such services are a requisite of actual consumption. Enabling characteristics refer to either community or personal/familial resources which permit service use. Examples of personal or familial resources include income and/or satisfaction with standard of living on one's income; health insurance coverage; having a regular doctor and a person's geographical stability. Community resources include the geographical availability of health personnel and facilities within one's locale.

Familial resources (broadly defined) were chosen as the focus to represent enabling characteristics as these variables were amenable to measurement within the survey design of the present study. Familial resources such as **medical insurance** coverage enable people to use health services by potentially minimising financial costs of use as an

inhibiting factor. From the last national health survey (Ministry of Health, 1999a), ~40% of the general population were covered by health or medical insurance (Scott, personal communication, June 27, 2001).

Subjective **satisfaction with standard of living** from one's income and the perceived **adequacy of income** correlates positively with service use (Eve, 1988). Higher levels of such satisfaction and perceived adequacy will presumably minimise financial barriers to health care use.

Studies have consistently noted the importance of a **regular source of care** in facilitating access to health services and contact with providers (Aday & Andersen, 1978; Aday & Andersen, 1984: cited in Lewin-Epstein, 1991; Andersen, 1968; Stroller, 1982). This observation was termed the '*usual source effect*' (Kuder & Levitz, 1985). A regular source of care is believed to enable more timely, frequent and continuous treatment, resulting in better health outcomes. Low income groups are less likely to have a regular source of care (Andersen, Aday, Lyttle, et al., 1987; Dutton, 1986: both cited in Lewin-Epstein, 1991).

Lewin-Epstein (1991) studied the determinants of a regular source of health care among U.S. adult¹ samples of *black*² (i.e., African American), (n = 1,184), Mexican (n = 488), Puerto Rican (n = 452) and non-Hispanic '*white*' (n = 365) people living in "poverty areas" of Chicago. Lewin-Epstein's findings demonstrated that considerable ethnic group differences existed, in that African American participants were more likely to use hospital facilities (i.e., rather than a private physician). Lewin-Epstein suggests that this is a result of past constraints and their current dependence on public insurance programmes. In referring to past constraints he describes the shortage of African American physicians, restricted access to certain medical facilities, and employment patterns that seldom allowed African Americans full health insurance coverage, as all serving to shape group-specific behaviour patterns that affect both health and rates of service use. Mexican Americans were found to be the least likely of the economically poor samples to have a regular source of care. This was argued to be due to social and cultural barriers such as

¹ Participants in the Lewin-Epstein (1991) study were aged between 18 and 45 years with children.

² The term 'black' has been commonly used in American academic journals to refer to African Americans. The term 'white' in the literature further refers to European Americans.

language, migration status, and low community participation. Thus, African American participants were more likely to use hospital facilities and Mexican and Puerto Rican participants most likely to be without a regular source of care, even when controlling for poverty. The author concluded that in the context of previous comparative studies, these findings further indicated that ethnic group utilisation differences cannot be explained away by differential standing in social class.

In an early study, Andersen (1968) found that having a regular doctor and health insurance were significant predictors of G.P. and hospital health care use, although these enabling predictor variables were secondary in importance to need variables. In a later study Andersen, Kravits and Andersen (1975) found that the influence of a regular source of care upon G.P. use was mediated by need variables, that is, respondents with poorer health status were more likely to have a regular G.P. However, findings regarding the potentially access-enhancing variable of a regular source of care are inconclusive. Gribben's (1992) New Zealand research surveying 290 South Auckland households, did not confirm the "usual source effect" within the community sample which included a small number of Māori (n = 28, nine percent of the sample).

The familial and community resource components are said to make up the *economic* element of the model. Wolinsky and Coe suggested that the model's economic element may have lost much of its salience in the wake of Medicaid and Medicare in the United States (1984). That is, they contend that U.S. State-funded entitlement programmes may have reduced the discriminating ability of socio-economic status. Nolan (1994) raised the same concern in an Irish setting. Of interest in the New Zealand setting would be if a similar contention would hold given the introduction in 1993 of the **community services card** (i.e., C.S.C.) system. This system is a means-tested government subsidy intended to facilitate access to health care by reducing fees paid for family doctor visits and prescription medications. It does not apply to private health professional use (Work and Income N.Z., 2000). The government subsidizes these costs using a targeted benefit system based on people's family income, age and frequency of G.P. use. A **high use health card** (i.e., H.U.H.C) is also available to those with chronic medical conditions

necessitating high use of G.P. care. The present study will investigate the effect that such entitlements may have upon use of a variety of health care professionals by Māori adults.

In an overarching sense, adequate access to appropriate and effective health care is argued to be a vital part of any future effort undertaken to improve Māori health outcomes (e.g., Shipley, 1995a). The notion of access (broadly defined) is a feature of both the predisposing and enabling characteristics in the Andersen model. The access dimensions of interest to the present study included accessibility, affordability and accommodation (e.g., Gribben, 1992). Penchansky and Thomas (1981) contend that as a multifaceted concept, access summarises these dimensions and represents the “degree of fit” between the consumer group and the health care service.

The least advantaged social groups have poorer access to health services relative to need than their more advantaged peers (e.g., the Black Report: cited in Benzeval, Judge, & Whitehead, 1995). Accessibility can refer to geographical accessibility to services, a community medical practice for example. Inherent within this idea of geographical accessibility is one’s mode of transport to a health care service, distance and travel time to the service, and financial cost associated with this travel. International and New Zealand rural-based population research suggests an effect of these factors upon health service use (e.g., Morrell, Gage, & Robinson, 1970; Walton, Romans-Clarkson, & Muller, 1988). Geographical isolation (i.e., living in urban vs. rural settings) and inadequate provisions for public transport were identified as factors limiting access to mental health services for Māori living in provincial areas of the lower North Island (Hirini, 1994; North, 1990). In the present study accessibility is operationalised as having access to a phone, access to a private vehicle, living in urban vs. rural settings, and having a regular source of G.P. care.

Described simply, affordability refers to the relationship between health service cost and a person’s ability to pay. Gribben (1992) asked South Aucklanders whether doctor’s fees ever prevented them from using a G.P. when the need existed. The present study operationalised affordability in terms of having a community services card and/or a high user card, and the extent to which G.P. fees are a factor in limiting access to care.

Accommodation refers to the customer-oriented features of a health service, the consumer's ability to accommodate to them, and their perception of the appropriateness of such features. Penchansky and Thomas (1981) identified appointment systems, waiting times and the length of consultations as examples of customer service-oriented features. The present study investigates the accommodation dimension by analysing waiting times for an appointment. Gribben (1992) found that average waiting time was found to be a determinant of G.P. utilisation. (i.e., longer waiting times resulted in decreased utilisation).

Need characteristics: The dominant component

A person must have a perception of need for health service use (i.e., experience symptoms of illness, pain or sufficient concern for their health) before familial and community resources will be mobilised.

Need for health care has generally been measured by **self-report of symptoms, mental wellbeing, functional limitations** and **perceived health status**. Contrasted with self-perceived need, a professional evaluation of a person's health status and need for care is likely to more accurately represent required need (Andersen, 1995; Andersen, Kravits, & Andersen, 1975). In the absence of physicians' assessments, activity and mobility limitations due to health difficulties are routinely used in research as proxy measures of professionally-evaluated need. The inclusion of self-perceived or subjective need may aid our understanding of care-seeking behaviour and adherence to treatment regimens. In contrast, professionally evaluated need suggests the type of treatment provided after presentation.

Need characteristics dominate in determining health service use (e.g., Eve, 1988; Gribben, 1992; Wolinsky & Johnson, 1991). Need factors usually explain more variance than predisposing and enabling factors and have largely been defined in terms of physical health needs.

The Andersen Model: An Author's Comment

Regarding the utility of each component within the model, Andersen stated that:

On the one hand, each component might be conceived of as making an independent contribution to predicting use. On the other, the model suggests an explanatory process or causal ordering where the predisposing factors might be exogenous (especially the demographic and social structure), some enabling resources are necessary but not sufficient conditions for use, and some need must be defined for use to actually take place. (p. 1-2)

Health service utilisation

Use of health services can be measured in a variety of ways including use of home-based health services, **bed disability days**, **doctor visitations**, **hospital admissions** and length of stay, and the use of **other health professionals** (e.g., dentist, chiropractor, psychologists, social worker, homeopath or physiotherapist). Measurement strategies for these sorts of utilisation variables are described in detail elsewhere (e.g., Wolinsky & Johnson, 1991). The following section details some distinctions that have been made regarding types of health care use.

Andersen originally distinguished between two types of utilisation behaviour, discretionary and non-discretionary health care use. The former represents those health services whose use is primarily determined by the person's subjective evaluation of need (i.e., self-perceived need). Health care use discretion can be seen as existing on a continuum (Wolinsky, et al., 1989). An example of a more discretionary behaviour would be seeing a dentist, based largely on one's values and perceptions regarding the importance of oral hygiene, and their disposable income. Hospitalisation on the other hand is an example of a more non-discretionary (or less discretionary) form of use, as admission is likely to be determined by a physician or medical emergency staff. Visiting a G.P. is an example of a health care use behaviour that exists somewhere between the two above-

mentioned examples on the continuum. Predisposing and enabling characteristics should have the differential ability to explain use depending on the type of service. Non-discretionary services such as hospitalisation would primarily be explained by need characteristics whereas other types of discretionary service use might be more a function of predisposing and enabling characteristics in the sense that the conditions prompting use of services are likely to be less serious than those requiring inpatient care (Andersen, 1995).

The literature also makes a distinction between *formal care*, or care provided by health professionals (e.g., G.P.'s and hospitalisation) and *informal care* or personal/home-based care (e.g., sick or bed rest days (Wolinsky & Johnson, 1991)), and **taking prescription items** (Kandrack, Grant, & Segall, 1991). Mechanic (1979) was among the first authors to conceptualise informal self-care such as taking days off from work as a health care construct rather than what earlier writers had considered to be symptoms or need variables (e.g., Andersen, 1968; Andersen & Newman, 1973). The inclusion of informal types of care extended the application of the Andersen model as researchers recognised that informal care may substitute a need for formal care (which may prove particularly relevant for lower socio-economic groups). Another value in making the formal/informal distinction is that informal care may precede initial contact with formal professional help, or moderate volume or frequency of formal help subsequently sought (Wolinsky & Johnson, 1991).

Chapter summary

The present Chapter explained the Andersen behavioural model of health service utilisation. The model has undergone some revisions to include health behaviours (e.g., diet, exercise, self care), the health system at a macro-level (e.g., national health policy and the resources and their organisation in the health care system), elaborations of the measures of health service use, inclusion of explicit outcomes of health services use such as consumer satisfaction, and inclusion of health status outcomes (Andersen, 1995). These modifications reflect the increasingly multidisciplinary focus of the model, however, the present thesis research is concerned with the model in its simplest form.

One of the central goals of the present study is to empirically examine how well the Andersen model accounts for health care use patterns in Māori adults living in New Zealand. Andersen (1995) emphasises that the model must continue to focus in detail on predisposing and enabling characteristics. He suggests that "...people must have the means and know-how to get to those *[health]* services and make use of them. Income, health insurance, a regular source of care, and travel and waiting times are some of the measures that can be important here" (p.3). He emphasises the importance of elaborating on and further specifying health beliefs, and notes the importance of understanding health insurance benefits (in the New Zealand context this effectively refers to the community services card and high user card, along with private insurance). The present thesis research attempts to incorporate and evaluate these suggestions for future measurement direction.

The following Chapter will critically review findings from studies of health service utilisation (within the Andersen model framework) among ethnic and indigenous populations (mainly U.S.), and further review health care research with New Zealand Māori. Following on from that, Chapter 3 will present an argument for the case that the Andersen model might also be usefully extended via a consideration of the role of psychological variables and the experience of trauma (conceptualised and measured in a variety of ways) in accounting for subsequent health care use.

Chapter 2: Ethnicity and health care use

A review of research findings: The international context and Māori.

Of interest to the present study is a developing body of research that has applied the Andersen model to various ethnic groups. A common practice in health care use research has been to juxtapose utilisation patterns of ethnic minority samples with European-descended samples (commonly referred to in the literature to date as “white”). Research has predominantly been concentrated in North America (i.e., U.S.). The efficacy of the model has been considered in application to African American, Vietnamese, Portuguese, Hispanic, Puerto Rican, Cuban, Mexican, Native American, and First Nations peoples (e.g., Cox, 1986; Keith & Jones, 1990; Mutchler & Burr, 1991; Wolinsky, 1982; Wolinsky, Aguirre, Fann, Keith, Arnold, Niederhauer, & Dietrich 1989; Yeatts, Crow, & Folts, 1992).

The general picture that emerges from previous research (often from comparative studies of older adults across a range of U.S. ethnic groups) is one where:

- (1) The need characteristics consistently appear as the major determinants of health care utilisation (e.g., Keith & Jones, 1990; Jewett, Hibbard, & Weeks, 1992; Wolinsky et al. 1989);
- (2) the amount of variance explained by the model is moderate (i.e., less than 25%);
- (3) the effects of the predisposing and enabling characteristics are quite modest, if not inconsequential (often explaining less than 5% of variance).

Several studies are reviewed below as producing common examples of findings with U.S. ethnic minority groups, results which demonstrate the importance of need variables in predicting health care use.

Wolinsky (1982) used interview data from a sample of 359 European American and 126 African American adults of a rural southern U.S. county. Health service use (i.e., use of medical doctors, dentists and hospitals) were compared between groups. Need variables

were important for predicting use of discretionary services for the African American sample, but not for the European American sample. Cox (1986) studied physician utilisation rates among samples of Vietnamese (n = 100), Portuguese (n = 100) and “Hispanic”³ (n = 100) older adults living in California. Need factors were the common determinant of physician care among these samples, yet the impact of need variables differed between ethnic groups. Having a poor level of self-rated health affected the utilisation rates of the Portuguese and Hispanic groups but not that of the Vietnamese (who incidentally rated their health the poorest of the three older adult samples). The samples had similar rates of chronic illnesses and physician visits, but their health needs (e.g., rates of arthritis and heart disease) and factors predicting utilisation differed significantly. For the older Portuguese participants, being married was a significant predictor of increased levels of use, whilst being unmarried was predictive of higher health care use for Hispanic participants. Thus, ethnicity appeared to have some bearing on the influence of marital status upon utilisation. Gender and age were significant predictors of physician contact, although their effects also varied between the groups.

Keith and Jones (1990) compared African American (n = 416) and European American (n = 1,969) older adults in service use using Andersen's model. These authors found a clear difference in need for health care between the two groups. The African American group had greater need for medical treatment (with a significantly higher percentage rating their health as poor), greater levels of disability and fewer resources to access care (e.g., lower levels of income and medical insurance) relative to the European American sample.

Using three measures of utilisation (physician or hospital contact and nights in hospital) Keith and Jones' findings found some support for differential effects of need, particularly for physician contact (the primary point of contact with the health system). The Andersen model was found to be a poor predictor of health service use with both groups, explaining no more than 17% of the variance on any of the three services investigated. This replicated findings of a number of previous studies (e.g., Eve & Friedsam, 1980: cited in Keith and Jones, 1990; Wolinsky et al., 1983).

³ See review below of a later study by Wolinsky et al. (1989) for concerns raised about the validity generic terms like 'Hispanic' being used as an ethnic category in data collection.

In a seminal study Wolinsky and Johnson (1991) tested Andersen's model using data (n = 5,151) from the U.S. Longitudinal Study on Aging (L.S.O.A). They found that self-rated health and chronic illness were (not surprisingly) the strongest predictors of health care use. Poor self-rated health status and limitations with basic daily activities of living (i.e., walking and personal functioning activities such as bathing, toileting) were found to be associated with use of home help. Limitation in household activities of daily living (i.e., household A.D.L's or chores such as meal preparation, shopping and housework) were correlated with greater levels of bed rest and use of home help services. More advanced activities of daily living (cognitive capacity variables such as managing money) were found by Wolinsky and Johnson to be associated with more bed rest and a greater likelihood to use hospital-based services, yet not home help services. Wolinsky and Johnson found need variables to account for over half of the explained variance for bed rest, G.P. visits, and home help care.

In 1992, Yeatts, Crow and Folts reviewed studies using Andersen's model to explain health service use by low-income U.S. ethnic minority older adults. The studies revealed that perceived *need* for service use was the most important factor influencing actual service use (e.g., Andersen & Newman, 1973; Mindel & Wright, 1982: cited in Yeatts et al., 1992). Yeatts et al. claim that the strengths of the Andersen model lie in the identification of factors affecting both perceived need and actual service use, and the ease with which these factors can be empirically measured and examined.

From these and similar studies a number of research issues come to light, including:

- The meaning of the well replicated "need" effect;
- the role of socioeconomic status;
- and, the type of barriers to health service use.

Each of these issues is discussed in turn below.

The meaning of the well replicated "need" effect

In the original interpretation of the Andersen model, a greater predictive power of need was taken to be indicative of a more equitable health delivery system (Andersen, 1968). If

a high level of health need was consistently correlated with a high level of health care use then the health system was seen to be equitable and no programmes needed to be introduced targeting specific populations to restore social balance in health care access (Aday, Andersen & Fleming, 1980; Aday, Fleming & Andersen, 1984, cited in Wolinsky et al., 1989).

However, Wolinsky, Aguirre, Fann, Keith, Arnold, Niederhauer, and Dietrich (1989) came to a different conclusion on the basis of their large-scale U.S. comparative study involving five ethnic samples of older adult Puerto Rican (n = 998), Cuban (n = 1,183), Mexican (n = 2,329), African (n = 12,329) and European Americans (n = 93,491) living in the 31 largest U.S. metropolitan areas.

Wolinsky et al. (1989) found access to health care services between ethnic majority and minority elders to be inequitable, in that results from all ethnic minority groups studied indicated that *need* variables explained 2.6 to 3.5 times the variance in physician contact (i.e., at least one actual visit) than they did for the European American majority sample. Further, the need characteristics alone for these groups explained more variance than need, enabling and predisposing characteristics combined did for the European older adult sample. This differential importance of need was argued by the authors to indicate that the health behaviour of the ethnic minority older adult groups studied is more constrained (i.e., primarily reactive to health crises), implying inequity in health care delivery favouring European Americans. A very similar pattern emerged with the volume (i.e., frequency) of doctor visits in their study suggesting that both physician contact and volume among the ethnic minority older adult groups studied is more predictable or dependent on their actual need for care than their “white” majority counterparts.

Wolinsky et al. (1989) contended that the European American sample used doctors in a more random pattern relative to the ethnic minority older adults, indicating a doctor use pattern less dependant on need than those found for the minority samples. They concluded that this differential predictability of need translates to mean that access to health care is inequitable, a finding contrary to previous reports suggesting otherwise.

Interestingly the above findings of access inequity were not replicated for hospital utilisation with comparable rates of use produced across ethnic groups, perhaps because hospitalisation is a more non-discretionary form of health care. However, staying overnight in hospital was found to be significantly more frequent for the European American group. The authors suggested that this may be due to their relatively higher socio-economic status and consequent medical insurance coverage enabling longer hospitalisation periods. Wolinsky et al. (1989) point out that this general pattern of utilisation appears consistent with the long-standing view that ethnic minority populations may either be more likely to:

Delay seeking a physician's care until their health conditions necessitate it, or; not seek a doctor's care for less-serious maladies compared with their ethnic majority counterparts. Given that need is considered more predictive of service use for ethnic minority groups as those studied by Wolinsky et al. (1989), minority group members are more likely to utilise outpatient services than private physicians (Wan, 1982: cited in Keith & Jones, 1990), perhaps due to economic reasons such as those suggested above.

The role of socioeconomic status

Keith and Jones (1990) surmised that relative to older adult European North Americans, ethnic minority older adults are more likely to experience economic hardship, to perceive their own health as poor, and in some studies to have lower life satisfaction. Mutchler and Burr (1991) argue that differences in S.E.S. may be responsible for the observed differences in health status between African American and European Americans. S.E.S. determines many factors that relate to one's health, ranging from knowledge of health care practices and nutrition to one's ability to purchase medical care. Higher levels of education and income are associated with better personal health (e.g., Smith & Pearce, 1984; Victor, 1980: cited in Mutchler & Burr, 1991). However, Mutchler and Burr note a number of studies do not support the generalisation that health differentials between African Americans and European Americans disappear when S.E.S. factors are controlled for. Comparative inequality and non-S.E.S. factors such as racism and various forms of discrimination may continue to compromise health through stress associated with minority group status (e.g., poverty, higher levels of social stressors and consequent psychological

Māori are among the lowest income earners in New Zealand society (Royal Commission on Social Policy, 1988c; New Zealand Planning Council, 1989). Income is the major determinant of standards of living and health care (Royal Commission on Social Policy, 1988a). A number of writers have noted additional financial commitments and different spending priorities within Māori households and whānau (Kell Easting & Fleming, 1994; Stephens, Waldegrave & Frater, 1995; Taiapa, 1994). Sharing resources such as money between whānau households is a common feature of modern whānau functioning (Hirini, 1997a; Taiapa, 1995). It is unknown whether this common practice among modern households within whānau will assist or inhibit health care utilisation among Māori in terms of acting as an enabling characteristic. For some whānau it may indeed enable members to access care (Hirini, 1997a).

Under the rubric of socioeconomic status, the impact of state-funded entitlements to health services, (in the New Zealand context this means community service and high-user health cards), needs to be examined for their potential influence upon health service use. In a similar vein, the role of health insurance is important to consider carefully. In a study using data from the large-scale U.S. N.I.M.H. Epidemiologic Catchment Area programme, Wells, Golding, Hough, Burnam and Karno (1988) investigated factors affecting the probability of both physical and mental health care use among Los Angeles Mexican American (n = 1,096) and non-Hispanic "white" (i.e., European American) participants (n = 1,219). Private medical insurance was found to have a larger effect on use for Mexican Americans than non-Hispanic "whites" or European Americans, the interaction between ethnicity and insurance remaining even after controlling for job status. This particular finding confirms earlier conclusions by Andersen et al. (1978: cited in Wells et al.; and Vernon & Roberts, 1982 above) that limited access to medical care among Hispanic U.S. citizens is partly due to low levels of health insurance among that population.

Padgett, Patrick, Burns and Schlesinger (1994) examined factors affecting ethnic differences in outpatient mental health service utilisation within an insured (i.e., non-poor) population to determine if lower use rates by African American and Hispanic groups persist when S.E.S. was controlled for. Insurance claim data were analysed for samples of African American (n = 137, 936), Hispanic (n = 30, 623) and European American (n =

809, 000) individuals taken from a national population of 1.2 million U.S. federal employees. Using the Andersen model these authors concluded that ethnic differences in outpatient mental health service use exist even after accounting for S.E.S. factors. That was, medically-insured African American and Hispanic federal employees had a clear pattern of lower utilisation rates than the European American sample. Although this trend was more noticeable among ethnic minority poor in previous research (e.g., Temkin-Greener & Clark, 1988), it remained discernible in the study's non-poor population. The authors further contend that the effect of differential acculturation was also minimised, since unacculturated and/or non-English speaking people were included within the ethnic minority samples studied. Other authors have also drawn attention to the fact that lack of health insurance coverage may contribute to the observed patterns of health service under-utilisation among ethnic minority groups (e.g., Andersen, Lewis, Giachello, Aday, & Chiu, 1981: cited in Vernon & Roberts, 1982).

In a timely study of Māori elders (those of 60 years and over), the Te Pūmanawa Hauora Māori health research unit (1997) investigated the health and well being of 397 Māori kaumātua. Few of the 397 kaumātua interviewed held private superannuation or medical insurance (87% did not have medical insurance), but tended to rely heavily on State provision for income and health care costs. Most participants (85%) had a community services card with most using their card every few weeks or months. Disability support services were not often utilised by the sample, and entitlements to some services and other State support was not well understood. As a variable identified by Padgett et al. (1994), and others (e.g., Vernon & Roberts, 1982; Wells et al., 1988) health insurance coverage will be investigated as an enabling factor to health care utilisation among Māori in the present study.

The types of barriers to health service access

Older people of ethnic minority heritage in particular were often subject to institutional discrimination (Jackson, 1980, cited in Keith & Jones, 1990). Related to this point Yeatts, Crow, and Folts (1992) also highlighted that when viewed in U.S. social and historical context, patterns of inhibited health service use are repeatedly found among U.S. minority

older adult populations as these groups have lived much of their lives facing overt institutional and personal discrimination. The present-day U.S. older adults were mostly middle-aged citizens before the civil rights movement began in the sixties. Yeatts et al(1992) contend that attitudes of suspicion toward “helping” services, stem from an unfamiliarity with providers of the predominant culture (e.g., white middle class), and from negative past experiences of discrimination. These past experiences may account for feelings of humiliation, alienation, and fear of ridicule by the health system (e.g., Garcia, 1985; Gelfand, 1982; Zambrana, Merino, & Santana, 1979; McKinlay, 1972; Carp, 1970, all cited in Yeatts et al., 1992).

With regard to the Māori older adult population (i.e., kaumātua and kuia), generational differences in attitudes may possibly exist due to different experiences (both historical and contemporary) within health care institutions, such as hospitals. In discussing policies on the admission of Māori influenza sufferers during the 1918 epidemic, Rice (1988) reports that some hospitals imposed a strict colour bar by refusing to admit Māori. Indeed, some towns illegally prevented Māori from entering. In Whangarei, the mayor declared a health cordon whereby Māori could not enter the built-up area. This ban was later revoked for Māori who were able to produce a certificate signed by a doctor (Keene, 1989). Rice describes tension in the race relations of some North Island regions during World War One, largely due to Māori resistance to conscription in those areas, which “tended to delay the intervention of relief agencies” (1988, cited in Keene, 1989, p.24). The concept of institutional racism in contemporary New Zealand society and social services has been discussed at length elsewhere (Ministerial Advisory Committee, 1988; Spoonley, 1993; Spoonley, 1994). Inter-age group comparisons will be made in the present study to investigate the possibility of generational differences in health service use patterns among Māori. A number of Māori authors have written about Māori perceptions of the medical profession and Māori customary cultural beliefs regarding illness (e.g., Durie, 1977; Tipene-Leach, 1978). When considered across different generations of modern Māori, these factors may have important implications for use of mainstream medical institutions between different Māori cohorts.

With respect to mental health services, cultural differences in attitudes regarding what are deemed appropriate sources of help for familial or emotional problems may help explain the divergent use patterns in ethnic minority groups. Informal care in the shape of relatives or clergy may fulfil the carer role in marital or family problems for some cultural groups (e.g., Keefe, Padilla, & Carlos, 1979: cited in Vernon & Roberts, 1982). Temkin-Greener and Clark (1988) discuss the influence of indigenous disease theories and health practices (what the authors referred to as “folk medical systems”) as explanations for the delay in seeking medical treatment for mental health problems by “non-white” groups, as families may attempt to cope with behavioural problems within their own milieu using customary health practices. They note that indigenous conceptions of health and illness receive only sporadic attention in clinical literature, and therefore argue that greater recognition of social and cultural interpretations of health and illness must be developed and incorporated into future research. In a similar vein, other authors have noted that ethnic minority populations are more likely to experience multiple barriers and problems of access to mental health care than majority groups (Hoberman, 1992). Another explanation for this widely-cited under-utilisation is the stigma attached to seeking mental health assistance and the observation that some ethnic minority groups are more likely to use alternative informal support systems or indigenous practitioners (e.g., Neighbors & Jackson, 1984: cited in Neighbors, Bashshur, Price, Selig, Donabedian, & Shannon, 1992).

The discussion thus far has concentrated primarily on health services for physical health problems. But if one considers the research on mental health service use (broadly defined) and ethnicity, a similar pattern emerges. Neighborset al. (1992) reviewed the literature concerning ethnic minority mental health service delivery issues, including treatment outcome research, treatment termination (i.e., drop out) and utilisation of mental health services by U.S. ethnic minority groups. Their guiding question in reviewing this literature was whether cultural differences make a difference in mental health service delivery.

Use of outpatient mental health services or other types of community mental health service is less likely (c.f. “White” samples) for Native Americans and First Nations people (Fritz & D’Arcy, 1982: cited in Hoberman, 1992), New Zealand Māori (e.g., Lewis, 1988; Malcolm, 1996; Sommerville, 1988), Mexican Americans (e.g., Hough, Landsverk, Karno,

Burnam, Timbers, Escobar, & Regier 1987), and African Americans (e.g. Padgett et al., 1994). However the distinction between outpatient and inpatient mental health services is an important one. Native Americans and the First Nations people of Canada were found to have significantly higher rates of inpatient admissions relative to non-Native people (Fritz & D'Arcy, 1982: cited in Hoberman, 1992). Neighbors et al., (1992) found clear evidence of under-utilisation of mental health services by ethnic minorities when use is viewed in relation to the prevalence of psychiatric morbidity (Meinhardt & Vega, 1987; Neighbors, 1985; Sussman, Robins, & Earls, 1987; all cited in Neighbors et al., 1992). Between 1970 and 1980, psychiatric hospital admissions for U.S. ethnic minority groups (primarily African and Native Americans) increased by 37%, while utilisation rates of European Americans declined (Scheffler & Miller, 1989, cited in Hoberman, 1992). Durie has commented on similar trends in Māori psychiatric inpatient admission rates comparative to Pākehā since the mid-1970s (1994b; 1994c).

In order to contextualise the attempt of the current thesis research to model health service use in Māori, a brief review of New Zealand research concerned with the current state of Māori health and health service use is provided below.

In a study of the availability, distribution and utilisation of New Zealand G.P.'s, Malcolm and Barnett (1980) used General Medical Service (i.e., G.M.S.) claims⁵ to investigate regional and national patterns of utilisation. Controlling for the influence of ethnicity (adequacy of ethnic group definitions aside) increased rather than decreased the correlation between availability and utilisation (partial $r = -0.88$) suggesting, according to Malcolm and Barnett, that either high availability promotes utilisation or that low availability restricts it. Conversely, controlling for the effect of availability had the effect of increasing the significance of ethnicity as an important influential factor in G.P. use (partial $r = 0.79$).

In the Rapuora study, Murchie (1984) reported the findings of the Māori Women's Welfare League investigation of 1,177 randomly selected Māori women (15 years and over). Respondents reported more difficulty in getting satisfactory medical care and sought medical care less often than their non-Māori peers (Pomare, 1986). Conversely, older

⁵ GMS claims have been prepared annually by region, documenting a list of individual G.P.'s who claimed over \$2,000 and the amount of such claims (Malcolm & Barnett, 1980).

Māori women were found to report making relatively heavy use of medical care and were quite satisfied with the care they received (Pomare, 1986). More than half of the Rapuora sample reported at least some worry over their health. Over 40% of the Māori women's sample reported having chronic conditions.

In another comparative study of mortality, Smith and Pearce (1984) found that the overall age- and class-adjusted relative risk to physical health status was 1.5 for Māori males and 2.4 for Māori females compared with their non-Māori (including Pacific Islands people) counterparts. Proportions of the excessive Māori mortality rates thought to be attributable to behavioural factors were; obesity, 5% for both sexes; smoking, 15% for males and 16% for females; alcohol (excluding related accidents), 10% for males and 2% for females; accidents, 17% for males and 8% for females. Excess Māori mortality rates of five times or more were also found for rheumatic heart disease, nephritis, bronchietasis, diabetes, and tuberculosis (persisting even after controlling for social class). Smith and Pearce suggest that this is indicative of a "serious failing" in the New Zealand health system. Since effective treatments are available for all of these illnesses, the mortality differentials observed by Smith and Pearce are thought to be due to a poor health delivery system or to ineffective utilisation of services by Māori.

Davis (1984b) examined the influence of social class and ethnicity upon the observed health inequities for Māori. In grouping the different strands of research offering explanations for observed ethnic health status differentials, Davis provides two different strands:

- (1) research in line with the *Westernisation* thesis, which emphasises lifestyle, stress and broader socio-cultural factors, and
- (2) class inequity research, which emphasises the impact of material circumstances and distinguishes between classic "diseases of poverty" and inequity (e.g., accidents and death from respiratory diseases), and the "diseases of affluence" (e.g., diabetes, cancer).

In the case of the New Zealand Māori, Davis suggests that both strands of research are relevant. In looking at the interaction of social class and ethnicity, he concludes that a

substantial “ethnic group effect” is clearly apparent for Māori. That is, even after controlling for the influence of social class (although measured in various ways), unique Māori health disadvantages remain.

In a later study, Davis (1986) examined the extent to which health differentials between Māori and non-Māori were reflected in patterns of G.P. visits. Data from a 1% survey of Hamilton G.P. office encounters indicated that Māori rates of utilisation of this service were on average 40% higher than those of non-Māori males aged 15-64 years (even after controlling for social class). However, Davis reports that this rate still fell short of the ethnic difference in mortality and morbidity (or as Davis describes the Māori “burden of ill-health”) as evident in epidemiological research.

Lewis (1988) conducted an utilisation survey of the Hutt Hospital Accident and Emergency (i.e., A & E) department over a three week period. Based on comparison with local 1986 census data, Māori attended the A & E department twice as frequently as would have been expected. The high rate of emergency service use by Māori observed in the Lewis study may imply that Māori A & E use patterns are determined more by need and are therefore more restrictive in being reactive to health crises or emergencies than non-Māori (a suggestion also made in reference to a range of American ethnic minority groups by authors such as Fritz & D’Arcy, 1982; Sue, 1977: both cited in Hoberman, 1992; and Wolinsky et al., 1989).

In a more recent study, Malcolm examined utilisation and expenditure rates on primary health care for Māori and low income New Zealanders in comparison to the national “average” (1996). He concluded that gross underutilisation of primary health care services are the norm for Māori and economically disadvantaged New Zealanders. He further concludes that poor access and utilisation of primary care is likely to be a significant factor in the high use of hospital inpatient services by these groups. Although health services are widely recognised as only one factor in improving health outcomes, Malcolm highlights the growing international evidence suggesting that inequities in access to and utilisation of health services (especially primary health care services) could be a major factor in inhibiting health gains for the disadvantaged.

The first community national health survey (Ministry of Health and Statistics New Zealand, 1993) set about to obtain a comprehensive nationwide database (n = 7,069) by which to track long term trends in health status, health-risk behaviour and health service use of New Zealanders. Clear differences remained between ethnic groups after adjusting for age, with proportionately more Māori (15%) rating their health negatively than Pākehā (8%). After age adjustment Māori were also more likely to have mobility problems and long term illnesses than Pākehā. Māori were more likely (18%) to have made six or more visits to a G.P. in the previous year than Pākehā (16%) and Pacific Island peoples (10%). As an indication of serious ill health, and a form of late intervention, proportionately more Māori respondents had attended A & E departments than non-Māori, and had a slightly higher rate of admission which increased when age and gender were adjusted for. Fewer Māori (15%) used medical specialists than Pākehā (25%) or Pacific Island people (18%).

The most recent national health survey (Ministry of Health, 1999a) conducted in 1996/1997 investigated the health status and health service utilisation of 7,862 New Zealand adults (i.e., 15 years and over) and 1019 children (0-14 years). A total 1,321 respondents in the sample were Māori. Māori were more likely to be smokers (nearly half of all Māori were current smokers) and have high blood pressure than any other ethnic group, as were lower socioeconomic groups. Māori also had problematic levels of alcohol use in terms of health risk. The general alcohol consumption pattern for Māori appears to be of lower frequency than non-Māori, yet with higher intake per drinking occasion (see Dacey, 1997). Māori were found to be more likely to have two or more cardiovascular disease risk factors, and less likely to have no such risk factors, than people with the other ethnic group samples.

Māori and Pacific people were more than twice as likely to have been diagnosed with diabetes, and at a younger age, than Pākehā. Māori adults also had highest comparative levels of asthma. Māori and Pākehā both reported higher levels of injury than Pacific or the "Other" ethnic group. Using the SF-36⁶ Māori rated their health lower than Pākehā. Marked differences emerged in self-reported health status particularly for Māori, for those

⁶ The SF-36 measures self-reported health status in relation to 8 dimensions of health: physical functioning; role limitations due to physical ill health; bodily pain; general health perceptions; vitality; social functioning; role limitations due to emotional health; and general mental well being (Ministry of Health, 1999a).

with and without high blood pressure and diabetes. Although most that were employed typically self-reported better physical and mental health than those unemployed, or not in the labour force, this pattern did not hold for Māori men.

G.P.'s were the most commonly used of all health professionals. Māori and those with low family incomes were more likely to have visited their G.P. six times or more in the previous year. One in five Māori adults (18.9%) visited a G.P. six or more times in the year preceding interview, significantly higher than the Pacific (16.3%) or Pākehā (15%) and "Other" (8.9%) ethnic groups.

Clearly the picture that emerges here is one where Māori health (however it is conceptualised and measured) is not as good as it could be. Although disparities in health status between Māori and non-Māori are readily apparent, less apparent are convincing explanations for why these disparities persist. Failure to appreciate contextual or historical factors and their effects may result in uninformed explanations for poor Māori health outcomes. One such explanation includes the view that Māori people endure poorer health standards because of poor lifestyle choices. According to this view, responsibility for health status is attributed solely to individual choice, or to the individual divorced from social realities. The high level of problematic drug and alcohol use as indicated by comparatively high Māori hospital admission rates is a case in point. Yet an informed perception recognises that lower income groups on the whole, within which Māori are over represented (Royal Commission on Social Policy, 1988b; New Zealand Planning Council, 1989; Te Puni Kōkiri, 1998), have higher levels of substance use in some categories. Māori are known to suffer harm from tobacco and alcohol use disproportionately to the rest of the New Zealand population (Ministry of Health, 1996a). For example, Māori women have a higher rate of tobacco use, and Māori overall have a higher death and injury rate from alcohol-related road crashes (Ministry of Health, 1996a).

These higher levels of health-compromising behaviours among disadvantaged social groups are often attributed not to poor lifestyle choices, but to a *lack* of choice in available coping strategies in response to high levels of stress associated with lower socio-economic status (Townsend, 1995). A higher occurrence of behaviours such as smoking and poor

diet maintenance among lower socio-economic groups is related to their experience of greater financial barriers in choosing a healthier personal lifestyle. For example, high smoking prevalence rates among parents or single parents of low income families are a “way of meeting rather than shirking responsibility ... [providing] a way of coping with the constant and unremitting demands of caring” (Graham, 1993, p.182: cited in Benzeval et al., 1995, p.76). Other forms of coping with life stress, such as health and fitness centre membership or personal counselling, may not be readily accessible or seen to be of personal relevance or priority to low-income parents.

Where income is inadequate to meet basic living costs, families buy food items which are high in calories but low in nutritional value, purely to satiate appetites (Leather, 1992: cited in Benzeval et al., 1995). British research conducted by the National Children’s Home calculated that a ‘healthy’ diet costs 17% more than an “unhealthy” one (1991: also cited in Benzeval et al., 1995). In their recent publication ‘Hidden Hunger, Food & Low Income in New Zealand’, the New Zealand Network Against Food Poverty integrate local research findings (2000) to conclude that at least 4% of New Zealand households, and up to a third of households in lowest income areas, do not have access to an adequate variety of food for a healthy diet. They note the increasing burden upon food banks nationally, and identify the major reason for this “hidden hunger” as inadequate income. One third of Māori participants (n = 4,636) in the 1997 National Nutrition Survey (Ministry of Health, 1999c) reported that “food runs out because of lack of money” (cf with 10% of New Zealand European or “other”, p.100).

The more the various determinants of health are identified and understood, the more inescapable is the conclusion that a person’s health cannot be divorced from the social and economic environment in which they live (Benzeval, Judge, & Whitehead, 1995). “(Physical), mental, social and behavioural health problems cannot be assessed in isolation from one another”, because they “represent overlapping clusters of problems that...interact to intensify each other’s effects on behaviour and wellbeing”(Desjarlais et al., 1995, p6: cited in Cohen, 1999).

Summary

In summary, the research evidence on health inequities both local and international, is compelling. People of disadvantaged socio-economic circumstances throughout the developed world have higher levels of illness, greater distress, more disability and shorter life expectancies than the more affluent (Benzeval et al., 1995). Health inequities are an endemic characteristic of all modern industrialised societies, yet the size of the disparities vary between countries and over time, suggesting there is nothing fixed or inevitable about having such a health divide (Benzeval et al., 1995). In New Zealand, Māori health remains a health gain priority area in which the government has sought to improve the health and disability status of Māori (Ministry of Health, 1999a, 1999b; Shipley, 1995a, 1995b). However, well-conceived health and social policy targeting socially disadvantaged groups such as Māori needs to be informed by sound empirical research to implement evidence-driven decisions and strategies. The research reported in this thesis represents an important step in helping to achieve this end.

The Andersen Model: Where to next?

The Andersen model has been criticised for the repeated findings that emphasise the importance of need as a key driver of health service use and, by default, under-estimates the role of health beliefs and social structural variables. However, the distinction between perceived need and evaluated need is an important one. As Andersen (1995) notes: “My intent has never been to consider perceived need as primarily representing some pathology or disease devoid of the social context” (p.3). The relative importance (in a statistical sense) of predisposing and enabling characteristics is sometimes minimal in large scale multivariate studies while qualitative and more restricted quantitative studies often show stronger effects of these variables. Mechanic (1979) offers some methodological explanations as to why this might be so.

Despite these issues, the Andersen model continues to be widely cited (e.g., Aday & Awe, 1997) and the model has been used in more recent times to understand a variety of health related concerns such as physician use in individuals with chronic illness (Baris, 1998),

participation in nutrition programmes (Concotelli, 1996), seeking medical help by cancer patients (de Nooijer, Lechner, & de Vries, 2001), use of mental health services by Mariel Cubans (Rios, 1996), and health care behaviour in seniors with joint pain (Robinson, 2000).

In considering ways in which the model might move forward, Andersen (1995) emphasises the importance of considering psychological characteristics. To date, these have been primarily concerned with factors such as mental dysfunction, cognitive impairment, and autonomy. The next Chapter presents the case for psychological distress as an important psychological characteristic which might account for additional variance in health care use. In a similar vein, less attention has been paid to the notion of life event stress as an important precursor of potential health service use. The thesis develops the argument for considering this variable in the next Chapter. Finally Chapter 3 considers the role of traumatic experience in the health service utilisation system.

Chapter 3: Traumatic experience, life events, psychological distress and health care use

The research literature has clearly indicated that physical health need is a salient predictor of health care use. The following section briefly reviews research that has focussed on life events, psychological distress and well being. This is followed by a review of studies that have investigated the health and health care use impact of trauma.

Psychological distress and health service use

A number of early studies in this area illustrated the importance of considering psychological distress (defined in various ways) in attempts to understand health service use. Tessler, Mechanic, and Diamond (1976) examined household interview data from 506 North American adults enrolled in a pre-paid health care programme to investigate use of G.P. services. Psychological distress was defined as “a subjective assessment of personal stress” (p. 355) and was measured using items investigating self-reported stress levels,

relationship issues and negative affect. From G.P. follow-up records psychological distress was among the several variables found to be significant predictors of G.P. visits, accounting for between 2% and 4% of variance in G.P. visits (depending on whether visits were patient- or "other"-initiated). However, the influence of distress as a psychological need variable upon G.P. use was found to be overshadowed by physical need.

Manning and Wells (1992) studied a U.S. community sample of health insured people under the age of 55 years ($n = 4,829$) and found that psychologically distressed respondents had higher use levels of both outpatient and inpatient medical services. However, when physical health variables were controlled for, the mental health need (i.e., distress) effect diminished substantially. When either the distress or well being variables were analysed independently for their effect, they had similar impact upon health care use, with poorer well being and higher distress levels resulting in higher levels of use. Using multivariate analysis they again found psychological distress to increase the probability of health care use, and that an interactive effect existed between psychological distress, well being and health care use. Those respondents with a higher or "healthier" level of psychological well being, regardless of distress levels, were more likely to use health care services than those with poorer levels of well being. The authors inferred from this that psychological well being facilitated a person's ability to respond to distress or mental health need by seeking appropriate care (i.e., psychological well being had a moderating effect). Manning and Wells used sub-scales of the Mental Health Inventory previously developed by Veit and Ware (1983).

More recent research continues to emphasise the importance of distress in studies of health care use. Studies have shown links between emotional distress (conceptualised and measured in a variety of ways) and health service use in a number of samples, including: Chinese Americans (Abe-Kim, Takeuchi, & Hwang, 2002); college students (Cousineau, 1997); primary and mental health service patients in Israel (Feldman, Rabinowitz, & Yehula, 1995); older lesbian women (Giacalone, 2000); users of outpatient medical services (Kouzis & Eaton, 1998); and callers to a 24-hour telephone counselling service (Naylor, Kercher, & Slade, 2003). Health services may well provide for the emotional and psychological needs of distressed individuals and distress rightly fits into the Andersen

model in the sense that the model concerns itself with social interaction and quality of social relationships

Life events and health service use

Major life events or changes within the “normal” life cycle have been demonstrated to potentially lead to physical and psychological health problems with implications for subsequent health care use (e.g., Holmes & Rahe, 1967; Koss, Woodruff, & Koss, 1990). Cheng (1992) studied the influence of life events upon mental health need and subsequent health service use among a sample of older women using a life changes or life events checklist adapted from the Life Experiences Scale, first developed by Sarason, Johnson, and Siegel (1978). Comparable to other study findings Cheng ultimately found that physical symptoms or physical need accounted for the greatest proportion (31%) of explained variance in doctor visits. Cheng found that the inclusion of life stress or psychological need whilst controlling for the effects of health status enhanced the predictive utility of the Andersen model by ~13%. Research pre-dating the Cheng study focussed on the physical and psychological health effects of life events. The Cheng study is therefore unique in that it extended this focus to include health care use consequences of life stress. Subsequent research confirmed that the more a person experiences disruptive life events within a given time frame (e.g., one year) the greater the potential the person has to experience stress-related health concerns during that period (Koss et al. 1990; Rubio & Lubin, 1986).

The life events/health care use link remains a consistent one in more recent literature. Cousineau (1997) showed that the number of negative life events was significantly correlated with self reported health service use in a sample of college students. Similarly, stressful live events have been linked with: mental health service use in children and adolescents (Ezpeleta, 2002); use of sexual health clinic services (Schofield, Minichiello, Mishra, Plummer, & Savage, 2000) ; adult users of mental health services (Sherbourne, 1988); and use of community child mental health services (Verhulst & van der Ende, 1997).

Trauma and health care use

An extensive literature has emerged relating to the psychological impact of exposure to traumatic events. Such events refer to those seen to be outside the realm of *normal* human experience. Research of traumatic events have included exposure to violence, combat, criminal and sexual victimization. The focus of much research has more recently been on community-based survey studies. Green (1993b) noted that psychological health consequences subsequent to experiencing a traumatic event vary considerably and include symptoms or disorders of anxiety, depression, substance abuse, somatic symptoms and relationship problems. A considerable literature has produced mounting evidence of psychological health impact from numerous types of traumatic events including burn injuries (Fauerbach, Lawrence & Haythornthwaite, 1997), military combat (Stretch, Knudson, & Durand, 1998), motor vehicle accidents (Sprang, 1997), natural disasters (Heitzman, 1998), domestic assault (Watson, Barnett & Nikunen, 1997) and sexual assault (Flett, Miller, Long, & MacDonald, 1998). A less voluminous but growing amount of evidence exists to suggest that physical health consequences similarly follow exposure to an equally broad array of traumatic events (e.g., Darves-Bornoz, Lepine & Choquet, 1998; Newberry, 1998; Withers, Madison-Smith, Flett, Long, Chamberlain, & MacDonald, 1997).

Exposure to traumatic events may be more widespread than once thought with estimates ranging from 39% to 84% of individuals being exposed to at least one traumatic event in their lifetime (Breslau, Davis, Andreski, & Petersen, 1991; Fairbank, Schlenger, Saigh, & Davidson, 1995; Norris, 1992; Vrana & Lauterbach, 1994). The prevalence of traumatic experiences have been found to be an important concern for ethnically diverse populations (e.g., Holman, Silver, & Waitzkin, 2000; Peltzer, 1999).

This thesis research will document the range of traumatic experiences in a community sample of New Zealand Māori adults. From an historical perspective, the effects of British colonisation in generating trauma for indigenous populations (such as the New Zealand Māori), and the intergenerational effects of this type of trauma have been considered by a number of commentators (e.g., Brave Heart & DeBruyn, 1998; Gagne, 1998; Lawson-Te

Aho, 1998; Turia, 2001). The pattern of general health disadvantage following colonisation is evidenced among various indigenous populations around the world, including the indigenous people of the Hawai'ian Islands (e.g., Blaisdell, 1993; 1995; Cohen, 1999; Health Research Council of New Zealand, 1997), the numerous Native American tribes and First Nations peoples of the United States and Canada (e.g., Cohen, 1999; Indian Health Service, 1995); and the Australian Aborigines and Torres Strait Islanders (e.g., Cohen, 1999; Nutbeam, Wise, Bauman, & Harris, 1993: cited in Asiasiga, 1995). Clearly these are important issues which may form a background to the more proximal experiences of traumatic events which are the focus of the present study.

The difficulties associated with defining a traumatic event have been extensively reviewed (e.g., Breslau & Davis, 1987; Green, 1990; Solomon & Canino, 1990). Other debates centre on the importance of multiple or prolonged episodes of traumatic experience (Green, 1990, 1993b; Laufer, 1988). More recently, the DSM-IV (American Psychiatric Association, 1994) defined "an extreme traumatic stressor [as] involving direct personal experience of an event that involves actual or threatened death or serious injury...or witnessing an actual or threatened death or serious injury [of another]" (p. 424). Green (1990) suggested that there are certain generic experiences which make any event traumatic. These experiences, or dimensions, are: threat to one's life or bodily integrity; severe physical harm or injury; receipt of intentional injury/harm; exposure to the grotesque; violent/sudden loss of a loved one; witnessing or learning of violence to a loved one; learning of exposure to a noxious agent and; causing death or severe harm to another. The present study considers traumatic events identified by Green's dimensions.

In 1991, Breslau et al. published results of the first large scale community study which considered the exposure rates to traumatic events in a sample of the general population. They found that 39% of their young adult sample had been exposed to at least one traumatic event in their lives, and of those, 24% had P.T.S.D. as defined by DSM-II-R (American Psychiatric Association, 1987). Norris (1992) examined the frequency and impact of various traumatic events amongst a diverse group of North American community citizens. Participants lived in one of 12 neighbourhoods across four mid-sized south eastern cities and were sampled such that there was equal racial (50% African

American, 50% European American), gender (50% male, 50% female) and age (33% young = 18-39 years, 33% middle-aged = 40-59 years, and 33% older = 60+ years) representation. Nine different types of traumatic events were investigated; robbery, physical assault, sexual assault, tragic death, motor vehicle crash, combat, fire, other disaster (including injury or property damage because of a natural or manmade disaster) and other hazard (forced to evacuate from home or learned of an imminent hazard in the environment) and these were considered in terms of frequency of experiences, time frame (experienced within the preceding year and experienced at any time in their lives) and impact.

Sixty nine percent of participants were found to have experienced one or more of any of the nine types of traumatic events at some stage in their lifetimes. Twenty-one percent had experienced a traumatic event in the previous year. The most commonly experienced traumatic event throughout their lifetimes was tragic death, with 30.2% losing a loved one by homicide, suicide, or accident. The least common was sexual assault at 4.4%. Significantly more males (73.6%) experienced a traumatic event at some stage in their life than females (64.8%), as did European American participants (76.8%) compared with African American participants (61.2%). However, when only traumatic events experienced in the previous year were considered, significant demographic differences were evident only within age groups, with 27% of the young group and 21% of the middle-aged group representing a significantly higher exposure rate than older adults (14.2%). In the Breslau et al. (1991) sample then, exposure to recent traumatic events decreased with age.

Other community surveys have considered the traumatic experiences of women (e.g., Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993), students (e.g., Vrana & Lauterbach, 1994), and the importance of a more diverse set of traumas (e.g., Turner & Lloyd, 1995). As noted earlier in this Chapter, the relationship between traumatic events and health problems of various kinds seems well documented (e.g., Flett, Hirini, Long & Miller, 2004; in press; Flett, Millar, Long, & MacDonald, 1998)

One theme consistently emerges through the conclusions drawn by the trauma researchers, that of the tendency to neglect the widespread impact on the community. Nowhere is this

neglect more salient than in the consideration of the experiences of indigenous peoples and ethnic minority groups (e.g., Berberich, 1998; Morris, 1999; Robin, Chester, & Rasmussen, 1998). Many studies which have considered the experiences of ethnic minority groups have focussed on the antecedents and consequences of traumatic events in children (e.g., Cheever & Hardin, 1999; Feiring, Coates, & Taska, 2001), African-American women (e.g., Adriance, 1999; Curtis-Boles & Jenkins-Monroe, 2000; Wyatt, Axelrod, Chin, Carmone, & Loeb, 2000), Asian Americans and Vietnamese Americans (e.g., Bemak & Chung, 1998; Lee, Lei, & Sue, 2001), Hispanic and Latino groups (e.g., Feiring et al., 2001; Guthrie, 1999; Nejman-Muhlmeister, 2000; Schecter, Marshall, Salman, Goetz, Davies, & Liebowitz, 2000), and indigenous or Native Americans (e.g., Morris, 1999; Robin, Chester, & Rasmussen, 1998). Holman et al. (2000) note that traumatic events are a common occurrence across ethnically diverse samples and that any form of mental health assessment needs to involve screening for traumatic experiences. In a similar vein, Turner and Lloyd (1995) note that "...failure to take account of major life traumas has resulted in the systematic underestimation of the role of stress exposure in accounting for elevated levels of psychiatric disorder" (p.372). To the current author's knowledge, the extent and nature of traumatic experiences among New Zealand Māori have not been examined or documented.

Much of the research on traumatic experiences is prompted by an interest in understanding how traumatic stress is perceived in different cultures (Shalev, Yehuda, & Mcfarlane, 2000). The relevance of Western conceptualisations of reactions to trauma need to be questioned (e.g., Terheggen, Stroebe, & Kleber, 2001) and some of the traumatic stress measurement strategies that may work well in international comparative research (e.g., Asukai, Kato, Kawamura, Kim, Yamamoto, & Kishimoto, 2002) while other scales may function differently when translated away from English (e.g., Orlando & Marshall, 2002). There is evidence of some culturally sanctioned expressions of extreme distress associated with trauma, for example the Hispanic notion of *susto*, the Japanese and Chinese concepts of *amae* and *shenjing shuairuo* respectively (Young, 2001). In the New Zealand context, the concept of *tapu* and emotional, psychological or spiritual consequences of breaching *tapu*, and the cultural phenomena such as *whakamā* (a self-deprecating or self-effacing attitude) or *hopo* (a self-induced "depression" or deep grieving state) may warrant further

psychological investigation. While the symptoms are often similar to posttraumatic stress reactions, the manifestation of responses may differ significantly across cultures.

Given the possible mental and physical health consequences of traumatic experience described above (see also Green, 1994; Norris, 1990; Raphael, Lundin, & Weisaeth, 1989), a number of studies have examined the health care use patterns of those who have been previously exposed to trauma. Koss, Goodman, Browne, Fitzgerald, Keita, and Russo's (1994) study found increased reporting of adverse affects upon self-reported health status, and increased reporting of physical symptoms and medical conditions subsequent to being a victim of personal crime. Criminal victimisation also had a direct relationship upon the frequency of health care utilisation in the Koss et al. (1994) study. Respondents who had been victimised more than once (e.g., repeated sexual abuse victims) visited G.P.'s twice as often as those who had not been subjected to such trauma. The experience of traumatic criminal victimisation emerged as the strongest predictor variable of health care use even after controlling for the influence of demographic, health status and other life stressors. Walker, Katon, Hansom, Harrop-Griffiths, Holm, Jones, Hickok, and Jemelka (1992) likewise found poor physical health and increased health service use among a sample of women who had been sexually assaulted. In a New Zealand study Long, Chamberlain, and Vincent (1992) found significantly more somatic symptoms, chronic health conditions, higher rates of disability days and lower self-rated health among Vietnam War veterans diagnosed with P.T.S.D. Further, the respondents within the Long et al. study made almost three times as many contacts with health care providers (particularly mental health professionals) and reported higher levels of hospital visits than those without a P.T.S.D. diagnosis. Beyond examining the mental and physical health consequences of trauma exposure, the present study will investigate health care use patterns of those with lifetime experience of trauma.

Norris, Kaniasty, and Scheer (1990) studied mental health service use subsequent to exposure to a traumatic event. Previous criminal victimisation was assessed by telephone interview among a sample of 392 victims of crime from Kentucky households ($n = 12,226$). Respondents were classified into three groups, victims of violent crime, victims of property crime and non-victim controls, and interviewed twice at a six month interval.

The authors included a measure of life events, indicating whether (in the past six months) a respondent had moved house, changed relationship status or employment, had a birth, serious illness or death in the family etc. Norris et al's rationale for including these events was based on previous findings by Rubio and Lubin (1986) who had found such events to increase utilisation rates of mental health services. The authors found crime victims to have experienced more recent life events, although no significant associations were found between life events and health care use in their Kentucky sample. Norris et al. found that 23% of violent crime victims had contacted mental health professionals and 21% had contacted G.P.'s. Victims of personal violence were found to be three times more likely to use mental health professionals than property crime victims or the American general population. Thus Norris et al. concluded that the strongest correlate of health care use among their three sub-samples was the presence of violence in the commission of a crime.

Using a self-report questionnaire Koss, Woodruff, and Koss (1990) studied the association between criminal victimisation and doctor visits among a sample of U.S. women (n = 2,291). A self-reported health status measure and a stressful life changes scale were used to control for the influence of current health status and life events to assess the independent effect of criminal victimisation. Koss et al. found a negative correlation between criminal victimisation and health. That is, more severe or higher levels of criminal victimisation were found to be associated with poorer health status, whilst less severe or lower levels of victimisation were associated with better health ratings. Female victims of crime in the Koss et al. study were also more likely than others in the sample to have visited a G.P. as almost all (93%) victims of crime (violent or otherwise) made at least one visit to a doctor in the year after the crime had occurred.

Kimerling and Calhoun (1994) followed women who had been recently raped (and a matched group of controls) for one year after the trauma. At 4-months post-trauma the victim group reported significantly increased levels of health care utilisation (assessed as number of physician visits per month) and this difference in health care utilisation rates persisted at the one year follow-up. Such differences were not noted for psychological service utilisation and relatively few victims sought any form of mental health treatment. These authors suggest that there is a need for collaboration between physicians and psychologists in medical treatment centres in the sense that:

...victims do not seem to be getting the psychological attention they may need during the year post-assault...an attempt at preventive medicine needs to be made, assessing medical patients with the physical symptoms discussed here for victimisation experiences, leading to treatment of both the physical and psychological symptoms...(p. 339)

Koss et al. emphasise the importance of the medical care system "...as a very important locus from which crime victims could be identified and their treatment needs considered" (p. 151). Much of the trauma and health care research has considered trauma measured at an aggregated level (i.e., counts of the numbers of traumatic experiences, or the simple presence or absence of a traumatic experience). An important research question concerns the extent to which contextual features or specific characteristics of the trauma experience can be identified that might account for individual variability in the development of subsequent health/mental health problems, and associated increases in health service utilisation.

Both trauma-related factors and subjective responses to trauma are implicated in the development of P.T.S.D. in particular (Davidson & Foa, 1991). Stressor related factors such as the level of violence and injury (e.g., Bownes, O'Gorman, & Sayer, 1991; Green, Grace, & Gleser, 1985) and subjective responses to trauma such as ratings of impact, level of danger (e.g., Green, Lindy, & Grace, 1985; Kilpatrick, Saunders, Amick-McMullan, Best, Veronen, & Resnick, 1989) are determinants of a P.T.S.D. response. Multiple experiences of the same type of trauma (or other types of trauma), and the extent to which individuals refuse to discuss their emotional reactions and disclose their feelings about traumatic experiences have also been linked with the development of P.T.S.D. (Norris & Murrell, 1988; Stephens, 1996; Turner & Lloyd, 1995).

The remainder of this section draws on the work of Jury (2002) and presents an overview of trauma characteristics that might be related to distress (and therefore possible subsequent health care utilisation).

Stressor-Related Factors

Jury (2002) notes that objective and subjective characteristics of the stressor have been examined separately in order to evaluate their independent contribution to resulting distress (Green, 1990; Spaccarelli, 1994; Weaver & Clum, 1995). Objective factors can be defined and measured without reference to the person who experienced the event, while subjective factors include perceptions and immediate appraisals of the event at an emotional and cognitive level (Green, 1990).

Objective Stressor-Related Factors

Some forms of trauma are a single “one-off” event. Other traumas may take place over an extended period of time (Anderson, Martin, Mullen, Romans, & Herbison, 1993; Green, 1993a; Green, 1993b). Chronic stressors, such as being a victim of incest over many years, intuitively differ *qualitatively* and *quantitatively* from more discrete events, such as an isolated incident of rape, because they consist of a different number and variety of experiences. Laufer (1988) used the term “routinised traumatisation” to describe events of an ongoing nature, (e.g., hardships of war), and conceptualised them more as a process rather than as a distinct event.

The experience of multiple traumatic events is not uncommon in the general population (Breslau et al., 1991; Flett, Millar, Long, & MacDonald, 1998). However, the impact of multiple traumatic events remains difficult to render clearly from a research perspective (Carlson & Dalenberg, 2000; Green, 1994; Green, Goodman, Krupnick, Corcoran, Petty, & Stockton, 2000; Weaver & Clum, 1995).

The time since trauma exposure would appear intuitively to influence subsequent adaptation but it has rarely been examined (Kendall-Tackett, Williams, & Finkelhor, 1993). The effects of trauma exposure appear to decrease over time (Green & Solomon, 1995; Kendall-Tackett et al., 1993; Kilpatrick, Saunders, Amick-McMullan, Veronen, & Resnick, 1989; Solomon et al., 1988: cited in Joseph, Williams, & Yule, 1997; Weaver &

Clum, 1995). Clearly there are significant methodological hurdles to overcome in order to accurately and convincingly track the effects of trauma over time.

Traumatic events vary in their degree of physical injury. Exposure to an event that involves physical injury has been associated with more negative sequelae (Boudreaux, Kilpatrick, Resnick, Best, & Saunders, 1998; Green, Grace, & Gleser, 1985; Kilpatrick et al., 1989; Resnick et al., 1993; Weaver & Clum, 1995). These effects have been investigated in association with criminal acts (e.g., Koss et al., 1994) while disaster studies (Green et al., 1985) and combat studies (Lund, Foy, Sippelle, & Strachan, 1984) have also highlighted the salience of this dimension to stress-related symptoms.

In summary, the objective stressor-related characteristics examined above offer an understanding of the variability in responses associated with trauma exposure. The following reviews the relationship between subjective stressor-related factors and subsequent outcomes.

Subjective Stressor-Related Factors

A number of writers agree on the importance of interpretations and appraisals in determining responses to traumatic events (e.g., Carlson & Dalenberg, 2000; Dunmore, Clark, & Ehlers, 1999; Ehlers & Clark, 2000; Lazarus, 1984: cited in Janoff-Bulman, 1992). Relevant subjective stressor-related factors include appraisals of life threat, controllability, and predictability, along with perceptions of adaptation to the stressor. These factors are examined further below.

Green (1990) and others (e.g., Dunmore et al., 1999; Ullman & Filipas, 2001) identified life-threat (a “brush with death”, or events in which the individual believed they were going to die or be seriously injured) as an important dimension of traumatic events. The association of this dimension with stress symptoms has been confirmed by numerous studies, including threats to life related to combat exposure (Elder & Clipp, 1988; Foy & Card, 1987; Green, Lindy, Grace, & Gleser, 1989; Kulka, Schlenger, Fairbank, Hough,

Jordan, Marmar, & Weiss, 1990), natural disasters (Green, Grace, & Gleser, 1985; McFarlane, 1988) and being a victim of crime (Kilpatrick et al., 1989).

Exposure to traumatic events that are perceived as uncontrollable may lead to the development of a generalised learned-helplessness type of belief that nothing can be done to control such traumatic experiences in the future (Dunmore et al., 1999; Kushner, Riggs, Foa & Miller, 1992). Jury (2002) notes that trauma survivors may continue to experience such feelings of powerlessness long after they have in reality regained some control over their environment (Carlson & Dalenberg, 2000). Similar in some senses to the notion of uncontrollability is the perception of unpredictability. Unpredictable or unexpected events tend to be associated with more negative sequelae (e.g., Lazarus, 1999; Carlson & Dalenberg, 2000).

Whether the consequences of trauma exposure are seen as negative is related to more maladaptive outcomes (e.g., Ehlers & Clark, 2000; McFarlane & Girolamo, 1996). However, these sorts of negative appraisals are not inevitable. An event may be reframed in a more positive light when individuals see the experience as leading them to find a renewed purpose and appreciation for life, and perhaps an associated recalibration of personal values, increased coping skills, and strengthened social support networks (Park, 1998; Schaefer & Moos, 1998; Tedeschi, Park, & Calhoun, 1998).

A belief that a traumatic event has had a broad ranging negative impact on many areas of one's life is associated with stress symptoms (e.g., Flett et al., 1998) and Ehlers and Clark (2000) suggest that survivors may become "frozen in time" as a result of such beliefs. Alternately, Ehlers and Clark note that more positive outcomes have been related to appraisals of the trauma impact as being relatively time-limited.

Positive outcomes have been associated with talking about traumatic life events (Pennebaker, 1995; Tedeschi et al., 1998). James Pennebaker and his colleagues have convincingly demonstrated that healthy participants who disclose emotional reactions to traumatic experiences show improved physical health compared with control group participants (Francis & Pennebaker, 1992; Pennebaker, 1986; Pennebaker, Kiecolt-Glaser,

& Glaser, 1988. There is much underlying theorising in the literature about the mechanism through which disclosure might have such an effect, however, the key issue in terms of this thesis research, is simply the fact that such an effect seems to occur.

In summary, the present thesis has thus far reviewed the Andersen model of health service utilisation. A range of research evidence has been reviewed which supports the value of the model to varying degrees. The present Chapter has provided a case for adding psychological distress, life events, and in particular traumatic experiences to extend the model in order to improve its explanatory power.

With this in mind, the research goals of the present thesis are presented in the next Chapter.

Chapter 4: Research Goals

1) *To test the efficacy of the Anderson behavioural model in the prediction of Māori health care utilisation*

The review in Chapters 1 and 2 suggests that predisposing factors such as age, gender, marital status, education, social contacts, health worries, and perceived control over health might be significantly associated with health care use. The present study also sought to consider predisposing factors that might enhance accessibility of services such as having access to a phone, a vehicle and living in urban vs. rural settings. Enabling characteristics considered in the present study included health insurance, employment and income. Heeding Andersen's (1995) advice, we sought to consider the effects of the Community Service Card, and doctor's fees as a mechanism for increasing or decreasing affordability of services. Similarly, the present study asked about doctor waiting times which previous research had suggested was an index of accommodation; how well the service accommodated the needs of the consumers. In a similar vein we asked whether doctor's fees ever prevented access to services. The present study considered a range of need characteristics (as defined by the model) which, in line with previous findings, we expected to account for a major portion of the variability in health service use. A range of discretionary/non-discretionary, and informal/formal types of health services were included to assess health care utilisation in the present study. The assessment of the types of health care accessed is the most comprehensive in the research area to date.

2) *To extend the model by considering the role of life events in the prediction of health service utilisation.*

As noted in Chapter 3, major life events or changes within the "normal" life cycle have been demonstrated to potentially lead to physical and psychological health problems with implications for subsequent health care use (e.g., Holmes & Rahe, 1967; Koss, Woodruff & Koss, 1990). There is a consistent literature linking life events with increased health care use and we would predict this to be so in the current thesis research.

Chapter 5: Methods

Chapter overview

The current Chapter describes the research procedures and measures used in the present study. The measures used were chosen for their demonstrated relevance to health care use, to estimating incidence of trauma and for their applicability to the Andersen theoretical model under examination. These measures were derived from previous research surveyed in Chapters 3 and 4 of the Introduction.

Procedure

The data for the present study were gathered in the context of a large-scale trauma-related investigation undertaken in 1995 by a university research group which was commissioned by a government agency⁷. The research reported in this thesis constitutes an original contribution to the field, and is a major extension of the substantive study by Flett et al. (1998). The present study was overseen by the senior author who acted as the primary research supervisor. A structured interview tool was initially developed using a number of selected measures adapted from previous research concerned with health care use and trauma. Two pilot studies were conducted as part of the interview construction process. The initial pilot study surveyed 20 respondents and prompted modifications to the interview format and item wording. The second pilot study, using a comparable sample, revealed that these alterations effectively simplified and abbreviated the interview. Actual data collection took place over a three month period by way of structured face-to-face interviews. The large-scale interview survey aimed to gain a total sample of 1,500 adult respondents aged 18 years and over. The survey was ethnically and geographically stratified, employing a multi-stage sample selection procedure in order to yield disproportionately large sub-samples of Māori and rural respondents. This procedure enabled a sufficiently large number of Māori respondents to be accessed for the purposes of the present study.

⁷ See Flett, Miller, Long and MacDonald, 1998.

The interviews were conducted in the respondents' homes by National Research Bureau (i.e., N.R.B.) interviewers specifically trained for this task on behalf of the university research team. All N.R.B. interviewers had their work audited by regional supervisors, with 10% of respondents questioned by each interviewer being contacted to determine whether the interviews were conducted satisfactorily. Interviews generally lasted between 45 and 60 minutes and were conducted in accordance with the ethical guidelines laid down by the New Zealand Psychological Society (see The New Zealand College of Clinical Psychologists, 1996). Prior to seeking consent to participate, the potential respondents were given a detailed information sheet which described the nature of the study and informed of their rights as participants and the responsibilities of the researchers. They were thus enlightened that their responses were anonymous and confidential, that if they so wished they could refuse to answer any of the interview questions, and that they could further withdraw from the study at any time. Respondents were also informed of how they could obtain feedback about the results of the study. They were further supplied with detailed contact information about the university research team so that they could ask additional questions or seek further clarification about any aspect of the survey.

Sampling

In order to reliably investigate the health and utilisation experience among the Māori population, it was necessary to ensure that the final survey sample included an adequate number of Māori respondents, with a reasonably even distribution between rural and urban dwellers. The sample design allowed for the deliberate over-sampling of Māori and rural residents which meant that the experiences of these groups could be documented with a greater degree of statistical reliability than would otherwise be the case had their proportions in the study sample reflected their proportions in the population of New Zealand as a whole.

Households were selected using a three stage cluster design. The first stage involved taking a sample of geographical areas in the form of census meshblocks. A meshblock is the smallest geographical unit for which data is collected and statistically processed by the former New Zealand Department of Statistics (now known as Statistics New Zealand).

Stratification of the first stage of the sample (meshblocks) was done to yield a disproportionately high number of rural and Māori respondents (as noted above). The probabilities of a respondent being included in the survey were known and were greater than zero meaning that the sample was a probability design. Census meshblocks were classified according to the proportion of Māori and rural dwellers in each block, and primary sampling units from these meshblocks were systematically selected in a ratio consistent with the over-sampling required. The second stage of sampling involved the selection of a sample of dwellings from each of the meshblocks. Households were randomly selected from within each meshblock. The third stage of household selection involved accessing an eligible respondent from each dwelling. Three calls were made to a dwelling before substitution (in the event of non-contact). In total, 150 meshblocks were sampled and ten interviews conducted within each. The geographical distribution of meshblocks is presented in Table 1 below. Through the selection of meshblocks, the sample of 1,500 was stratified to yield 750 urban interviews and 750 rural interviews, with Māori respondents constituting approximately one-third of the overall sample. Of the 3,562 attempted contacts, 972 were not eligible, did not reply, or were otherwise unavailable for an interview. Of the remaining 2,590 contacts, 1,090 refused to be interviewed, giving a valid response rate of 58%. The overall response rate including those who were ineligible or unavailable was 42%.

Table 1:

Geographical distribution of census meshblocks

Region	No. of Meshblocks	Region	No. of Meshblocks
Northland	16	Manawatu – Wanganui	8
Auckland	23	Wellington	10
Waikato	19	Nelson – Marlborough	2
Bay of Plenty	28	West Coast	2
Gisborne	16	Canterbury	7
Hawkes Bay	7	Otago	4
Taranaki	5	Southland	3

Measures

The following section describes the psychometric instruments derived from the literature review and used to examine variables of interest to the present study. All scales and items used in the present study can be viewed in Appendix 2: Interview instrument.

The 'socio-cultural' element: Measurement of predisposing variables

The variables measured below were conceived of as collectively constituting the predisposing characteristics of the Andersen model previously reviewed in Chapters three and four. The three dimensions that constitute the so-called 'socio-cultural' element (i.e., predisposing characteristics) of Andersen's model include demographic, social structure and health belief factors. Following on from previous research variables representing these three dimensions of predisposition are described below.

Socio-demographic information

Using questions modelled on the 1986 New Zealand Census (New Zealand Department of Statistics, 1988), socio-demographic information was sought on respondents' ethnic identification (i.e., self-determined), age, gender, marital status, and educational qualifications. Residential category (i.e., whether rural or urban) was also determined using criteria used in Census information by the New Zealand Department of Statistics. Questions to determine whether a respondent lived alone or with others and marital status were used to investigate levels of social contact (Cafferata, 1987; Wolinsky & Johnson, 1991).

Access to a telephone and private transport, and contact (telephone or actual) with family and friends (i.e., at gatherings such as church attendance) in the past two weeks were also included to assess level of social contact based on previous research findings (Nelson, 1993; Wolinsky & Johnson, 1991). Thus, based on prior research reviewed in preceding Chapters the measurement of these socio-demographic variables are collectively thought of as constituting the predisposing dimension of the Andersen model.

With respect to the health beliefs aspect of the predisposing dimension, respondents were further asked to rate their degree of worry caused by their overall health status in the past year, and their perceived amount of control over their future health status on a five-point Likert scale as used by Strain (1991) and, Wolinsky and Johnson (1991).

Specifically, health beliefs were investigated using an index for degree of health control and health worry with responses ranging from (1) “A great deal of worry/control” to (4) “No worry/control” over one’s own health (Strain, 1991; Wolinsky & Johnson, 1991).

Alcohol consumption

As a particular health risk behaviour and contemporary mental health concern for Māori, alcohol consumption was specifically assessed in the present study. This variable has been conceptualised as a predisposing variable in previous work (e.g., Millar, 1996). Respondents were asked if they ever drunk alcohol (yes/no). A more detailed analysis of alcohol consumption was beyond the scope of the present study.

Stressful life events

Respondents were asked to indicate whether or not they had experienced any number of 20 stressful life events during the 12 month period preceding the survey. The scale utilised was developed specifically for use in the larger context of the present study (Flett et al., 1998) and reflected domains of life stress (potentially perceived as either positive or negative) shown to be significant in previous life events research (Brugha, Bebbington, Tennant, & Hurry, 1986; Cheng, 1992; Raphael, Lundin, & Weisaeth, 1989; Singh, Lewing, Raphael, Johnson, & Walton, 1986). The life event items surveyed included problems pertaining to personal and familial health, death, parenthood, personal and family legal matters as well as changes in household composition, marital status, employment, residence and financial situation (see Appendix 2 to view all 20 items).

The 'economic' element: Measurement of enabling variables

Enabling variables represent the resource capacity or means to use health services, and essentially constitute the 'economic' element of the Andersen model. Due to the nature of the research design and the interest in individual and household realities for Māori adults, the present study investigated familial resources to represent the enabling dimension.

Using questions modelled on the 1986 New Zealand Census (New Zealand Department of Statistics, 1988), information was sought on respondents' employment status and annual income. In addition to income, questions were asked regarding each respondent's subjective level of satisfaction with their personal standard of living and level of income. Specifically, respondents were asked "which statement best describes how satisfied you are with your overall standard of living?" with index responses ranging from (1) "Very dissatisfied" to (4) "Very satisfied". Respondents were then asked "which statement best describes how you feel about your ability to get along on your income" with responses ranging from (1) "Can't make ends meet" to (4) "Always have money left over" (Eve, 1988).

G.P. waiting room times, a G.P.'s gender, G.P. fees as a limitation to access and the length of time with the same G.P. were investigated (e.g., Gribben, 1992). As noted in Chapter 1, previous studies have consistently found that a regular source of care (generally in the form of family doctors) can facilitate access in response to health need and increase frequency of contact (Aday & Andersen, 1978; Andersen, 1968; Lewin-Epstein, 1991; Stroller, 1982). The relevance of the 'usual source effect' (Kuder & Levitz, 1985) has been found to vary considerably among U.S. ethnic groups (Lewin-Epstein, 1991), yet was not a significant variable in the south Auckland (Gribben, 1992) study. From previously reviewed work demonstrating a relevance of health insurance as a predictor of health care use (e.g., Andersen, 1968), respondents were asked if they belonged to any health insurance scheme. As a potentially health care access facilitating variable in the New Zealand context, possession of a community services card was also determined.

Self-reported health status: Measurement of need variables

Respondents were asked a series of questions relating to their self-perceived physical and mental health status. Respondents were initially asked to provide information on current symptoms, chronic illness, disability estimates and self-ratings of their current general physical health.

Self-rated health

Respondents made a self-assessment of their health using an item previously used by Wolinsky and Johnson (1991). This single item uses a four-point Likert scale of self-reported health ranging from (1) "Excellent", (2) "Good", (3) "Not so good" and (4) "Poor", and had been trialled locally by Gribben (1992) and in the 1992-93 New Zealand Household Health Survey⁸ (Statistics New Zealand and Ministry of Health, 1993). Using a four-point scale, respondents were asked to indicate how they rated their current overall health as excellent, good, not so good or poor. Again, similar items have been used successfully in previous New Zealand research with samples of Vietnam War veterans, United Nations peacekeepers and their partners (MacDonald et al., 1996a: 1996b) and military personnel (Alpass, Long, MacDonald, & Chamberlain, 1996). Self-rated health has been shown to relate to physician ratings of health (LaRue, Bank, Jarvik, & Hetland, 1979), to intellectual functioning in older adults (Perlmutter & Nyquist, 1990) and to be predictive of mortality (Idler & Kasl, 1991).

Chronic health problems

The incidence of chronic health problems was assessed using a checklist of 17 such conditions such as diabetes, asthma, hearing or sight impairment (see Appendix 2 to view all conditions). Respondents indicated which complaints they had experienced for three months or longer. The scale was developed by amending an existing checklist of serious medical conditions (Belloc, Breslow, & Hochstim, 1971) to ensure that those conditions

⁸ The latest 1996/'97 national health survey (Ministry of Health, 1999) used a similar five-point scale to measure 'general' health status self-rating.

included in the 1992–93 Household Health Survey⁹ (Ministry of Health and Statistics New Zealand, 1993) were also included in the current study.

Physical symptoms

The occurrence of a range of common physical symptoms and sensations was assessed using a revised version of the Pennebaker Inventory of Limbic Languidness (i.e., P.I.L.L.), (Pennebaker, 1982). The full version of the inventory consists of 54 items and Pennebaker (1982) reports that respondents with high scores on this inventory have relatively more health-related work absences with more physician and health care centre visits. For the purposes of the present study however, it was felt that use of the full 54 items of the P.I.L.L. was potentially lengthy and unnecessary. From previously conducted local psychological research using samples of Vietnam war veterans, United Nations peacekeepers and New Zealand Army personnel a number of highly correlated P.I.L.L. items have been found (Alpass et al., 1996; MacDonald, Chamberlain, & Long, 1996; MacDonald, Chamberlain, Long, & Mirfin, 1996a). Therefore the 28 items included in the present study were selected by omitting those consistently found to be highly correlated with other items across each data set. Some items were re-worded to incorporate aspects of those omitted items. For example, the original items “acne and pimples on face” and “acne and pimples other than face” were included as a single item “acne or pimples”. Similarly a new item, “nose problems”, replaced the original items “sneezing”, “running nose”, “congested nose” and “bleeding nose”. In this way, from the original 54 item P.I.L.L. measure, respondents were asked to indicate the experience of 28 physical symptoms and complaints over one month, using a five-point Likert scale.

Disability estimates

Disability estimates were assessed firstly with a single item in which respondents indicated how many days health problems had interfered with their normal daily activities (e.g., going to work, playing sport, doing housework). This indication of disability has been used in previous New Zealand research with samples of Vietnam War veterans (Long, Vincent,

⁹ The 1992-'93 inaugural national health survey (cf 1996-'97 second survey) was a central reference point during survey development in the present study as data collection took place in 1995.

& Chamberlain, 1995), United Nations peace-keepers (MacDonald et al., 1996a), New Zealand Army personnel (Alpass et al., 1996) and partners of military personnel (MacDonald, Chamberlain, Long, & Mirfin, 1996b).

A second measurement of physical disability included the use of a 12 item list of activities of daily living (i.e., A.D.L's) previously utilised by Wolinsky and Johnson (1991). The A.D.L. instrument effectively measures three aspects of daily living: (1) basic activities such as bathing, dressing, getting out of bed, walking and toileting; (2) household activities such as meal preparation, shopping, light housework and heavy housework; and (3) advanced activities of daily living which include managing money (requiring adequate cognitive capacity), using a telephone and eating. During data screening these three sub-scales were amalgamated to form a composite variable titled total activities of daily living.

A third measure of disability included an estimate of bodily limitations. Again, Wolinsky and Johnson's seminal study was drawn on to investigate this variable. Wolinsky and Johnson developed their version of the measure from Nagi's (1976) disability scale, which is comprised of two dimensions distinguished as either upper or lower body limitations. Items that tapped upper body limitations included sitting for two hours, reaching over one's head, reaching out as if to shake hands and using one's fingers to grasp objects. Lower body limitations were assessed by asking if respondents had any difficulty walking half a kilometre, walking up ten stairs without rest, standing or being on one's feet for two hours, stooping, crouching or kneeling and lifting or carrying ten kilograms.

Mental health need: Overall mental health

The Mental Health Inventory (Veit & Ware, 1983) was included to provide an overall mental health score and two broad sub-scores on dimensions labelled by Veit and Ware as representative of psychological well being and psychological distress. Both dimensions have been demonstrated (Veit & Ware, 1983) to have high internal consistency (coefficients of .92 for well being and .94 for distress) and one year stability (.63 and .64 respectively). Using a seven-point response scale, respondents indicated how frequently they had experienced a possible 38 psychological or emotional states over the last month

(e.g., “Have you felt lonely?”, “Have you been a very nervous person?” or “Were you able to relax without difficulty?”, see Appendix 2 to view items). The individual item-total correlations for the 14 items of the psychological well being sub-scale ranged from 0.39 to 0.68 and the standardised item alpha was 0.89. The individual item-total correlations for the 24 items of the psychological distress subscale ranged from 0.32 to 0.76 and the standardised item alpha was 0.93.

Symptoms of post traumatic stress disorder

Post traumatic stress disorder (i.e., P.T.S.D.) symptoms were assessed with a short version of the Civilian Mississippi Scale (Keane, Caddell, & Taylor, 1988). Keane and his colleagues initially developed the Mississippi Scale for combat-related P.T.S.D., a 35 item self-report questionnaire for use with Vietnam war veterans (Keane et al., 1988). Widely used, the scale has been shown to be a reliable and valid instrument for the identification of combat-related P.T.S.D. symptoms in combat veterans (Watson, 1990; Watson, Plemel, DeMotts, Howard, Tuorila, Moog, Thomas, & Anderson, 1994). Subsequent variants of this scale have included a shortened 11 item version (Fontana & Rosenheck, 1994), and a civilian version which utilised more vernacular, less combat-oriented item wording (Vreven, Gudanowski, King, & King, 1995). The scale used in the present study included the 11 items from the short form of the combat-related Mississippi Scale, with wording more suitable for a survey of the general population, and as utilised in the Civilian Mississippi Scale. Fontana and Rosenheck (1994) reported high internal consistency for the shortened combat-related scale and high correlation with the full scale. For the full version of the civilian scale, Vreven et al. (1995) reported item-total correlations ranging from 0.10 to 0.53 and a mean of 0.39. The coefficient alpha was 0.86. In the current study the individual item-total correlations for the 11 items ranged from 0.22 to 0.50 with a mean of 0.37. The coefficient alpha was 0.73.

Traumatic experiences

As an extension to previous work the present study further investigated the incidence of trauma among adult Māori and the potential relationship between experience of trauma

and health status (as measured in physical and mental health status described above) and health care use (described below).

From the review provided in earlier Chapters it is concluded from previous overseas community surveys of trauma that a wide range of experiences are potentially traumatising and may have significant long-term consequences for mental and physical health (e.g., Friedman & Schnurr, 1995; Green, 1994; Norris, 1990; Raphael, Lundin, & Weisaeth, 1989). There is also increasing evidence that a significant proportion of people have experienced multiple trauma and that prior experience of trauma increases the risk of subsequent mental disorder (Green, 1994; Vrana & Lauterbach, 1994). It is therefore considered important to assess a wide range of potentially traumatic events. The Traumatic Events Scale (i.e., T.E.S.) was developed specifically for use in the trauma-related survey within which the present study developed (Flett et al., 1998). The T.E.S. was used to collect lifetime incidence data on 12 potentially traumatising events. These events included: combat exposure, child sexual abuse, adult sexual abuse, domestic assault, theft by force (i.e., robbery or mugging), motor vehicle accident, other accident, natural disaster, disaster precautions, traumatic death of a loved one, and injury of a loved one (i.e., vicarious or secondary trauma). Respondents were also asked to indicate if they had other experiences which they felt were shocking, terrifying, or otherwise traumatic, including any event which they felt unable to name or talk about. The item questions defining each event are recorded below:

Table 2: Trauma items from the Traumatic Events Scale

1) COMBAT:	<i>"Have you ever been engaged in military combat?"</i>
2) CHILDHOOD SEXUAL ABUSE:	<i>"During your childhood, did anyone ever make you have sex by using force or threatening to harm you (this involves all unwanted sexual activity)?"</i>
3) ADULT SEXUAL ABUSE:	<i>"Has anyone ever made you, as an adult, have sex by using force or threatening to harm you (this involves all unwanted sexual activity, but not as a child)?"</i>
4) DOMESTIC ASSAULT:	<i>"Have you ever been seriously beaten or attacked by a member of your family (such as your spouse, partner, parent, child)?"</i>
5) OTHER PHYSICAL ASSAULT:	<i>"Have you ever been seriously beaten or attacked by someone who was not a member of your family?"</i>
6) THEFT BY FORCE:	<i>"Has anyone ever taken or tried to take something from you by force or threat of force, such as in a robbery, mugging, or hold-up?"</i>
7) MOTOR VEHICLE ACCIDENT:	<i>"Have you ever been in a serious motor vehicle accident in which one or more people were seriously injured or killed?"</i>
8) OTHER ACCIDENT:	<i>"Have you ever been seriously injured in an accident other than a vehicle accident, such as at work?"</i>
9) DISASTER EXPERIENCE:	<i>"Have you ever suffered serious injury and/or property damage because of a natural or manmade disaster such as a fire, flood, or earthquake?"</i>
10) DISASTER PRECAUTIONS:	<i>"Have you ever been forced to leave your home or take other precautions because of an approaching disaster such as a flood, earthquake, or cyclone?"</i>
11) TRAUMATIC DEATH:	<i>"Have you ever experienced the violent or very unexpected death of a loved one, such as through an accident, homicide, or suicide?"</i>
12) SECONDARY TRAUMA:	<i>"Has anyone very close to you (a loved one) ever experienced violent assault, serious accident or serious injury?"</i>

Health service utilisation: Measurement of dependent variables

General health care utilisation (multi-measurement)

The number of visits to a doctor (i.e., G.P. or family physician), nights spent in hospital, Accident and Emergency (i.e., A & E) hospital department and outpatient hospital department visits in the preceding 12 months were used to assess health care utilisation (Gribben, 1992; Lewis, 1988; Wolinsky & Johnson, 1991;1992).

Respondents were further asked which of a list of health professionals they had visited or had been visited by in the last 12 months (Strain, 1991), including the professional categories of medical specialist, optometrist or optician, dentist or dental nurse, physiotherapist, occupational therapist, chiropractor, psychologist, psychiatrist, counsellor, social worker, naturopath and homeopath. They were asked how many prescription items were bought in the previous 12 months (Kandrack, Grant, & Segall, 1991), and to indicate the number of days they had spent in bed in the preceding year due to ill health (i.e., bed disability days, Mechanic, 1979; Wolinsky & Johnson, 1991) and days spent in the past quarter unable to perform normal daily activities due to ill health (i.e., disability days, Wolinsky et al., 1989).

Due to a low level of use among the hospital based services (hospital admissions, A & E use and outpatient service use) a composite dichotomous (i.e., service 'users' and 'non-users') variable called 'hospital-related health visits' was created. For the same reason a composite dichotomous variable was created for the time spent in bed due to ill health or functioning ('none' vs. 'any').

Chapter 6: Results – Andersen's model and health care use

Chapter Overview

As noted in Chapter 4 the three research goals from applying the Andersen model to explain health care use were as follows:

- 1) ***To test the efficacy of the Anderson behavioural model in the prediction of Māori health care utilisation***
- 2) ***To extend the model by considering the role of life events in the prediction of health service utilisation***
- 3) ***To extend the model by considering the role of psychological distress as a predictor of health service use***

In presenting the current findings with regard to these goals this Chapter is organised as follows:

- 1) Firstly **descriptive statistics** are presented for:
 - ***sample demographics***
 - ***predisposing, enabling and need characteristics variables***
 - ***health care use variables***
- 2) Secondly the results of six hierarchical multiple **regression analyses** testing the Andersen model of health service use are presented for each of the following variables:
 - (1) number of General Practitioner (G.P. or family physician) visits in the past 12 months;
 - (2) number of hospital-related health visits in the past 12 months;
 - (3) total number of days disabled (3/12 months) or spent in bed due to ill health in the past 3 months;

- (4) number of prescription items used;
- (5) number of mental health professional visits (in the past 12 months)
- (6) number of other¹⁰ health professional visits (not G.P. or hospital related).

Within each of these regressions the role of psychological distress and life events were examined in accordance with the research goals specified above.

Demographic variables: Descriptive statistics

Sample Description

Where possible, general demographics for the sample are discussed here with reference to the 1996 census findings for the Māori population (Statistics New Zealand, 1997a) which were most relevant at the time of data collection. Descriptive demographic information of the sample is presented in Table 3¹¹.

In total 502 respondents made up the sample. All but one participant were New Zealand born. Over two-thirds of the sample were female (68%, n = 341). The ages of respondents ranged from 18 to 90 years, with an average age of 40 years (SD = 14.98). In comparison to national figures, the current sample has more women and fewer respondents aged between 18 and 21 years than might have been expected. The fact that certain parts of the population are more difficult to include in the sample than others is well documented (Hill, personal communication, April 24, 1997). The unavailability and tendency to refuse to participate is higher among men and younger people which means that these groups tend to be under-represented in samples.

As indicated in the Table 3 more than 50% of the respondents:

- were married or living in a de facto relationship,
- living in rural settings (population < 1000);
- had no formal school qualifications;
- were not in paid employment;
- lived in their own home or the home of a family member.

¹⁰ This dependant variable refers to contact with health professionals other than G.P.'s including medical specialists, dentists, optometrists, physiotherapists, chiropractors, occupational therapists or naturopaths.

¹¹ Unless otherwise stated untransformed variables were used in the analyses which produced the descriptive statistics reported in chapter tables.

Compared to 1996 Māori population census the present sample had a lower rate of paid employment (35% were in paid employment cf 54%) and a lower level of educational qualification (58% had no school qualification cf 48%). The proportions who were married and who were living in dwellings owned by the occupants/family members were similar to census figures.

As noted in Table 3, the pattern of sample living arrangements (which were very similar to 1996 census data) was such that:

- relatively few were living in whānau/extended family situations (i.e., multi-generation households);
- most lived with their partner and children, or just their partner;
- relatively few lived alone (these were mostly respondents over the age of 60);
- the majority of single parents were women.

Table 3
*Summary of Participant Socio-demographic Information*¹²

	No. of participants	Percentage of participants
Gender		
Male	161	32%
Female	341	68%
Age (years)		
18-29	130	26%
30-39	170	34%
40-49	76	15%
50-59	59	12%
60-69	39	8%
70-99	27	5%
Relationship status		
Married/De Facto	257	52%
Never Married	141	28%
Separated/Divorced	50	10%
Widowed	50	10%
Household composition		
Living alone	54	11%
Living with partner	77	15%
Single parent	95	19%
Partner and children	137	28%
Youth (over 18) living with parents	33	7%
Extended family situation	41	8%
Living with other adults (e.g., flatting)	37	7%
'Other'	26	5%
Area of residence		
Rural	271	54%
Urban	231	46%
Highest educational qualification		
No school qualification	286	58%
Secondary school qualification ¹³	141	29%
Uni. bursary or scholarship	7	1%
Trade or professional qualification	42	9%
University degree or diploma	10	2%
Primary work role		
Paid employment (full- or part-time)	174	35%
Unemployed	101	20%
Retired	67	14%
Student	16	3%
Beneficiary	108	22%
Home-maker, parent	32	6%

¹² Adapted from Flett, Millar, Long & MacDonald, 1998.

¹³ 1+ school certificate subject (n= 99, 20%); 1+ 6th form certificate/U.E subject (n=42, 9%).

The demographic data from the present sample are further elaborated in the following sections in terms of the predisposing, enabling and need distinctions proposed by Andersen.

Predisposing variables described statistically

Means, standard deviations and coding algorithms for predisposing variables investigated are presented in Table 4 below.

Table 4
Means, Standard Deviations and Coding Algorithms for Predisposing Variables¹⁴

Variable	Mean	SD	Coding Algorithm
<u>Predisposing Characteristics</u>			
Age	40.10	14.98	Actual number of years
Gender	1.68	.48	1 = male, 2 = female (68%)
Married/de facto	1.49	.50	1 = yes, 2 = no (49%)
Area (rural/urban)	1.54	.50	1 = urban, 2 = rural (54%)
Educational Qualifications	1.92	1.47	1 = no school qualification 2 = 1+ S.C subject 3 = 1+ 6th form cert./U.E subject 4 = bursary/scholarship 5 = trade/professional 6 = university degree/diploma 7 = university post-grad.
Telephone Access	1.29	.45	1 = yes, 2 = no (29%)
Vehicle Access	1.23	.42	1 = yes, 2 = no (23%)
Life events	3.41	2.30	total life events experienced (range=0-11)
Social contacts	1.11	.31	1 - yes, 2 = no (11%)
Drinks Alcohol	1.34	.47	1 = yes, 2 = no (34%)
Health Worries	2.86	.95	1 = great deal, 2 = some, 3 = hardly any, 4 = none
Health Control	1.75	.74	1 = great deal, 2 = some, 3 = hardly any, 4 = none

¹⁴ The format of Tables 4,5 & 6 were modelled after Wolinsky & Johnson (1991).

The demographic characteristics of the sample have been reviewed in the previous section. This section describes some additional variables which were classified according to the Andersen model as predisposing characteristics - factors which make an individual more or less inclined ("predisposed") to use health services.

The age distribution of the sample is such that 87% were under the age of 60. The sub sample over the age of 60 is important in that this is often considered to be the time one assumes status as a Māori elder (i.e., kaumātua or kuia). The characteristics of this sub sample have been described in some detail elsewhere (e.g., Hirini, Flett, Kazantzis, Long, Miller & MacDonald, 1999).

Access factors

In replicating the work of Gribben (1992) and Wolinsky & Johnson (1991) a variety of access variables thought to influence health care use were investigated. In order to utilise health services there needs to be mechanisms available to the individual that might "predispose" them to initiate contact with those services. Seventy one percent (n = 357) of respondents had a working telephone in their homes. The large majority of respondents (77%, n = 388) had access to a motor vehicle for their own regular private use, which accounted for the observation that most (75%, n = 374) travelled by private vehicle to visit a doctor. The remainder of the sample either walked to the doctor (18%), took a bus or taxi (5%) or travelled by some other means (e.g., bicycle or motor bike).

Social contact

Nearly all (99.4%) of the respondents had living siblings or children, with most either having spoken over the phone (81%), or having got together in some way (89%) with relatives and friends over the previous two weeks. Previous authors such as Nelson (1993) and Wolinsky & Johnson (1991) have found that social contact (measured in a variety of ways) is associated with levels of health care use among older adults.

Health worry and health control

Following on from the recommendation of Wolinsky & Johnson (1991; 1992), due to uneven distributions the health worry and health control variables were dichotomised into those expressing 'a great deal' or 'some' health worries versus those expressing 'hardly any' or 'no' such worries. Similarly, health control became 'a great deal' and 'some' versus 'hardly any' and 'none'.

Most participants (62%) reported having 'hardly any' or 'no' concerns or worries about their health, while 30% had 'some' and 8% had a 'great deal'. In their seminal study of Māori women, the Māori Women's Welfare League found more than half of their sample to worry at least a little about their health, degree of worry was highest among young urban women and kuia (Murchie, 1984). Unlike the Murchie findings no significant differences were observed between age or gender groups for the health worry variable in the current study.

Participants in the present study largely felt that they had a fair degree of control over their future health, with 87% (n = 430) feeling they had 'some' or a 'great deal' of health control. Ten percent felt they had 'very little control' and 2% felt they had no such control. Comparable figures were found between the gender groups with respect to levels of self-perceived control over their personal health status. However, significant differences in health control were observed between age groups. The younger age groups were more likely to feel that they had 'some' or 'a great deal' of control over their future health.

Life events

As described earlier in Chapter 3 a number of previous writers have emphasised the importance of the experience of life events (e.g., Cheng, 1992). Rubio and Lubin (1986), for example, found that a number of life events were predictive of subsequent health care use in a U.S. college sample. As an extension to the Andersen model, these events among

others are conceptualised within the Andersen framework as a predisposing characteristic, in the sense that they are experiences that may in part reflect an individual's position or circumstances in the social structure and the commensurate lifestyles to which people in those positions become socialised. A "total number of life events experienced in the last 12 months" was calculated and is reported in Table 5. The possible individual life events assessed for each participant are listed below:

- You had an operation, injury or major illness (newly diagnosed or ongoing)
- A close family member had an operation, injury or major illness (newly diagnosed or ongoing)
- You married
- You separated or divorced
- You reconciled after a period of separation
- Your partner or spouse died
- A close family member, other than your partner or spouse, died
- You, or your partner, became pregnant
- You, or your partner, had a baby or adopted a child
- A new person, other than a new baby, came to live in your household
- A child or other close relative left home (other than separation)
- You retired
- You started a new job or changed jobs
- You lost your job or business
- You were unemployed and seeking work for one month or more
- You moved house
- You had major financial difficulties
- Your finances improved considerably
- You had serious legal problems with the police or authorities
- A close family member had serious legal problems with the police or authorities

Thirty-six respondents (7%) reported experiencing none of the life events measured. Yet most of the sample had experienced at least one such life event, with one individual experiencing a total of eleven events in the previous year ($M = 3.41$, $SD = 2.3$). The most commonly reported events were:

- "A close family member had an operation, injury or major illness" (34%);
- "Your finances improved considerably" (33%);
- "A close family member, other than your partner or spouse died" (33%);
- "You had major financial difficulties" (29%);
- "You moved house" (26%);
- "You were unemployed and seeking work for one month or more" (25%) and;
- "You had an operation, injury or major illness" (22%).

The total overall experience of life events was not significantly associated with gender, education or income levels and/or whether a respondent was in paid employment. Although at the individual item level, women were significantly more likely to say yes to the item "A new person, other than a baby, came to live in your household", whilst men were significantly more likely to say yes to "You were unemployed and seeking work for one month or more".

Alcohol use

In the last national health survey (Ministry of Health, 1999a) Māori adults were found to be most likely to indicate a hazardous drinking pattern. Of the 502 participants, 335 (67%) reported drinking alcohol. This is somewhat lower than other estimates of New Zealand alcohol consumption. Field and Casswell, for example, reported that 86% of New Zealanders surveyed (a general population sample, n = 5,475) had consumed alcohol in the last 12 months (1999).

There were no significant differences between gender groups on whether participants drank alcohol at all, with 70% of men and 65% of women drinking alcohol. However, men drank significantly more often than did women, a finding consistent with those of the 1996/97 national health survey (Ministry of Health, 1999a). Younger Māori in the present sample (72%) were significantly more likely to drink alcohol than middle-aged (62%) and older Māori (50%).

Enabling variables described statistically

Table 5 presents means, standard deviations and coding algorithms for enabling variables.

Table 5
Means, Standard Deviations and Coding Algorithms for Enabling Variables

Variable	Mean	SD	Coding Algorithm
<u>Enabling Characteristics</u>			
G.P.'s Gender ¹⁵	1.16	.37	1 = male, 2 = female (16%),
Time with Same G.P.	4.04	1.24	1 = 0-3 months, 2 = 4 - 12 months 3 = 1-2 years, 4 = 3 - 5 years 5 = 5+ years
G.P. Waiting Times	25.77	21.73	number of minutes
G.P. Fees	1.83	1.07	1 = not at all, 2 = occasionally, 3 = some of time, 4 = often
Paid employment	1.63	.48	1 = yes 2 = no
Income	15,475.24	14,678.038	annual income (\$NZ)
Grouped income brackets	3.55	2.17	1 = 0-5,999 (\$NZ) 2 = 6,000-9,999 3 = 10,000-14,999 4 = 15,000-19,999 5 = 20,000-25,999 6 = 25,000-29,999 7 = 30,000-34,999 8 = 35,000-39,999 9 = 40,000-44,999 10 = 45,000-49,000 11 = 50,000+
Adequacy of Income	2.31	.82	1 = can't manage, 2 = just enough, 3 = little over, 4 = always extra
Satisfaction in Standard of Living	2.99	.77	1 = very dissatisfied, 2 = dissatisfied 3 = satisfied 4 = very satisfied
Private Health Insurance	1.83	.37	1 = yes, 2 = no (83%)
Community Services Card	1.28	.44	1 = yes, 2 = no or have applied,

¹⁵ A total of 69 people did not respond to this question (possibly because they had no regular G.P.). There were 7 respondents who said they attended a 'joint practice' (i.e., both women and men served as a respondent's G.P.).

Doctor gender and length of time visiting a regular Doctor

Drawing from the previous work by Aday & Andersen (1975) and Aday, Andersen & Fleming (1980), Gribben (1992) and Lewin-Epstein (1991) respondents were asked if they had a regular doctor. Lloyd, Lupton & Donaldson (1991) argue that continuity of health care is an imperative in order to attain equity in health status and health care access within modern industrialised societies. Eighty six percent of the sample had a regular G.P. (i.e., they usually saw the same physician), with two-thirds of the sample having consulted their regular doctor for a period exceeding three years (67%).

A total of 82% (n = 356) of respondents reported having a male doctor. The New Zealand Health Information Service data available when the data were being analysed, indicated that of the 3,166 G.P.'s practicing in New Zealand, the majority (63%) were male (n = 2,002), considerably more than female G.P.'s (n = 1,164), (New Zealand Health Information Service, personal communication, 2001).

Dr fees

When asked if Dr's fees ever stopped respondents from seeking a consultation when they felt they should (see Gribben, 1992), over half of the present sample (57%, n = 282) responded 'not at all'; fifteen percent (n = 75) replied 'occasionally'; while 17% (n = 86) said 'some of the time' and 11% (n = 55) said 'often' in response to this question. Thus 45% of the sample reported that Dr's fees at least 'occasionally' impeded their access to care when they felt they needed it. The relatively low income levels of the current sample (reported earlier), and the lack of health insurance (83% had none) meant that doctor fees were, not surprisingly, sometimes seen as a barrier to accessing health services.

Waiting time

Waiting time (i.e., the waiting period in a Dr's clinic) was measured in minutes, and responses ranged from less than a minute (2%, n = 9) up to two hours (1%, n = 4). The mean waiting time for the entire sample was just over 25 minutes. Gribben (1992) found a median waiting time of 20 minutes among a South Auckland sample, he also found the

waiting time variable to be one of only three significant predictor variables for G.P. utilisation.

Health subsidies/insurance

With respect to private insurance schemes or government subsidies for meeting health care costs of the present sample, 83% of respondents reported that they did not belong to a current health insurance scheme, 9% had a high user health card while 72% had a community services card (which, as noted elsewhere, subsidises health care use). These findings are not particularly surprising given the observed income level distribution within the sample (see below under income).

Although the New Zealand government subsidises costs for G.P. services and prescription item use through a targeted benefit system, a fee-for-service system operates for those using primary health care services. At the last 1996/1997 national health survey 40% of the general population were covered by a health or medical insurance scheme. When comparisons are made between groups, considerably fewer Māori (25%) were covered by health insurance plans than Pākehā (cf 44%), (Scott, personal communication, June 27, 2001).

Employment status

Two questions were asked regarding employment: "Are you engaged in any paid employment" and "what is your main work-related role (e.g. employed, unemployed, retired etc).

As noted in Table 5, 63% (n = 318) of respondents were not in paid employment (thus n = 184 were in paid work). This is incongruent with the figures reported in Table 3 where 65% reported not being in paid work. A total of 35% (n = 178), (174 + 4 were seasonal workers) said yes to their *main work role* being full-time/part-time or seasonal work. These two totals should be identical but of the n = 184 who said yes to *paid employment*, n = 9 of those reported something other than full-time/part-time or seasonal work as their *main work role* (i.e., they were students or beneficiaries). Therefore, these nine respondents might be 'false positives', so the actual number in *paid employment* should be

$184 - 9 = 175$ (which still doesn't match the $n = 178$). But, of the $n = 184$ who reported not being in paid employment, $n = 3$ of these defined full-, part-time or seasonal work as their main work role. So within the paid employment question these might be considered to be 'false negatives', thus the actual number in paid employment should be $175 + 3 = 178$. At closer inspection then, the paid employment figures reported in Tables 3 and 5 do reconcile.

Main job

At the 1996 census Māori in employment were concentrated in three main industry groups: (1) community, social and personal services (27.3%); (2) wholesale, retail and hospitality trades (20.4%) and; (3) manufacturing jobs (18.9%).

Among the present male sub sample in paid employment, over a third (36%, $n = 24$) described their main job as being operators and assembly-line workers. From 1996 census figures Māori men were heavily concentrated as plant and machine operators and assemblers (22.8%). In the present study the next largest male group in paid employment were those working in the agriculture and fishery industries (25%, $n = 17$), followed by those working in 'elementary' vocations (13%, $n = 9$). Among the women in paid employment, 24% ($n = 27$) were working in the service and sales fields, another 23% ($n = 26$) were employed as clerks. Eleven percent ($n = 12$) of women sampled worked in the agriculture and fishery industries.

Fifteen percent ($n = 17$) of women within the sample were working as professionals, in contrast to less than 5% ($n = 3$) of men. In contrast more men (14%, $n = 22$) than women (6%, $n = 20$) held trade or professional qualifications.

Income

Reported annual incomes (for those in paid employment) ranged from \$1,040 to \$200,000 p.a., the mean income being \$22,087.84 (SD = \$19,699.74). The average income for males in paid work was $M = \$29,463.52$, $SD = \$26,400.68$, and for females $M = \$17,000.39$, SD

= \$10,701.38. The two main points to note are the skewed income distribution within the sample (i.e., more than 50% of both genders earned less than the mean income for their respective groups), and the disparity between male and female incomes. An income disparity between genders was recorded at the 1996 census; Māori men had a higher median income (\$16,100) than Māori women (\$11,200), (Statistics New Zealand, 1998). Employment status and income have been shown to affect the health status of women (Elstad, 1996; Kandrack, Grant & Segall, 1991).

Adequacy of income and satisfaction with standard of living

The present study considered the extent to which respondents felt that their income was adequate and their overall rating with their standard of living. Eve (1988) used these measures in her consideration of health care use by older U.S. women. When rating their ability to get along on their income: 47% of the present sample reported they had 'just enough money'; 31% said they had 'enough with a little left over'; and 7.8% 'always (had) money left over'. Similarly, when asked to rate their personal sense of satisfaction with their standard of living, 83% of the sample reported being either 'satisfied' or 'very satisfied' with their overall standard of living. These are interesting findings given the low levels of objective income reported in the previous section and highlight the point often made in social indicators research (e.g. Flett, 1986) about considering both objective and subjective perceptions of one's circumstances if one is interested in understanding the experience of quality of life.

Need variables described statistically

Means, standard deviations and coding algorithms for need variables are presented in Table 6 below for the reader's reference.

Table 6

Means, Standard Deviations and Coding Algorithms for Need variables

Variable	Mean	SD	Coding Algorithm
<u>Need Characteristics</u>			
Self-Rated Health Status	1.96	.74	1 = excellent, 2 = good, 3 = not so good, 4 = poor
Psychological Wellbeing	75.62	15.11	score on 14 item MHI ¹⁶ (Min 17-max 98)
Psychological Distress	58.48	25.21	score on 24 item MHI (Min 24-max 137)
Physical Symptoms	39.40	11.90	composite symptom score (Min 28-max 104)
Total ADLs ¹⁷	.70	1.75	sum of total ADLs 15 item scale
Total bodily limitations ¹⁸	1.85	2.02	sum of total bodily 11 item scale
Chronic Health Conditions	1.55	2.16	no. of chronic health conditions (min 0 - max 17)

Self-rated health

The majority of the sample described their overall physical health as either 'good' (56%, n = 279) or 'excellent' (26%, n = 130), with only 15% (n = 76) describing their health as 'unsatisfactory' and 3% (n = 17) describing their health as 'poor'. As suggested by Withers (2000) and Wolinsky and Arnold (1988), this variable was dichotomised as either a

¹⁶MHI = Mental Health Inventory

¹⁷ As described later in this chapter under Data screening, due to incompatibility for statistical analyses basic, household and advanced activities for daily living were combined to create a composite variable termed Total ADLs.

¹⁸ As above, due to their incompatibility for statistical analyses upper and lower bodily limitations were combined to create a composite variable termed Total bodily limitations.

positive (i.e., 'excellent' or 'good') or negative ('not so good' or 'poor') perception of one's general physical health status.

Fifty two percent of men within the sample rated their physical health as 'good' ($n = 83$), while 27% ($n = 44$) viewed their health as 'excellent'. Thus 79% of men saw their health in a positive light, with only 3% ($n = 5$) seeing their health as 'poor'. Slightly more women than men rated their overall health as 'good' (58% of women, $n = 196$), while a similar proportion rated their health as 'excellent' (25% of women, $n = 86$). In comparison to the men's sub sample, a slightly larger proportion of women (83%) therefore perceived their overall health positively.

Physical symptoms

Respondents were asked to rate how much (1 = "not at all" to 5 = "extremely") 28 physical health symptoms had 'bothered' or 'disturbed' them over the past month. Responses ranged from a minimal score of 28 ($n = 41$) indicating no such problems, to 104 ($n = 2$) indicating a considerable level of disturbance associated with physical symptoms.

The most common of physical health problems reported were:

- muscle or joint problems, (44%)
- headaches, (42%)
- leg cramps (38%)
- insomnia or sleeping problems (36%)
- eye problems (33%)
- stomach upset or pain (33%)

Male participants ranged in score from 28 (13%, $n = 20$) to one individual who scored 77 ($M = 37.13$, $SD = 9.62$). Women ranged from 28 (6%, $n = 21$) to 104 ($n = 2$) on the physical symptoms measure ($M = 40.47$, $SD = 12.71$). Women having a slightly higher average than men.

Chronic health problems

In terms of chronic health conditions (e.g., cancer, diabetes, asthma, arthritis or hearing impairment etc.), 42% ($n = 211$) of participants reported having no such ongoing

problems. The average number of health problems for the sample on this measure was 1.55 (SD = 2.16).

The most common chronic conditions reported were:

- Hypertension (22.2%)
- Visual impairment (18.6%)
- Arthritis/rheumatism (18.5%)
- Asthma (17%)
- Hearing impairment (12.4%)
- Skin problems (12%)

A more detailed analysis and discussion of chronic health problems among the Māori elderly age group within this sample has been reported in Hirini et al 1999. Forty three percent of men reported no experience of the chronic health problems measured while 42% of women had no such ongoing problems. Among the chronic health conditions investigated diabetes, hypertension, heart problems, asthma, arthritis, hearing and sight problems were significantly associated with increasing age. Compared with males, a significantly higher proportion of women reported skin problems.

Psychological well being and distress

As noted in Chapter 4, a number of early studies in this area illustrated the importance of considering psychological distress (defined in various ways) in attempts to understand health service use. As noted in Chapter 3, health services may well provide for the emotional and psychological needs of distressed individuals and distress rightly fits into the Andersen model in the sense that the model concerns itself with social interaction and quality of social relationships (Andersen, 1995).

The Mental Health Inventory measure (Veit & Ware, 1983) was used to assess general mental health functioning over the past month, via two sub-scores labelled by Veit and Ware as psychological well being and psychological distress. Women's well being, (M = 75.3, SD = 15.3) was slightly lower men's (M = 76.3, SD = 14.7) although the difference was not significant. The mean well being for the sample as a whole of 75.62 (SD = 15.11) can be compared with figures recently found for the Wither's (2000) sample of NZ war

veterans and their partners, $M = 72.27$, $SD = 15.05$ (partners), $M = 69.58$, $SD = 15.64$ (veterans).

The average psychological distress score was higher for women ($M = 60.5$, $SD = 25.9$) compared to men ($M = 54.2$, $SD = 23.2$), but the difference was not significant.

The mean psychological distress for the sample as a whole of 58.48 ($SD = 25.21$) is similar to that reported by Withers (2000: wives = 56.79, 25.18; vets = 61.22, 27.26)

There was no systematic relationship uncovered between mental health measured in this way, and demographic factors with the exception of age. Older adults reported lower distress, $r = -.22$, $p < .001$, and higher wellbeing, $r = .13$, $p < .01$.

Activities for Daily Living (A.D.L.) and bodily limitations

Concerning difficulties associated with performing Activities of Daily Living (Wolinsky & Johnson, 1991) over three-quarters of the sample (77%, $n = 386$) had no such restrictions at all ($M = .70$, $SD = 1.75$). Most commonly reported activities that individuals had trouble with due to their health were 'getting out of bed' and 'walking'. The A.D.L. variable was later dichotomised (no activity problems /any activity problems) due to substantial skewness.

Concerning restrictions in body functioning (Nagi, 1976; Wolinsky & Johnson, 1991), 66% of the total sample ($n = 330$) reported having no lower body difficulties (e.g., problems walking or standing); whilst a larger majority of 80% ($n = 401$) reported no upper body restrictions (e.g., problems sitting, carrying or reaching).

Combining both lower and upper body limitations resulted in a total of 62% of the sample ($n = 312$) indicating they had no such bodily limitations whatsoever. Most frequently reported limitations for both women and men in the sample were standing for 2 hours, 'stooping', lifting 10kg, and sitting for 2 hours.

Health care use variables described statistically

Means, standard deviations and coding algorithms for the health care use variables are presented in Table 7 below for the reader's reference.

Table 7

*Means, Standard Deviations and Coding Algorithms for Health Service Utilisation Variables*¹⁹

Variable	Mean	SD	Coding Algorithm
<u>Health Service Utilisation</u>			
G.P. visits in past year	6.75	18.45	no of visits to doctor range = 1-100 ²⁰
Hospital admissions	1.81	.39	1 = yes 2 = no (81%)
Nights in hospital	7.1	8.83	no of nights in hospital (range = 1-60)
A & E use	.25	.83	no of times used A & E dept.
Outpatient use	.51	1.65	no of times used outpatient service (range = 0-15)
Hospital-related visits	.29	.45	total hospital visits
Bed-disability days	9.2	21.59	no of days sick in bed
Disability days	6.75	18.45	no of days in past 3 months that ill health interfered with daily activities
Prescription items	2.36	1.34	no of prescription items 1 = none, 2 = 1-4, 3 = 5-9, 4 = 10-14, 5 = 15+

¹⁹ during the year preceding interview (excluding the 'Disability days' variable)

²⁰ The G.P. visit, hospital admission, bed disability days and disability days variables were truncated. Wolinsky & Coe (1984) demonstrated that simple truncation of volume of health care use variables at the 95th percentile is a valid manipulation in these instances. Further, cases of exceptionally high levels of health care use are not well accounted for by individually based models like Andersen's (Wolinsky, 1990; Wolinsky & Johnson, 1991).

The following section describes health service utilisation data summarised in Table 7.

Doctor visits

About three-quarters ($n = 372$, 74.4% of the total sample) of respondents visited a doctor in the year preceding interview. Most participants ($n = 220$, 61%) had visited the Dr less than five times in the year ($M = 6.75$, $SD = 18.45$). Frequency of doctor visits was not significantly associated with gender or age.

Hospital admissions and nights in hospital

Nineteen percent of respondents ($n = 95$) reported having been admitted into a hospital overnight ($M = 1.81$, $SD = 0.39$). There were no significant gender or age effects here. Among those admitted, 46% ($n = 44$) stayed for three nights or less, 36% ($n = 34$) stayed for 4-10 nights, and the remaining 14% ($n = 17$) stayed longer than 10 nights (1 outlier @ 60 nights). The average stay in hospital was 7 nights ($M = 7.10$, $SD = 8.83$). There were also no significant gender or age effects for this variable.

Accident & Emergency department use

Most respondents (86%, $n = 431$) did not report using an Accident and Emergency (i.e., A & E) department of a public hospital. Among those who did use an A & E department the largest group of service users were those with only one admission (66% of the A & E use sub sample, $n = 45$). Two percent ($n = 11$) had used an A & E department twice, 7 respondents (1.4%) had used it 3 times, while 4 participants (0.8%) had used it 4 times. The highest number of admissions was 10 for one individual.

Outpatient service use

The overwhelming majority of participants (82% of the total sample, $n = 412$) did not personally utilise an outpatient service (e.g., hospital outpatients department or community

clinic) in the year preceding interview. As with A & E use the largest number of outpatient service users were those who used the service in question only once (7% of the total sample, $n = 37$). Twenty two respondents (4%) used an outpatient service twice, while 10 (2%) used it three times. Less than 4% used an outpatient service more than 4 times.

Days in bed

When asked: "During the past 12 months, did you spend any days at home, in bed, due to your health?", 46% of the sample ($n = 233$) said yes. When further questioned how many days they had spent in bed due to ill health, most (69%, $n = 158$) had spent five days or less in bed ($M = 9.2$, $SD = 21.60$); 27% ($n = 63$) had spent 30 days or less; and a small minority (4%, $n = 9$) had had unusually long stays in bed (range = 48-182 days).

Disability days

When asked "How many days over the last three months has ill health interfered with your ability to perform normal daily activities (for example, going to work, playing sport, doing housework, and so on?", 39% of the sample ($n = 195$) said they did ($M = 6.75$, $SD = 18.45$).

Prescription items

The pattern of prescription use was as follows: Of the total of 69% of participants ($n = 346$) who had used prescription items in the past 12 months;

- most had been issued 1-4 items (37%, $n = 186$),
- 11% ($n = 56$) had had 5-9 prescriptions,
- 8% ($n = 38$) had 10-14 items and,
- 13% ($n = 66$) had had 15 or more items in the preceding year

Use of prescription items was significantly associated with age, $r = .22$, $p < .001$. Older respondents reported higher levels of prescription use. There were no significant associations between prescription use and income or education. Females reported

significantly higher levels of prescription use than males, but the overall size of this effect was small (males $M = 2.18$, $SD = 1.35$; females $M = 2.44$, $SD = 1.33$)

Specialist 'other' health professional services

Among the specialist health services investigated:

- 24% ($n = 122$) had used a medical specialist in the previous year;
- 22% had used a dentist ($n = 108$);
- 11% an optometrist or optician ($n = 55$);
- 13% a physiotherapist ($n = 67$);
- 4% a chiropractor ($n = 22$);
- 2% (i.e., 1.6%) a psychologist ($n = 8$);
- 2% (1.8%) a psychiatrist ($n = 9$);
- 3% an occupational therapist ($n = 13$);
- 9% a counsellor ($n = 44$);
- 8% a social worker ($n = 38$) and,
- 5% had used a naturopath or homoeopath ($n = 23$).

For the sample as a whole, 51% ($n = 255$) reported having used 1 or more of these services in the past year. Use of such services was significantly associated with gender (males were more likely to report using such services), and with higher income and education levels.

Mental health professionals

Respondents were asked if they had consulted a psychiatrist, psychological or counsellor in the past 12 months. Some 14% ($n = 70$) of respondents reported that they had done so. Younger respondents were significantly more likely to report this type of service use.

Scoring and creation of composite health care use variables

The use of family physician services was scored as a continuous variable (number of visits in the last year). Given the relatively low level of use of a number of health services the following dichotomous variables were created:

- “Hospital related health visits” (hospital admission, accident and emergency service use, outpatient use) was scored ‘1’ if respondents said yes to one or more of ‘visits to hospital’, ‘visits to Accident and Emergency’, or ‘visits to hospital outpatients’ (n = 145, 28.9% of respondents scored ‘1’ here). A ‘0’ was scored for no such service use (n = 357, 71.1%).
- “Total bed & disability days” which comprised the disability days and bed-disability days variables was dichotomised as a ‘1’ if respondents reported any days in which this occurred, and ‘0’ if no such days were experienced. A total of n = 293 (58.4%) scored ‘1’, and n = 209 (41.6%) scored ‘0’.
- “Mental health professionals” which were specialist health professionals servicing mental health needs (i.e.,, psychologists, psychiatrists and counsellors) was scored ‘1’ if respondents reported use of such a service in the past year and ‘0’ for no use of this service. A total of n = 432 (86.1%) scored 1 and n = 70 (13.9%) scored 0.
- “Other professionals” (e.g., medical specialists, chiropractors, physiotherapists, dentists and naturopaths). These were similarly scored ‘1’ and ‘0’ for use/non-use of 1 or more of the services. A total of n = 247 (49.2%) scored 0 and n = 255 (50.8%) scored 1.

Although some precision is lost with the use of aggregate measures of this type, this represented the most pragmatic solution in terms of deriving health care use variables for further analysis given the high level of skewness in the original versions of these variables. Older respondents were significantly less likely to have seen a mental health professional while more educated, higher income and female respondents were significantly more likely to have seen other types of health professionals.

Application of Andersen's model: Inferential analyses

The previous section summarised descriptive statistics for the predisposing, enabling, need and health care use variables investigated in the present study. The remainder of this section presents a series of multiple regression analyses designed to test the extent to which predisposing, enabling and need characteristic variables could account for variability in health service use (conceptualised and measured in a number of ways as described earlier).

Data screening

Prior to analyses, the variables were screened for assumptions of multivariate analysis. In line with the suggestion of Tabachnik and Fidell (1989) that conventional but conservative alpha levels (i.e. $p < .001$) be used to evaluate the significance of skewness and kurtosis, a number of variables were transformed in order to improve their distributions. Although the interpretability of analyses is sometimes made more difficult by using transformed variables, Tabachnik and Fidell (1989) argue that overall the results of the analysis are nearly always drastically improved by data transformation. Although transformed variables are sometimes used in subsequent multiple regression analyses, in order to maintain clarity and aid interpretability the untransformed means are presented where necessary in data tables containing descriptive statistics. Some variables are entered in the analyses as dichotomies as such binary coding provides interpretable mean differences as regression coefficients (Jaccard, Turissi & Wan, 1990)

Cases with high Z scores ($p < .001$) for individual variables were defined as univariate outliers and were deleted from subsequent analysis involving the concerned variable. Similarly, cases identified through Mahalanobis distance as being multivariate outliers ($p < .001$) were also deleted from the relevant analysis.

Multivariate data analyses

The following section presents findings from six hierarchical multiple regression analyses conducted as a replication of previous work using the Andersen model. This replication sought to assess the extent to which the variables comprising the Andersen model (with some modifications and extensions) might account for variability in use of health services (conceptualised and measured in a variety of ways) among the Māori sample group. Results are presented sequentially for:

- (1) Annual G.P. visitations;**
- (2) hospital-related health visits;**
- (3) days spent either disabled or in bed due to ill health;**
- (4) prescription items used;**
- (5) use of mental health professionals and;**
- (6) 'other' health professional visits.**

These health care use variables were described in detail earlier in the current Chapter.

Order of variable entry

The analyses were modelled on the strategies reported in Wolinsky & Johnson (1991; 1992), Bazargan, Bazargan & Baker (1998) and Nelson (1993). Predisposing variables were entered first, enabling variables were next and finally need variables.

The rationale for entering variables in this order is based on the general observation that need characteristics have tended to dominate the proportion of variance in health care use explained by the Andersen model. Wolinsky and Johnson decided to enter the least consequential independent variables (i.e., predisposing and enabling) before need characteristics. This sequence of variable entry enables the assessment of impact from need-based variables on health care use above and beyond the proportion of variance explained by predisposing and enabling variables.

The mean-substitution procedure was used to account for missing data. Although there are more complex model-based missing data imputation procedures available (e.g. Little and Rubin, 1987), the mean-substitution procedure is relatively parsimonious and is widely used (Hair, Anderson, Tatham and Black, 1998)

During preliminary data analysis different entry orders and methods of accounting for missing data (i.e., both list wise deletion and meansubstitution) were experimented with, despite this variation the overall size of the effects and the pattern of significance among predictor variables was not altered. Preliminary regressions were undertaken with the entry order previously used by Strain (1991). In this method need variables are entered into the equation first, followed second by enabling, and then need variables. Another order entry method experimented with included entering need first, followed by predisposing and enabling together at the second step. Finally, all variables (i.e., predisposing, enabling and need) were entered together at the first and final step. As noted, the conclusions (in terms of size and pattern of effects) was not altered by varying these strategies in entering the variables included in the present study.

Hierarchical multiple regression analyses: Health care use

The bivariate relationships (Pearson correlations) between the predisposing, enabling and need variables, and health care use variables are presented in Appendix 1.

Results presented in Tables 8-13 report the standardised regression coefficients (β), multiple \underline{R} , \underline{R}^2 , adjusted \underline{R}^2 , and R^2 change for each of the six regression analyses.

For all of the regressions reported subsequently cases identified earlier as either univariate or multivariate outliers (i.e., during initial data screening or preliminary regressions) were excluded from analyses. Univariate outliers mostly involved one case which was an outlier for income. Between 1 and 4 cases (depending on the particular regression) were excluded from the analysis as multivariate outliers using Mahalanobis distance and $p < .001$.

Health care use regression 1: G.P. visits

Table 8 indicates that at the first step, \underline{R} was significantly different from zero, $\underline{F}(12, 482) = 5.04$, $p < .001$. Predisposing characteristics were therefore found to account for 11% (9% adjusted R^2) of the variance in number of yearly visits to the G.P. Educational qualifications and health worries contributed significantly to prediction of doctor visits. The direction of these effects was such that, on average, a higher frequency of doctor visits was exhibited by those with lower educational qualifications and more worries about their health.

At step two, with the inclusion of enabling characteristics into the equation, \underline{R} was significantly different from zero, $\underline{F}(21, 473) = 3.5$, $p < .001$, and 13% (10% adjusted R^2) of the variance was explained after entering enabling characteristics. The \underline{R}^2 change statistic was not significant however, indicating that no unique contribution was made by enabling characteristics in predicting G.P. visitations.

At step three, with the inclusion of need characteristics, R was again significantly different from zero, $F(28, 466) = 4.2, p < .001$, and 20% (15% adjusted R^2) of the variance was explained after accounting for the combined influences of predisposing, enabling and need characteristics. Results at step three indicated that a unique and significant contribution of 7% (R^2 change = .068, $p < .001$) was made by need characteristics in predicting G.P. visitations. In particular, self-rated health contributed significantly to prediction of doctor visits. The direction of the effect was such that, on the average, those who reported their health as 'not so good' or 'poor' were likely to visit their general practitioner more often. The effects of educational qualifications became less significant on this step in the analysis suggesting that the effects of qualifications may be mediated, at least in part, by the need variables.

In summary then, predisposing variables explained 9% of variance in G.P. visits for the year preceding interview, whilst need variables accounted for a further 7% of G.P. utilisation. In all a total 15% of variance in G.P. use was explained here by the Andersen model. Enabling characteristics were not a significant contributor to the overall regression equation. The data suggest that having fewer educational qualifications, more health worries and rating one's health more poorly are associated with higher use of G.P. services in the past year.

Table 8
Hierarchical multiple regression of predisposing, enabling and need characteristics on G.P. visits showing standardised regression coefficients, R, adjusted R², and R² change for all respondents (Available N = 495).

Predictor	Step 1	Step 2	Step 3
Predisposing characteristics			
Age	-.002	-.001	.073
Gender	.037	.025	.033
Married/de facto	.001	-.007	-.017
Area (rural/urban)	.041	.022	.015
Qualifications	-.133**	-.118**	-.103*
Phone	-.015	-.046	-.019
Vehicle	.008	-.005	-.055
Life events	.012	-.002	-.001
Social contacts	-.023	-.025	-.064
Alcohol	.050	.052	.037
Health worries	-.283***	-.288***	-.187***
Health control	.018	.025	-.031
Enabling characteristics			
Doctor's gender		-.022	-.019
Time with same Dr		.059	.060
Fees limiting access		-.067	-.061
Waiting time		.015	-.020
Income		.005	.018
Adequacy of income		-.011	.009
Satisfaction with standard of living		-.014	.015
CS card		-.112	-.089
Health insurance		.025	.018
Need characteristics			
Self-rated health status			.253***
Psychological distress			-.047
Psychological wellbeing			.095
Physical symptoms			.016
Activity			.066
Body			.062
Chronic			.000
R	.333	.365	.449
Total R²	.111	.133	.201
Adjusted R²	.089	.095	.153
R² change	.111***	.022	.068***
F	5.04***	3.46***	4.20***
	(12, 482)	(21, 473)	(28, 466)

*p<.05

**p<.01

***p<.001

Health care use regression 2: Hospital-related health visits

Given the dichotomous nature of this dependant variable (i.e., D.V.), some writers would argue that a logistic regression approach is the more appropriate data analytic strategy (e.g. Withers, 2000). While this type of approach certainly offers flexibility in terms of assumptions associated with independent variables (i.e., I.V.'s) and types of I.V.'s that can be included in the analysis, multiple regression analysis with a dichotomous D.V. answers the same sorts of questions as logistic regression (Tabachnik & Fidell, 2001). Furthermore, Wolinsky & Johnson (1991) suggest that under many circumstances the logistic regression and ordinary least squared regression can lead to similar conclusions about the extent and nature of the relationships between independent and dependent variables.

Given that the ordinary least squares approach is somewhat more accessible to a wider audience, it was adopted as the most parsimonious approach to data analysis in this context.

Table 9 indicates that at the first step R was significantly different from zero, $F(12, 485) = 5.33, p < .001$. Predisposing characteristics were therefore found to account for 12% (9% adjusted R^2) of the variance in hospital-related health visits. Life events, alcohol consumption and health worries contributed significantly to prediction of hospital visits. The direction of these effects were such that, on the average, hospital-related visits were more likely among those who drank alcohol, reported more life events, and were more worried about their health.

At step two, with the inclusion of enabling variables in the equation, R was significantly different from zero, $F(21, 476) = 3.75, p < .001$. The R^2 change statistic was not significant however, indicating that no unique contribution was made by enabling characteristics in predicting hospital-related health visits. The effects of life events became non-significant at this step suggesting that the relationship between life events and hospital visits may, in part, be mediated by enabling characteristics.

At step three, with the inclusion of need characteristics in the equation, R was again significantly different from zero, $F(28, 469) = 3.45, p < .001$. A total of 17% (12% adjusted R^2) of the variance in hospital visits was explained by the combined influences of predisposing, enabling and need characteristics. Bodily limitations was the single need variable to produce a significant independent effect upon hospital-related visits, having more of which increased the likelihood of hospital care use. The addition of need characteristics to the equation was significant (R^2 change = .029, $p < .05$). The community services card variable became less significant at the final step, this was considered an unreliable effect after the previous finding that enabling variables had no unique effect upon hospital use and was therefore not interpreted further.

In summary then, a total of 9% of the variance in hospital-related health visits was explained by predisposing variables, whilst need variables accounted for a further 2% of explained variance. Twelve percent of variance in hospital care was explained here by the Andersen model. Four variables registered as significant in the final model. Drinking alcohol having a Community Services Card, more health worries and more bodily limitations were all associated with an increased likelihood of hospital-related service use in the past year.

Table 9

Hierarchical multiple regression of predisposing, enabling and need characteristics on hospital-related health visits showing standardised regression coefficients, R, adjusted R², and R² change for all respondents (Available N = 497)

Predictor	Step 1	Step 2	Step 3
Predisposing characteristics			
Age	-.036	-.027	-.083
Gender	.001	-.008	-.018
Married/de facto	.018	.016	.009
Area (rural/urban)	-.005	-.022	-.019
Qualifications	.022	.031	.041
Phone	.050	.021	.054
Vehicle	-.027	-.041	-.065
Life events	.098*	.090	.082
Social contacts	-.055	-.047	-.064
Alcohol	.103*	.098*	.099*
Health worries	-.284***	-.285***	-.204***
Health control	.014	.023	-.015
Enabling characteristics			
Doctor's gender		-.027	-.024
Time with same Dr		.043	.040
Fees limiting access		-.057	-.054
Waiting time		.067	.044
Income		.048	.060
Adequacy of income		.005	.028
Satisfaction with standard of living		.024	.024
CS card		-.149**	-.126*
Health insurance		-.003	-.012
Need characteristics			
Self-rated health status			.074
Psychological distress			.062
Psychological wellbeing			.026
Physical symptoms			.035
Activity			-.014
Body			.124*
Chronic			.079
R	.341	.377	.413
Total R²	.116	.142	.171
Adjusted R²	.095	.104	.121
R² change	.116***	.026	.029*
F	5.33***	3.75***	3.45***
	(12, 485)	(21, 476)	(28, 469)

*p<.05

**p<.01

***p<.001

Health care use regression 3: Days spent disabled or in bed due to ill health

Table 10 indicates that at the first step R was significantly different from zero, $F(12, 485) = 7.15, p < .001$. Predisposing characteristics were therefore found to account for 15% (13% adjusted R^2) of the variance in the likelihood of spending days disabled or in bed due to illness or injury. Health worries was a significant predictor with those experiencing higher levels of health worry being more likely to also report reporting these sorts of days.

At step two, with the inclusion of enabling characteristics in the equation, R was significantly different from zero, $F(21, 476) = 4.53, p < .001$. Again the R^2 change statistic was not significant however, indicating that no unique contribution was made by enabling characteristics.

At step three, after the inclusion of need characteristics in the equation, R was again significantly different from zero, $F(28, 469) = 5.49, p < .001$, and 25% (20% adjusted R^2 , R^2 change = .081, $p < .001$) of variance was explained here after accounting for the combined influences of predisposing, enabling and need characteristics. Physical symptoms were significant with those having higher levels of symptoms reporting a greater likelihood of having such bed days. The effects of health worries became less significant at this step in the analysis suggesting that the relationship between health worries and illness/disability days may be partly mediated by need characteristics. Although income was a significant predictor on the final step of the analysis ($p < .05$), post hoc tests failed to indicate significant differences in income between those who did or did not take bed disability days. This finding is therefore somewhat unreliable and not interpreted further.

In summary then, with 13% of variance accounted for by predisposing variables and 7% by need variables, a total 20% of variance in days spent disabled or in bed due to illness or injury was explained by the Andersen model. Enabling characteristics were not significant as a block in the analysis although income remained significant on the final step of the analysis. Having more health worries and reporting more physical symptoms or complaints were associated with an increased likelihood of having days disabled or bedridden in the past year.

Table 10

Hierarchical multiple regression of predisposing, enabling and need characteristics on days spent disabled or in bed due to ill health showing standardised regression coefficients, R, adjusted R², and R² change for all respondents (Available N = 498)

Predictor	Step 1	Step 2	Step 3
Predisposing characteristics			
Age	.001	.012	-.049
Gender	-.004	.003	-.039
Married/de facto	-.029	-.022	-.029
Area (rural/urban)	-.060	-.069	-.040
Qualifications	.083	.072	.077
Phone	-.055	-.072	-.023
Vehicle	.069	.065	.022
Life events	.080	.071	.032
Social contacts	-.036	-.027	-.050
Alcohol	-.059	-.062	-.039
Health worries	-.326***	-.325***	-.162**
Health control	.035	.035	-.021
Enabling characteristics			
Doctor's gender		-.043	-.044
Time with same Dr		.069	.038
Fees limiting access		-.006	-.013
Waiting time		.042	.005
Income		.106*	.118*
Adequacy of income		-.011	.004
Satisfaction with standard of living		.014	.014
CS card		-.045	-.008
Health insurance		.033	.024
Need characteristics			
Self-rated health status			.072
Psychological distress			.117
Psychological wellbeing			-.057
Physical symptoms			-.253***
Activity			-.003
Body			.089
Chronic			-.031
R	.388	.408	.497
Total R²	.150	.166	.247
Adjusted R²	.129	.130	.202
R² change	.150***	.028	.081***
F	7.15***	4.53***	5.49***
	(12, 485)	(21, 476)	(28, 469)

*p<.05

**p<.01

***p<.001

Health care use regression 4: Prescription items used

Table 11 indicates that at the first step R was significantly different from zero, $F(12, 485) = 8.67, p < .001$. Predisposing characteristics were therefore found to account for 18% (16% adjusted R^2) of the variance in number of yearly visits to the pharmacist for prescription medication. Age, gender and health worries were significant and the direction of these effects were such that, on average, higher levels of prescription use were reported by women, older adults, and those with more health worries.

At step two, with the inclusion of enabling characteristics in the model, R was significantly different from zero, $F(21, 476) = 6.10, p < .001$, and 21% (18% adjusted R^2 , R^2 change = .035, $p < .05$) of the variance in prescription item use was explained after entering enabling characteristics. Length of time with the same doctor, extent to which fees limit doctor access, and having a community services card were significantly associated with prescription use levels. The direction of these effects were such that, on average, higher levels of prescription use were reported by those who had been with the same doctor for shorter periods of time, who felt that doctor fees sometimes prevented them from accessing G.P. services when they felt they actually needed to, and by those who had a community services card.

At step three, with the inclusion of need variables in the model, R was again significantly different from zero, $F(28, 469) = 7.15, p < .001$, with 30% (26% adjusted R^2 , R^2 change = .09, $p < .001$) of the variance in prescription use being explained by predisposing, enabling and need characteristics. Results at step three indicated that self-rated health status and chronic health problems were significantly associated with prescription use. The direction of these effects were such that higher levels of prescription use was, on average, more likely among those who rated their health as 'not so good' or 'poor', and who reported more chronic health problems.

A number of possible mediation effects were noted in this analysis. The effects of age and having a community services card became non-significant at step 3 of the analysis, suggesting partial mediation effects associated with need variables. Gender effects were

reduced on step 2 of the analysis indicating mediation effects associated with enabling characteristics, while length of time with the same doctor also became less significant on step 3 indicating mediation effects also associated with need variables.

In summary then, a total 26% of variance in prescription item use was explained here by the Andersen model. Being female, having more health worries, having a shorter association with one's G.P. and having access limited by Dr fees, rating one's health more poorly and having more chronic illnesses were all associated with higher use of prescription items in the past year.

Table 11

Hierarchical multiple regression of predisposing, enabling and need characteristics on prescription items used showing standardised regression coefficients, R, adjusted R², and R² change for all respondents (Available N = 498)

Predictor	Step 1	Step 2	Step 3
Predisposing characteristics			
Age	.170***	.180***	.022
Gender	.117**	.110*	.100*
Married/de facto	-.016	-.010	-.029
Area (rural/urban)	-.005	-.031	-.018
Qualifications	.026	.022	.044
Phone	-.052	-.077	-.022
Vehicle	.070	.057	.010
Life events	.023	.021	.009
Social contacts	-.008	-.001	-.024
Alcohol	.023	.011	.003
Health worries	-.331***	-.340***	-.200***
Health control	.039	.050	.001
Enabling characteristics			
Doctor's gender		.000	-.001
Time with same Dr		.125**	.111*
Fees limiting access		-.103*	-.088*
Waiting time		.041	.007
Income		.051	.056
Adequacy of income		.007	.044
Satisfaction with standard of living		.045	.033
CS card		-.110*	-.070
Health insurance		-.005	-.024
Need characteristics			
Self-rated health status			.133*
Psychological distress			-.100
Psychological wellbeing			.078
Physical symptoms			-.073
Activity			.067
Body			.057
Chronic			.216***
R	.420	.460	.547
Total R²	.177	.212	.299
Adjusted R²	.156	.177	.257
R² change	.177***	.035*	.087***
F	8.67***	6.10***	7.15***
	(12, 485)	(21, 476)	(28, 469)

*p<.05

**p<.01

***p<.001

Health care use regression 5: Mental health professional visits

Table 12 indicates that at the first step, R was significantly different from zero, $F(12, 485) = 3.10, p < .001$. Predisposing characteristics were therefore found to account for 7% (5% adjusted R^2) of the variance in likelihood of visits to a mental health professional. Age, relationship status and health worries were significantly associated with mental health professional visits. The direction of these effects were such that, on the average, people who were younger, single, and worried about health were more likely to report use of such services.

At step two, after inclusion of enabling characteristics in the equation, R was significantly different from zero, $F(21, 476) = 3.45, p < .001$, and 13% (9% adjusted R^2 , R^2 change = .06, $p < .001$) of the variance in mental health service use was accounted for after entering enabling characteristics. Satisfaction with standard of living and having a community services card were significantly associated with mental health service use. The direction of these effects were such that, on average, those who reported mental health service use were less satisfied with their standard of living and more likely to have a community services card. Access to a phone (a predisposing characteristic) became significant on this step of the analysis having been non-significant on the previous step. This indicates a suppression effect (Smith, Ager & Williams, 1992) which makes interpretation somewhat more difficult.

At step three, with the inclusion of need variables, R was significantly different from zero, $F(28, 469) = 3.69, p < .001$, with 18% (13% adjusted R^2 , R^2 change = .5, $p < .001$) of the variance being accounted for by the combined influences of predisposing, enabling and need characteristics. Higher levels of psychological distress and more physical activity problems were significantly associated with mental health service use. The effects of age, health worries, and satisfaction with standard of living became less or non-significant at this step in the analysis indicating possible partial mediating effects associated with need variables. Waiting time (an enabling variable) became significant with the addition of need variables into the regression equation, indicating a suppression effect.

In summary then, a total 13% of variance in mental health professional visits was explained here by the Andersen model. Not having a partner, having a lower level of satisfaction with one's standard of living, having a community services card, having higher levels of psychological distress and being more limited in performing normal activities of life (i.e., A.D.L.'s) were associated with higher likelihood of use of mental health care professionals in the past year.

Table 12

Hierarchical multiple regression of predisposing, enabling and need characteristics on mental health professional²¹ visits showing standardised regression coefficients, R, adjusted R², and R² change for all respondents (Available N = 498)

Predictor	Step 1	Step 2	Step 3
Predisposing characteristics			
Age	-.120*	-.125*	-.108
Gender	.063	.055	.036
Married/de facto	.128*	.111*	.093*
Area (rural/urban)	.035	.030	.054
Qualifications	-.035	-.016	-.019
Phone	-.088	-.134*	-.108*
Vehicle	-.032	-.039	-.053
Life events	.082	.041	.038
Social contacts	-.019	-.034	-.034
Alcohol	-.017	.010	.042
Health worries	-.122*	-.114*	-.032
Health control	.052	.047	.019
Enabling characteristics			
Doctor's gender		-.066	-.062
Time with same Dr		.066	.049
Fees limiting access		.042	.044
Waiting time		-.084	-.109*
Income		.031	.023
Adequacy of income		-.024	.009
Satisfaction with standard of living		-.146**	-.121*
CS card		-.154**	-.147**
Health insurance		-.003	-.003
Need characteristics			
Self-rated health status			-.081
Psychological distress			.134*
Psychological wellbeing			-.006
Physical symptoms			-.032
Activity			.162**
Body			.064
Chronic			-.051
R	.267	.363	.425
Total R ²	.071	.132	.181
Adjusted R ²	.048	.094	.132
R ² change	.071***	.061***	.049***
F	3.10***	3.45***	3.69***
	(12, 485)	(21, 476)	(28, 469)

*p<.05

**p<.01

***p<.001

²¹ In total 61 respondents (12.8%) used either a psychologist (2%), psychiatrist (1.8%) or counsellor (9%) in the past year. An additional 8% had utilised the services of a social worker which were excluded from analysis of mental health professionals due to the multiple roles a social worker may have in practice.

Health care use regression 6: 'Other' health professional visits

Table 13 indicates that at the first step, R was significantly different from zero, $F(12, 485) = 4.61, p < .001$. Predisposing characteristics were therefore found to account for 10% (8% adjusted R^2) of the variance the likelihood of visits to a health professional other than a family G.P.

Gender, educational qualifications, health worries and health control were significantly associated with service use here. Service use was more likely among females, those with more health worries and less health control, and those with higher levels of educational qualification.

At step two, with the inclusion of enabling characteristics, R was significantly different from zero, $F(21, 476) = 2.89, p < .001$. The R^2 change statistic was not significant however, indicating that no unique contribution was made by enabling characteristics in predicting visitations to other health professionals. The health control variable became non-significant at the second step indicating a mediating effect with the addition of enabling variables into the regression equation.

At step three, with the inclusion of need characteristics in the model, R was again significantly different from zero, $F(28, 469) = 2.65, p < .001$, but the change in R^2 was not significant.

The overall equation is difficult to interpret in that a number of variables (vehicle ownership, educational qualifications) show suppression effects. This effect is caused by later entered variables suppressing the impact or variance of the earlier entered variables... "The definition and interpretation of the suppressor-concept within the context of multiple regression remains a controversial issue" (Holling, 1983, p.1). Pedhazur (1997) provides a detailed analysis of the notion and distinguishes between classical, negative, and reciprocal suppression. However, a detailed breakdown of the suppression effects evident in some of the analyses reported herein was not considered necessary. The general picture that emerges was one where need characteristics predominated and the predisposing and

enabling characteristics (with the exception of health worries) were relatively less important in accounting for health care use in this sample.

Table 13

Hierarchical multiple regression of predisposing, enabling and need characteristics on 'other' health professional visits showing standardised regression coefficients, R, adjusted R², and R² change for all respondents (Available N = 498)

Predictor	Step 1	Step 2	Step 3
Predisposing characteristics			
Age	-.021	-.004	-.064
Gender	.132**	.132**	.123*
Married/de facto	-.062	-.059	-.067
Area (rural/urban)	-.007	.004	.018
Qualifications	.122*	.110	.125*
Phone	-.041	-.041	-.014
Vehicle	-.086	-.083	-.105*
Life events	-.003	-.003	-.009
Social contacts	-.075	-.016	-.023
Alcohol	-.044	-.044	-.041
Health worries	-.200***	-.193***	-.107*
Health control	.092*	.087	.064
Enabling characteristics			
Doctor's gender		.019	.021
Time with same Dr		.020	.008
Fees limiting access		.052	.060
Waiting time		.028	.015
Income		.082	.079
Adequacy of income		.026	.044
Satisfaction with standard of living		-.001	-.004
CS card		-.024	-.008
Health insurance		.013	.006
Need characteristics			
Self-rated health status			.046
Psychological distress			.038
Psychological wellbeing			-.054
Physical symptoms			-.030
Activity			.103
Body			.002
Chronic			.080
R	.320	.336	.369
Total R²	.102	.113	.137
Adjusted R²	.080	.074	.085
R² change	.102***	.012	.023
F	4.61***	2.89***	2.65***
	(12, 485)	(21, 476)	(28, 469)

*p<.05

**p<.01

***p<.001

Bivariate correlations and multivariate correlation between predisposing, enabling, need characteristics and health care use variables.

The bivariate relationships between the independent variables and health care use variables are presented in tabular form in Appendix 1. As can be seen in the Table provided in Appendix 1, some of the independent variables that correlate at the bivariate level with health care use are not significant contributors in the overall regression equations. As noted by Tabachnik & Fidell (2001, p.139-140) the importance of a particular independent variable is a function of both the type of regression analysis employed and both the full and unique relationship between the IV and the DV. The squared semipartial correlation is often viewed as the most useful measure of the importance of an individual IV, further analysis of this type was not undertaken. The general picture that emerges from both the bivariate correlations and the regressions is one where most of the predisposing and enabling characteristics are relatively unimportant predictors of health care use. Thus further unpacking of the relative importance of individual IVs was considered unnecessary.

The need variables show the most consistent pattern of correlation at the bivariate level. Again the relative importance of individual need variables to the regression became more ambiguous given the high level of intercorrelation among these need variables.

The next Chapter of the thesis is concerned with an extension of the Andersen model of health care use by testing the role of traumatic experiences as a predictor of health care use.

Descriptive data are then presented concerning the frequency of experience of traumatic events in the present sample. This is followed by the results of a series of hierarchical multiple regressions which look at the utility of 2 aggregate measures of traumatic experience (i.e., 'total' and 'any' experience of trauma) in accounting for variability in health care use (over and above that accounted for by the Andersen model variables). The consideration of the role of traumatic experiences in health care use is an extension of the Andersen model. As noted in Chapter 3, a number of researchers (e.g. Friedman and

Schnurr, 1995) argue that trauma has a key role in the subsequent use of health services (e.g., Koss, Woodruff, & Koss 1990; Norris, Kaniasty & Schneer, 1990).

Chapter 7: Results - Trauma and health care use

Chapter Overview

As specified in Chapter 4, an additional research goal was to extend the Andersen model by considering the role of **traumatic experience** in the prediction of health service utilisation.

There are a number of threads to this overall goal. Following on from the findings reviewed in Chapter 3 and in particular the work of Norris (1992), the present study sought to:

- (a) Document the frequency with which traumatic events occur in a community-dwelling sample of New Zealand Māori;
- (b) consider the extent to which these traumatic experiences measured at an aggregate level account for additional variance in health care use over and above that explained by the predisposing, enabling and need characteristics;
- (c) document the relationship between the temporal experience of trauma (past year, lifetime, never), as described in Norris, and health care use;
- (d) describe the relationships between key characteristics of frequently occurring traumatic events and health care use.

Traumatic experiences described statistically

As noted earlier in the research goals section (Chapter 4) one of the aims of the present study was to investigate the extent to which prediction of health care use could be improved by considering the experience of trauma (defined in broad terms as sudden, violent, unanticipated traumatic encounters with mankind, nature or technology).

As noted in the health care use regressions reported earlier in Chapter 6, much of the variability in health care use remains unexplained. Having considered the respective roles of the predisposing, enabling and need dimensions of Andersen's model in the prediction of health care use the following section presents descriptive findings regarding the experience of trauma within the sample. This is followed by an analysis of the relationship between trauma and health care use.

General overview of trauma

The respondents were asked about their experience of trauma via the following questions (as reported in tabular form earlier in the Methods Chapter):

Table 14
Questions regarding previous traumatic events

Question	
1) COMBAT:	<i>"Have you ever been engaged in military combat?"</i>
2) CHILDHOOD SEXUAL ABUSE:	<i>"During your childhood, did anyone ever make you have sex by using force or threatening to harm you (this involves all unwanted sexual activity)?"</i>
3) ADULT SEXUAL ABUSE:	<i>"Has anyone ever made you, as an adult, have sex by using force or threatening to harm you (this involves all unwanted sexual activity, but not as a child)?"</i>
4) DOMESTIC ASSAULT:	<i>"Have you ever been seriously beaten or attacked by a member of your family (such as your spouse, partner, parent, child)?"</i>
5) OTHER PHYSICAL ASSAULT:	<i>"Have you ever been seriously beaten or attacked by someone who was not a member of your family?"</i>
6) THEFT BY FORCE:	<i>"Has anyone ever taken or tried to take something from you by force or threat of force, such as in a robbery, mugging, or hold-up?"</i>
7) MOTOR VEHICLE ACCIDENT:	<i>"Have you ever been in a serious motor vehicle accident in which one or more people were seriously injured or killed?"</i>
8) OTHER ACCIDENT:	<i>"Have you ever been seriously injured in an accident other than a vehicle accident, such as at work?"</i>
9) DISASTER EXPERIENCE:	<i>"Have you ever suffered serious injury and/or property damage because of a natural or manmade disaster such as a fire, flood, or earthquake?"</i>
10) DISASTER PRECAUTIONS:	<i>"Have you ever been forced to leave your home or take other precautions because of an approaching disaster such as a flood, earthquake, or cyclone?"</i>
11) TRAUMATIC DEATH:	<i>"Have you ever experienced the violent or very unexpected death of a loved one, such as through an accident, homicide, or suicide?"</i>
12) SECONDARY TRAUMA:	<i>"Has anyone very close to you (a loved one) ever experienced violent assault, serious accident or serious injury?"</i>

(Sourced from Flett et al., 1998)

As noted in Table 15, about a third of the respondents (n = 174, 34.7%) experienced none of the dozen traumatic events specified in the questionnaire (including trauma of a nature

too difficult to describe or discuss). Thus the majority of respondents (65%, $n = 328$) had experienced one or more traumatic events during their lifetimes ($M = 1.5$, $SD = 1.69$).

Table 15
Number and frequency of traumatic events among sample

Total no. of traumatic events experienced	Frequency	Valid%
0	174	34.7
1	138	27.5
2	79	15.7
3	54	10.8
4	25	5.0
5	11	2.2
6	13	2.6
7	3	0.6
8	5	1.0

Lifetime experience for individual trauma variables

Following on from the work of Norris (1992) and Flett et al., (1998) the lifetime frequencies of traumatic events by gender, age group and geographical area are presented in Table 16. The range of **gender** differences was striking, with statistically significant (Chi square) differences on all but three of the event categories. The direction of these effects were such that:

Males were significantly more likely than females to report experience of:

- Combat
- Physical assault
- Theft by force
- Vehicle accident
- Other forms of accident

Females were significantly more likely than males to report experience of:

- Sexual abuse as a child or adult
- Violence at the hands of family members
- Traumatic death of a loved one

Table 16

*Lifetime frequencies of traumatic events by gender, age group and area*²²

Trauma	Total Valid %	Gender		Age Group ²³			Area	
		Male % (n)	Female	Young Adults	Middle Adults	Older Adults	Urban n=231	Rural n=271
Combat	2.2	5.6 (9)***	0.6 (2)	1.3 (4)	1.5 (2)	7.6 (5)*	2.2 (5)	2.2 (6)
Child sex abuse	13.0	3.8 (6)	17.3 (59)***	18.3 (55)***	7.5 (10)	0	16.2 (37)	10.3 (28)
Adult sex abuse	7.0	0.6 (1)	10.0 (34)***	9.4 (28)*	4.4 (6)	1.5 (1)	9.1 (21)	5.2 (14)
Family violence	19.6	11.3 (18)	23.5 (80)**	24.7 (74)***	17.3 (23)	1.5 (1)	23.9 (55)*	16.0 (43)
Physical assault	14.6	20.0 (32)*	12.0 (41)	19.3 (58)***	9.7 (13)	3.0 (2)	16.9 (39)	12.6 (34)
Theft by force	6.4	11.2 (18)**	4.1 (12)	7.3 (22)	5.9 (8)	3.0 (2)	7.8 (18)	5.2 (14)
Vehicle accident	14.1	19.3 (31)*	11.7 (40)	14.0 (42)	13.3 (18)	16.7 (11)	10.8 (25)*	17.0 (46)
Other accident ²⁴	9.6	18.6 (30)***	5.3 (18)	9.3 (28)	9.6 (13)	10.6 (7)	10.4 (24)	8.9 (24)
Disaster	4.8	5.0 (8)	4.7 (16)	4.0 (12)	7.4 (10)	3.0 (2)	6.1 (14)	3.7 (10)
Dister. Precautns.	6.2	8.7 (14)	5.0 (17)	4.7 (14)	11.1 (15)*	3.0 (2)	5.2 (12)	7.0 (19)
Traumatic death ²⁵	31.1	23.6 (38)	34.6 (118)*	32.7 (98)*	35.6 (48)	15.2 (10)	32.5 (75)	29.9 (81)
Secondary trauma ²⁶	21.5	18.0 (29)	23.2 (79)	25.0 (75)*	20.0 (27)	9.1 (6)	26.4 (61)*	17.3 (47)

Using Chi-square test of statistical significance

*p<.05

**p<.01

***p<.001

In terms of **age**, **younger** respondents were more likely to report experience of:

- Sexual abuse as a child or adult
- Physical assault
- Family violence
- Traumatic death
- Secondary trauma

Middle age adults were significantly more likely to report experience of disaster related events, while the **older** group, not surprisingly, reported more combat experience related trauma.

²² Adapted from Flett et al., (1998).

²³ Young adults = 18-39 yrs.; middle adults = 40-59 yrs.; older adults = 60+ yrs.

²⁴ That is accident other than a vehicle accident (e.g., work-related accident causing serious injury to self).

²⁵ Inclusive of a loved one ever experiencing a "violent or very unexpected death...., such as through an accident (including vehicle crash), homicide or suicide".

²⁶ Secondary trauma involves having a loved one experiencing a violent assault, serious accident or injury.

Those living in **urban areas** reported significantly more:

- Family violence
- Vehicle accident
- Secondary trauma

The question then becomes one, for the purposes of the present thesis, of whether traumatic experiences are significant from a health care use perspective.

Traumatic experiences and health care use: An “aggregate” approach.

Two types of aggregate trauma variables were investigated for their independent effect upon health care use variables. Firstly, an ‘**Any trauma**’ variable reflecting experience of at least one traumatic event (65% of the sample) and secondly a ‘**Total trauma**’ variable reflecting the total lifetime number of events reported by those with at least one such historical trauma (range = 0-8, mean = 1.5, SD = 1.69). It should be noted that the total traumatic events recorded did not take account of repeated experiences of the same trauma.

Independent variables previously identified in Chapter 6 as significant predictors of health care use were entered at the first step (listed as predictors in the following tables). The aggregate trauma variables (i.e., either ‘Any trauma’ or ‘Total trauma’) were each entered at step two of the analysis. A separate regression was conducted using each trauma variable.

Cases identified earlier as either univariate or multivariate outliers (i.e., during the initial data screening phase or during previous regressions) were excluded from analyses. Additional cases identified as multivariate outliers during the regressions reported here were likewise excluded.

In none of the regression analyses performed were the aggregate trauma variables found to be a significant contributor to the prediction of health care use. The Adjusted R^2 values after the addition of the Any trauma variable to the model, ranged from 0.00 (for G.P. visits,) to 0.06 (hospital visits). None of these effects were significant. Adding the Total trauma variable to the model generated Adjusted R^2 values ranging from 0.00 (for prescription items) to 0.08 (hospital visits).

Summary of trauma regression findings

The analyses reported herein illustrate that measuring trauma at the aggregate level is unhelpful in terms of accounting for additional variability in health care use. Following on from the work of Norris (1992) the next section seeks to further clarify the nature of the relationship between trauma and health care use. Specifically, the section documents the rate of lifetime and past year exposure to traumatic events and the extent to which this temporal dimension provides additional insights into the trauma health care relationship.

The temporal experiences of trauma – analyses modelled on Norris (1992)

The present section sought to build on the data presented earlier in this Chapter by considering the mean levels of health care use associated with four different categories of trauma specified in Norris (1992) (crime, accident, hazard, and any trauma).

Norris (1992) emphasises, "...these events appear to be only one of many sources of stress in people's lives"(p.416). The previous section considered links between health care use variables and traumatic experiences that were, in many instances, quite temporally remote from the respondent's current situation.

The present section sought to consider a temporal aspect to the experience of trauma, that is, whether the event had been experienced in the past year, ever or never. Similarly the 12 trauma types were aggregated (as specified by Norris 1992) into 4 categories (lifetime crime, accident, hazard, or any event). **'Lifetime crime'** included experience of theft by force, domestic assault, other assault, and sexual assault as a child or adult. **'Lifetime accident'** included experience of motor vehicle accident, or other accident which involved serious injury or death, or other tragic death. **'Lifetime hazard'** included experience of natural disaster or disaster precautions. **'Lifetime any event'** included any experience of the traumatic events investigated.

The implications of these traumatic experiences for health service utilisation is considered in this section. Specifically the Chapter documents the relationship between the temporal

experience of trauma (past year, lifetime, never), as described in Norris, and subsequent health care use.

As noted above, four categorical trauma variables were then created: “Lifetime crime”, “Lifetime accident”, “Lifetime hazard”, and “Lifetime any event”. Each were scored ‘2’ if they had been experienced in the past year, ‘1’ if that had experienced the events earlier, and ‘0’ if individuals had never experienced any of these events

Results

As noted earlier in this Chapter, about a third of the participants ($n = 174$, 35%) had never experienced any of the traumatic events. Thus, more than half of the participants (65%, $n = 328$) had experienced one or more traumatic events during their lifetimes, ($M = 1.5$, $SD = 1.69$).

Following on from the data presented earlier and the work of Norris (1992) and Flett et al., (1998, 2002) the frequency distributions of aggregate traumatic event measures are presented in Table 17.

Table 17

Percentage of Participants who Reported Experiencing Traumatic Events

Traumatic Event	Gender				Age						Entire Māori	
	Male		Female		Young		Middle Aged		Older		Sample	
	<u>n</u>	%	<u>n</u>	%	<u>n</u>	%	<u>n</u>	%	<u>n</u>	%	<u>n</u>	%
Crime												
No event	112	69.6	213	62.5	167	55.7	96	71.1	61	92.4	325	64.7
Lifetime event	44	27.3	115	33.7	117	39.0	37	27.4	5	7.6	159	31.7
Past year event	5	3.1	13	3.8	16	5.3	2	1.5	-	-	18	3.6
Hazard												
No event	141	87.6	312	91.5	277	92.3	113	83.7	62	93.9	453	90.2
Lifetime event	18	11.2	27	7.9	21	7.0	20	14.8	4	6.1	45	9.0
Past year event	2	1.2	2	.6	2	.7	2	1.5	-	-	4	.8
Accident												
No event	89	55.3	197	57.8	167	55.7	74	54.8	44	66.7	286	57.0
Lifetime event	63	39.1	122	35.8	108	36.0	55	40.7	22	33.3	185	36.9
Past year event	9	5.6	22	6.5	25	8.3	6	4.4	-	-	31	6.2

Note. Past-year values represent valid proportions of lifetime prevalence. * Frequency significantly greater than counterparts, $p < .05$.

There was a significant association between lifetime crime and age $\chi^2 (4, n=501) = 38.9, p < .001$. Similarly, the association between lifetime any event and age was significant $\chi^2 (4, n=501) = 25.9, p < .001$. None of the other associations between trauma categorised in this manner and age were significant. As in the previous Chapter, the general pattern that emerges here is one in which younger respondents are more likely to report trauma at some point in their life. However, these results must be interpreted with caution as there are relatively small numbers in the “experienced in the past year” category. There were no significant associations between gender and these trauma variables.

Table 18

Health Care Use by Trauma Exposure

Health Care Use Measure	Crime			Hazard			Accident		
	Lifetime	Past-year	No event	Lifetime	Past-year	No event	Lifetime	Past-year	No event
Dr Visits									
M	7.12	7	6.55	7.1	14.5	6.7	8.4	4.3	6.1
SD	11.4	7.2	8.1	9.5	1.75	9.3	12.8	4.6	6.8
n	118	11	234	33	2	328	124	24	215
Hospital Visits									
M	6	12.7	7.5	6.4	-	7.2	6.9	5.3	7.5
SD	6.4	9.7	10.2	6	-	9.1	6.3	6.9	10.5
n	39	3	53	11	-	84	37	7	51
Disabled or bed days									
M	.66	.5	.55	.73	.5	.57	.6	.55	.57
SD	0.47	0.51	0.49	0.45	0.5	0.49	0.49	0.50	0.49
n	159	18	325	45	4	453	185	31	286

(continued)

Health Care Use Measure	Any event		
	Lifetime	Past-year	No event
Dr Visits			
M	7.0	5.8	6.7
SD	10.7	6.4	7.8
n	189	45	129
Hospital Visits			
M	6.6	7.4	7.9
SD	7	7.7	11.9
n	54	11	30
Disabled or bed days			
M	.6	.57	.56
SD	0.49	0.49	0.5
n	263	65	174

Table 18 (continued)

Health Measure	Crime			Hazard			Accident		
	Lifetime	Past-year	No event	Lifetime	Past-year	No event	Lifetime	Past-year	No event
Prescription Items									
M	0.69	.5	.7	.75	.74	.69	0.66	.64	.72
SD	.46	.51	.45	.43	.5	.46	.47	.49	.45
n	158	18	322	45	4	449	182	31	285
Mental Health Visits									
M	.24	.33	.08	.11	-	.14	.14	.06	.14
SD	.43	.48	.27	.32	-	.35	.35	.25	.35
n	159	18	325	45	4	453	185	31	286
Other Health Professionals									
M	.52	.67	.49	0.62	0.25	.49	0.52	0.48	.5
SD	.5	.48	.5	.49	0.5	.5	.5	.51	.5
n	158	18	322	45	4	453	185	31	286

Table 18 (continued)

Health Measure	Any event		
	Lifetime	Past-year	No event
Other Health Professionals			
M	0.52	.54	.47
SD	.5	.5	.5
n	263	65	174
Prescription Items			
M	.69	.66	.72
SD	.46	.48	.45
n	260	65	173
Mental Health Visits			
M	.18	.14	.08
SD	.38	.35	.27
n	263	65	174

Impact of traumatic events on health care use

Table 18 shows the mean and standard deviations of health care use measures for crime, hazard, accident and any event for the three levels of trauma exposure. A series of MANOVA's indicated that there was a significant association between lifetime crime and hospital-related health visits ($p < .05$), bed and disability days ($p < .05$), and use of mental health professionals ($p < .001$). The experience of crime-related trauma was associated with higher levels of use of these services, and there was some suggestion that this level of use increased relative to the recency of the trauma. There was a significant relationship between lifetime accident and number of doctor visits ($p < .05$). There was a significant relationship between lifetime any event and use of mental health services ($p < .05$). Again there was a trend towards increased service use being associated with more recent experience of trauma. However, as stated earlier in this Results section these results need to be interpreted with caution given the relatively low numbers of individuals within the sample that experienced trauma in the past year category.

Characteristics of Traumatic events and health care use

An important research question concerns the extent to which contextual features or characteristics of the trauma experience can be identified that might account for individual variability in the development of subsequent health/mental health problems, and concomitant increases in health service utilisation. This section considers this issue.

Chapter 3 makes the case at a theoretical level for a link between traumatic experiences and subsequent health care utilisation and reviewed some evidence in support of such a linkage. However, the evidence thus far in this Chapter has failed to show a compelling link between trauma and health care use (conceptualised and measured at an aggregate level). This Chapter then attempted a form of 'time-effect' analysis in broad brush-stroke terms by considering the effects of trauma that had occurred "in the past year" versus "ever", but the nature of the relationships were a little difficult to render clearly given the

aggregate nature of the traumatic experience variable, and the relatively low (although not trivial) numbers of respondents who reported the events “in the past year”.

Traumatic experiences are clearly stressful events that can leave many victims with significant levels of both physical and psychological distress. However, the data reported in this Chapter thus far suggests that much less is known about how frequently victims of trauma access professional health and rehabilitation services. The analyses reported in the next section consider the extent to which the sorts of trauma characteristics and contextual features described in Chapter 3 account for variability in health service use.

Respondents who reported that they had experienced a traumatic event were also presented with a series of scales which assessed their perceptions of various aspects of the trauma. Respondents indicated the degree to which they felt that the event had affected their lives, the degree of physical injury incurred, and the degree to which they felt that their lives were in danger during the event. They rated the extent to which the event was unexpected/unpredictable and whether they felt any control over/during the event. They also rated the extent to which they had talked about the event and confided their feelings about the experience to others. Other details included whether there had been multiple experiences of the same type of trauma.

Results

A series of hierarchical multiple regressions were carried out to examine the relationship between characteristics and contextual features of the traumatic experience (as described above) and health care use variables.

Rather than present results for all traumas, analyses were only carried out for those traumas for which there was an adequate ratio of cases-to-IV's. Clearly there is much debate in the regression literature about what this ratio should be. Tabachnick and Fidell (1989) suggest a bare minimum of 5 cases per variable but emphasise that more are required when the effect sizes are small, there is substantial measurement error, or the DV

is skewed. A ratio of 8 cases per variable was arbitrarily chosen for this analysis which meant that regression results are reported for traumas experienced by approximately $N = 80$ or more individuals (given that there were approximately 10 IV's in the analysis). Analyses for family assault, traumatic death, and secondary trauma were carried out.

In the interests of parsimony (and perhaps maintaining some level of continuing reader interest), analyses were not carried out individually for all health care use variables. Number of general practitioner visits/year was included in the analysis. A simplified aggregate formal health care use variable was constructed (termed All Health Care). This was a count of whether the respondent had accessed any of the following health services at least once in the past year: hospital admissions; bed/disability days; use of 'other' health professionals; use of prescription items; and use of mental health professionals. There is some loss of precision in using aggregate measures of this type but given the limited array of options available, this conservative approach to the analysis was considered appropriate. The total formal health care use score could range from 0 (where none of the health services listed had been accessed) to 5 (where all the services listed had been accessed at least once). The overall mean was $M = 2.2$, $SD = 1.4$. A similar strategy for aggregating health care use has been reported Flett et al., 1998.

First, considering those who reported experiencing **family assault**, (with General Practitioner Visits as DV), the R for regression was not significantly different from zero, $F(8, 62) = 1.56, p > .05$. In a similar vein, with All Health Care as DV, the R for regression was not significantly different from zero, $F(8, 62) = .90, p > .05$. These results are presented in Table 19. The trauma characteristics measured here clearly do not account for variability in health care use among victims of family assault. There was some suggestion that the degree of unexpectedness was important when considering general practitioner use, but given that the overall regression model was not significant, this could not be considered further.

Table 19

Multiple regression of trauma characteristics variables on General Practitioner Visits and All Health Care Use for FAMILY ASSAULT victims showing standardised regression coefficients, R , R^2 , adjusted R^2 , and R^2 change for all respondents (Available $N = 98$)

Predictor	G.P. Visits	All Health Care
<u>Event Characteristics:</u>		
Multiple occurrences of this event	-.05	-.09
Degree of injury	.03	.02
Unexpectedness	.32*	.18
Overall life effect	.30	.10
Talked about it	-.08	.07
Life in danger at time	-.11	-.15
Felt in control	.00	.12
R	.40	.32
R^2	.17	.10
Adjusted R^2	.06	.00

* $p < .05$.

Second, considering those who reported experiencing the **traumatic death of a loved one**, (with General Practitioner Visits as DV), the R for regression was not significantly different from zero, $F(7, 102) = .52, p > .05$. In a similar vein, with All Health Care as DV, the R for regression was not significantly different from zero, $F(7, 102) = .86, p > .05$. These results are presented in Table 20. The trauma characteristics measured here clearly do not account for variability in health care use among those who have experienced the traumatic death of a loved one. Questions about personal physical injury and perceived personal danger were not asked here as the trauma was concerned with violent death of a loved one. Respondents were asked how many loved ones died in this event. This ranged from $N=1$ to 5.

Table 20

Multiple regression of trauma characteristics variables on General Practitioner Visits and All Health Care Use for TRAUMATIC DEATH OF A LOVED ONE victims showing standardised regression coefficients, R, R², adjusted R², and R² change for all respondents (Available N = 156)

Predictor	G.P. Visits	All Health Care
<u>Event Characteristics:</u>		
Multiple occurrences of this event	.00	-.18
Level of distress	-.03	.12
Unexpectedness	-.09	.08
Overall life effect	.30	.07
Talked about it	.00	-.05
Number of deaths in the event	-.15	-.02
Felt in control	.00	.08
R	.19	.24
R²	.03	.06
Adjusted R²	.00	.00

*p < .05.

Third, considering those who reported experiencing **secondary trauma** which included violent assault, serious accident or serious injury to a loved one, (with General Practitioner Visits as DV), the *R* for regression was not significantly different from zero, $F(6, 77) = 1.97, p > .05$. In a similar vein, with All Health Care as DV, the *R* for regression was not significantly different from zero, $F(6, 77) = 1.7, p > .05$. These results are presented in Table 21. Again, the trauma characteristics measured here clearly do not account for variability in health care use among those who have experienced secondary trauma. There was some suggestion that the degree of unexpectedness was important when considering both types of health service use, but given that the overall regression models were not significant, this could not be considered further. As in the previous analysis, questions

about personal physical injury and perceived personal danger were not asked here as the trauma was concerned with experiences of a loved one.

Table 21

Multiple regression of trauma characteristics variables on General Practitioner Visits and All Health Care Use for SECONDARY TRAUMA victims showing standardised regression coefficients, R, R², adjusted R², and R² change for all respondents (N = 108)

Predictor	G.P. Visits	All Health Care
<u>Event Characteristics:</u>		
Multiple occurrences of this event	-.20	-.20
Level of distress	-.32*	.30*
Unexpectedness	.13	.04
Overall life effect	-.13	-.16
Talked about it	-.04	-.06
Felt in control	-.07	.07
R	.36	.35
R²	.13	.12
Adjusted R²	.07	.05

*p < .05.

As noted in the Tables above, unexpectedness was a significant predictor of G.P. use for those who had experienced family assault and level of distress was a significant predictor of both G.P. visits and all health care use for those who had experienced secondary trauma. Otherwise the general picture that emerges is one where trauma characteristics as measured here were not strong predictors of health care use. The following Chapter presents the discussion of the thesis research.

Chapter 8: Discussion - Findings and implications

The research goals of the thesis (as described in Chapter 4) were as follows:

1) To test the efficacy of the Anderson behavioural model in the prediction of Māori health care utilisation (i.e., to identify key predictors of use among Andersen's predisposing, enabling and need variables).

2) To extend the model by considering the role of life events in the prediction of health service utilisation

3) To extend the model by considering the role of psychological distress as a predictor of health service utilisation

4) To extend the model by considering the role of traumatic experience in the prediction of health service utilisation

There were a number of threads to this overall goal. Following on from the findings reviewed in Chapter 3 and in particular the work of Norris (1992), the present study considered:

(a) The frequency with which traumatic events occur in a community-dwelling sample of New Zealand Māori;

(b) The extent to which these traumatic experiences measured at an aggregate level account for additional variance in health care use over and above that explained by the predisposing, enabling and need characteristics;

(c) The relationship between the temporal experience of trauma (past year, lifetime, never), as described in Norris, and health care use;

(d) The relationships between key characteristics of frequently occurring traumatic events and health care use

The results are reviewed below in terms of their relationship with these research goals.

Thesis goal 1: Application of the Andersen model to Māori health care use

The findings from the six regression analyses of the present study were reported in detail previously in Chapter 6. A summary of variables identified in the present study as significant predictors at each step of the health service use regression analyses are presented in Table 22 for the reader's reference.

Table 22

Summary of Significant Predictor Variables of Health Care Use (by Health Care Category)

Regression 1: General practitioner visits			
Model component	Step 1	Step 2	Step 3
Predisposing	Educational quals.	Educational quals.	Educational quals.
	Health worries	Health worries	Health worries
Enabling		Nil	Nil
Need			Self-rated health
Regression 2: Hospital-related visits			
Model component	Step 1	Step 2	Step 3
Predisposing	Health worries	Health worries	Health worries
	Life events		
	Alcohol	Alcohol	Alcohol
Enabling		C.S card	C.S card
Need			Bodily limitations

Table 22 (continued)

Regression 3: Disability and bed days			
Model component	Step 1	Step 2	Step 3
Predisposing	Health worries	Health worries	Health worries
Enabling		Income	Income
Need			Physical symptoms
Regression 4: Prescription items used			
Model component	Step 1	Step 2	Step 3
Predisposing	Health worries	Health worries	Health worries
	Gender	Gender	Gender
	Age	Age	
Enabling		Time with same G.P.	Time with same G.P.
		Fee limitations	Fee limitation
		CS card	
Need			Self-rated health
			Chronic conditions

Table 22 (continued)

Regression 5: Mental health professional visits			
Model component	Step 1	Step 2	Step 3
Predisposing	Relationship status	Relationship status	Relationship status
	Health worries	Health worries	
	Age	Age	
		Telephone	Telephone
Enabling		CS card	CS card
		Satisfaction (living std.)	Satisfaction (living std.)
			Waiting time
Need			Psychological distress
			ADLs
Regression 6: Other health professional visits			
Model component	Step 1	Step 2	Step 3
Predisposing	Gender	Gender	Gender
	Health worries	Health worries	Health worries
			Educational quals.
	Health control		
			Vehicle
Enabling		Nil	Nil
Need			Nil

The Andersen model's overall degree of fit with Māori health care use

While there are undoubtedly some limitations associated with the conceptualisation and measurement of variables in the present study, the picture that emerges from the regression

analyses conducted is of a model of health care use that is relatively ineffective in explaining health service utilisation among Māori.

Depending on the type of health service being measured, the Andersen model accounted for between 8.5% (for use of 'other' health professionals) and 26% (for use of prescription items) of the variability in service utilisation by the Māori sample.

In comparison to the present findings, Withers (2000) found that the model accounted for between 18% and 33% of the variance in a sample of New Zealand Vietnam veterans and partners. Wolinsky and Johnson (1991) found that the model accounted for between 5% and 25% of the variability in samples of older Americans, while Keith and Jones (1990) found the model to be reasonably ineffective in explaining (no more than 17%) doctor and hospital use in a comparative study of North American ethnic groups. In their examination of a reasonably extensive array of formal and informal health care use Wolinsky, Miller, Predergast, Creel, & Chavez (1983) found 12% (A & E use), 29% (disability days) and 35% (dental care) of variance in health service use to be explained by the behavioural model. In the only published piece of N.Z. research work to apply the Andersen model to G.P. utilisation, Gribben (1992) found the model to explain 23% of variation in doctor visits by South Aucklanders.

Uncovering predictors of Māori health care use

1) Predisposing characteristics

Health worries was a consistent predictor of service use for all but one (i.e., mental health professional use) form of health care investigated. The current findings replicate those of Caferrata (1987), Strain (1991) and Wolinsky and Johnson (1991), who found that older U.S. participants who worried about their health were more likely to have taken bed disability days, made doctor visits or used hospital services. Use of these forms of informal (bed and disability days) and formal care (G.P. and hospital visits) were found to be significantly correlated with higher levels of worry about one's health in the present study.

Moreover, as an extension to the findings of previous authors, health worry among the Māori sample was also significantly associated with higher use of prescription items and those in the other health professional category.

Unlike Murchie's study (1984) where over half of the Māori women sample ($N = 1,177$) reported some worry about their health, no discernible age or gender group differences were identified for health worries in the present study. Also in contrast to the Rapuora sample the majority (i.e., 62%) of the present sample reported having 'hardly any' or 'no' health worries, with a larger percentage (i.e., 87%) reporting a sense of control over their future health. No significant gender group differences were observed, although younger age groups were more likely to feel a degree of self-control in the fate of their health ($p < .05$). This is perhaps not surprisingly given this group's relatively lower levels of chronic illness and physical limitations as a function of youth.

Aside from health worries, none of the predisposing characteristics were consistently significant predictors of the various types of health service use. Examination of Table 22 above indicates that **educational qualifications** was a significant predictor of G.P. use. The direction of the observed effect was that those with *lower* educational attainment had a higher frequency of G.P. visits in the year preceding interview. Educational attainment has been found to be the significant predictor of health service use (e.g., Stroller 1982; Wolinsky, 1978) and there are mixed findings regarding the direction of the effects with some studies finding that more *highly* educated men and women visit the G.P. more often (e.g., Barzargan et al., 1998; Cafferata, 1987). Other researchers have found no such association between educational attainment and doctor visits (e.g., Eve, 1988; Strain, 1991; Wolinsky & Johnson, 1991; Nelson, 1993). The meaning of this apparent inconsistency is unclear on the basis of the available data. A number of the studies that show a relationship between higher levels of education and health care use do so in samples of older adults, while studies showing no association have done so in general population samples. The inconsistent relationship between education level and health care use continues to be apparent in more recent research findings. Across a range of contexts, and for a range of different types of health services, some studies have noted no relationship between

education and health service use (e.g., Barney, 1994; Burns, Wagner, & Gayes, 2000), some have found (as in the present study) a negative correlation between education and health service use (e.g., Kung, Pearson & Liu, 2003;), while other recent studies have found that higher levels of education are associated with higher levels of health care use (e.g., Green-Hennessey, 2002; Ouimette, Wolfe, Daley & Gima, 2003).

In keeping with previous research (e.g., Strain, 1991) **gender** was a significant predictor of prescription item use and use of other health professionals. However, the relationship between gender and health care use reported here continues to show some inconsistencies with other findings. Wolinsky and Johnson study (1991), for example, found that older women had fewer bed rest days, G.P. visits or hospital admissions than older men in the U.S. Studies in the U.S. suggest that women are generally higher health care users than men, whilst men have higher levels of hospital admissions (Bernard, Hayward, Rosevear & MaMahon, 1993; The American National Centre for Health Statistics, 1992). This pattern was not evident among the present sample. Although Māori women were higher users of prescription items than Māori men in the sample, Māori men were higher users of specialist health professionals. The overall picture that emerges from the present findings suggest that gender is a relatively unimportant predictor of health care use for Māori. More recent research continues to find gender differences in health care use in a range of ethnic groups (e.g., Dunlop, Manheim & Song, 2002), and undoubtedly men and women have different health care needs (e.g., Sajatovic, Sultana & Bigham, 2002). The lack of observed gender differences in the present study may in part be a function of the types of health services being assessed. More recent studies make it clear that there are reliable gender differences particularly in mental health care use (e.g., Rhodes, Goering, To & Williams, 2002) and Albizu-Garcia, Alegria, Freeman and Vera (2001) emphasise the importance of the incorporation of gender differences in terms of strategies designed to improve access to health care services.

Previous research has consistently found an association between **age** and health care use such as G.P. or hospital visits (e.g., Andersen et al., 1975; Hulka & Wheat, 1985; Wolinsky, 1978; Wolinsky & Johnson, 1991). A higher level of health care use is perhaps

due to higher levels of health problems or need among the older age groups, or those of child-rearing years (Wolinsky, 1978). The present study found no association between increasing age and G.P. use or hospital visits. Age was not a significant predictor of any form of health care investigated. Clearly this finding is at odds with the extant literature.

Thirteen percent of the Māori sample was over the age of sixty years, an age commonly meaning assuming or continuing in a leadership role in the whānau, hapū or iwi and an increased level of personal contact with kin. The older adults in the sample may have been receiving informal care within these structures, with younger relatives providing support in health and well-being terms as a function of collective cultural norms and behaviours demonstrating Māori processes of group harmony and development such as whanaungatanga and manaakitanga (Hirini, 1997a; Hirini et al., 1999). The measurement of health care use perhaps needs to include a broader array of types of informal care within Māori social structures (e.g., care by family and tribal members who are skilled or professional in physical, mental, cultural or in many cases spiritual health). Alternative or traditional forms of care for the health and well-being of Māori will be discussed later in this final Chapter.

Although previous U.S. studies such as Cafferatta (1987) found marital or **relationship status** to be a significant predictor of both formal (e.g., G.P. or hospital visits) and informal health care use (e.g., sick days), the present study did not find such an association (aside from mental health professional visits). Cafferatta concluded that lower levels of formal health care use and higher levels of informal health care use was a function of being in a shared living arrangement which facilitated access to alternative (i.e., informal) forms of care. However, contrary to this suggestion, being in a married or de facto relationship did not register as significant predictors of days spent disabled or in bed due to ill health within the present study. However, being single was a significant predictor of mental health visits, lending some support to the link between not having such social support and using formal health care services as found in the established literature. Another form of social support as measured in the present study by recent social contacts (Nelson, 1993) did not emerge as a significant predictor of any service use investigated.

Other studies have noted a lack of relationship between social contact and service use (e.g., Sherbourne, 1988) but this may be due to the nature of the assessment of social contacts. Sherbourne noted that when social contact is operationalised in terms of the availability of social resources there is a stronger relationship between such resources and reduced levels of health care use. The beneficial effects of being imbedded in a network of socially supported relationships has been extensively documented (e.g., Cohen & Wills, 1985; Flett, 1986) and suggested definitions and alternative ways to assess social support have proliferated. Arguably the strategy for assessing social contact used in the present study was far too narrow to encapsulate the richness and diversity of the meaning of the notion of social support for Māori. Westernised notions of social support tend to have an individualised focus while the notion of whanaungatanga perhaps more accurately reflects the broader meaning of '*social support*' for Māori.

Having a working **telephone** and access to a **private vehicle** are thought to facilitate fast and convenient access to health care services (e.g., Gribben 1992; Wolinsky & Johnson, 1991). Neither variable was unambiguously related to health care use in the present study. Over 75% of the sample had access to a vehicle and over 60% had access to a telephone, so the differential effects of these access variables on health care use may have been more difficult to demonstrate. In a similar vein New Zealand has one of the highest rates of cell phone use in the world and thus problems in communicating with health services via the telephone may be a relatively unimportant concern in the New Zealand context.

The present finding that abstinence from **alcohol** was a significant predictor of hospital service use is, at first glance, a somewhat counter-intuitive one. In a similar vein a more recent study noted a counter-intuitive relationship in the opposite direction, with heavier drinkers reporting lower levels of health care use (Chitwood, Sanchez & Comerford, 2001). Alcohol use, and particularly heavy use, is generally considered to be a health risk or compromising behaviour. Logic would therefore dictate that problematic alcohol use would be associated with increased physical and/or mental health problems (e.g., see National Health Committee, 1999). The present findings may possibly be due to those

people using such services having existing health problems (bodily limitations²⁷ was also identified as a significant need variable in the same regression) necessitating dietary precautions such as abstinence from alcohol. However, more recent research has continued to find an association between increased levels of alcohol use and increased health need (e.g., mental and physical illness) and health care use (e.g., Sillanauke, Strid & Jousilahti, 2001) which suggests that the present findings may be somewhat unreliable.

2) Enabling characteristics

The enabling characteristics were, for half of the regression analyses, relatively unimportant predictors of services use. The enabling component centered around the idea that while people may well be predisposed to health service, they also need some ready means of obtaining these services (e.g., income, health insurance, satisfaction with standard of living, having a regular physician). Some of the individual enabling characteristics variables were significant in the overall model, these centred on income-related variables (e.g., satisfaction with standard of living, income, doctor fees limiting health service access or having a community services card). The findings concerning these variables are discussed below.

Previous research has indicated a link between health care use and subjectively determined income-related factors such as satisfaction with one's income and associated standard of living (e.g., Eve, 1988). **Satisfaction with standard of living** was a significant predictor of mental health professional visits, yet was non-significant for other forms of health care use. The discrepancy between the findings reported herein and the Eve findings may be a function of the nature of the respective samples. The Eve findings were derived from a study of older North American women. Eve found a significant relationship between objective income and health care use but this effect was not clearly replicated in the present study. The majority of participants (86%) felt they had at least enough **income** to

²⁷ Body limitations may be related to loss of functional ability as a complication of previous or existing illness (e.g., diabetes, heart or lung disease) or injury (e.g., stroke, head injury), or to age-related health concerns all of which potentially necessitate caution with alcohol use.

get by and were satisfied (83%) with their overall standard of living despite the relatively low levels of objective income. In line with an extensive body of previous research, there were significant although modest correlations between physical health (but not mental health) and objective income. However in the New Zealand context this does not mean that Māori are inevitably better off in terms of overall health. Recent research (Blakely, personal communication, March 5, 2004) suggests that high income Māori still have a 40% higher death rate than low income Pākehā. It is unclear as to why this is the case, but highlights the complexities of the relationship between income, health and health care use. The results show that having **private health insurance** is not significantly associated with health care use, but this is perhaps not surprising given the high numbers of respondents (83%) who did not have private health insurance. At the last 1996/1997 national health survey 75% of the Māori sample (n = 1,321) did not have health insurance coverage (Scott, personal communication, June 27, 2001). When comparisons are made between groups, considerably fewer Māori (25%) were covered by health insurance plans than Pākehā (cf 44%), (Scott, personal communication, June 27, 2001). With respect to government health entitlements among the present sample, 9% had a high user health card, while 72% of participants had a community services card. In the U.S. context Wolinsky et al. 1989 argued that the introduction of the Medicaid and Medicare system reduced the salience of socioeconomic status as an important factor in health service use. The implication of their argument is that this has made the health system more equitable. In the context of the present study the community services card system could be seen as a conceptually similar scheme to the Medicaid/Medicare system, this does not imply that the New Zealand health system is an equitable one. While large numbers of respondents in the present study had a community services card, this was not a significant predictor of G.P. use (the most likely form of entry into the health system). The community services card system may therefore not be achieving its intended goal (more equitable access to health care for poor and marginalised groups). A Te Pūmanawa Hauora study (1997) suggested that many older Māori did not have a clear understanding of the community services card system and how to access the various State-funded health related entitlements available to them.

As shown in Table 22 the relationship between other enabling characteristics and health care use was relatively modest and there was not a clear pattern of relationships for any particular variables. Length of time with the same G.P. (*the regular source effect*) and fee-related limitations were associated with prescription item use.

3) Need Characteristics

Need characteristics were consistently associated with health service use. The dominance of need variables is a common feature within the research literature (e.g., Wolinsky et al., 1989; Wolinsky & Johnson, 1991). This notion of need centered around the idea that clearly predisposing and enabling characteristics are necessary for health service use, but the individual also must have or perceive some illness worthy of initiating help-seeking behaviour. There was no consistent pattern across the different types of health services in terms of which individual need variables were significant predictors of service use. Self-rated health, physical symptoms, chronic health problems, bodily limitations, activities of daily living, and psychological distress all featured as significant predictors in one or more of the health service use regressions. More recent research continues to highlight the salience of need characteristics as a predictor of health care use in a range of settings and populations (e.g., Andersen, 1995; Andersen, Rice & Kominski, 1996; Bradley, McGraw, Curry, Buckser, King, Kasl & Andersen, 2002).

The Andersen model and Māori health care use: A summary of findings.

As noted in Chapter 2, the general picture that emerges from previous research is one where: The need characteristics consistently appear as the major determinants of health care utilisation; the amount of variance explained by the model is moderate (i.e., less than 25%); and the effects of the predisposing and enabling characteristics are quite modest, if not inconsequential (often explaining less than 5% of variance).

The present study found some support for these general conclusions. Need characteristics were important predictors of health care use adding, as a group, 2-9% of explained

variance, after the effects of predisposing and enabling effects had been taken into account. However, contrary to previous research predisposing characteristics showed much stronger relationships with health care use explaining between 5-16% of the variance. Enabling characteristics accounted for a relatively trivial amount of variance (1-6%). The need variables were the strongest predictors on the final step of the analyses for 4 of the 6 health care use variables.

Consistently the most important predisposing characteristic was health worries. The notion of 'health worry' stems from the Health Beliefs Model (Rosenstock, Strecher & Becker, 1988; Strecher, Champion & Rosenstock, 1997). The basic idea here is that people's decisions about health behaviours are guided by four main sets of factors:

- A perception of *personal threat* or susceptibility to contracting a specific illness.
- A perception of the *seriousness* of the illness and the *severity* of the consequences of having it.
- A belief that a particular practice will *reduce the threat*.
- The *decisional balance* between the perceived costs of enacting a health practice and the benefits expected from this practice.

It is easy to see via this model how a person might maintain a set of thoughts that either facilitate or inhibit them from seeking health care. Certainly the strategy adopted for assessing health worry in the present study was a relatively simplistic one. More recent research continues to document a relationship between high levels of health worry and increased service use (e.g., Cronan, Shaw, Gallagher, & Weisman 1995; Petrie, Silverstream, Hysing, Broadbent, Moss-Morris & Eriksen, 2001). There is an increasing recognition that health beliefs and attributions are culturally defined (e.g., Murguia, Zea, Reisen, & Peterson 2000) and more generalised health beliefs items are unlikely to capture the full range of health beliefs present among Māori. The measurement of culture-specific influences such as health beliefs, acculturation, spirituality and identity have been included in more recent international research (e.g., Borrayo & Jenkins, 2003; Holt, Clark, Kreuter & Rubio 2003) and local work (e.g., Kingi, 2002). The sorts of cultural beliefs and

traditions that might influence health care decision-making are receiving increasing recognition and attention in the wider Māori community.

A national organisation of Māori healers (Ngā Ringa Whakahaere o te Iwi Māori) was formed in 1993, marking a public re-emergence of Māori healers (Durie, 1994a). After submissions received by the then Core Services Committee in the same year, the Ministry of Health supported the inclusion of traditional Māori healing practices within the public health system, and in 1995 the National Health Committee recommended that traditional healing services be purchased alongside other mainstream primary health care services (Durie, 1996a). It is too soon to know what implications, if any, this development may have on Māori access to and use of Māori-specific health services, although this important historical development would seemingly warrant inclusion in any future Māori health care use research like the kind reported here.

An assessment of use of iwi-based health and social services to meet both physical and mental health needs of Māori is a sensible suggestion, as the number and scope of services have increased considerably around the country since the present study was undertaken. Further, an assessment of the level of use of traditional Māori healers (tohunga) and the role of whānau and tribal spiritual healers in meeting the health needs of modern Māori may also be a useful advance on the services investigated here. Pomare (1986) proposes that some inclusion of spirituality (te taha wairua), needs consideration in studies of Māori health and health care use. How this might be achieved remains a topic of ongoing debate.

From a psychological perspective there are a number of other models of health behaviour that might usefully inform future Māori health care research. These are addressed later under limitations and future research directions.

Thesis goals 2 & 3: The role of life events and psychological distress in health care utilisation

Life events

Although previous authors have found a significant association between **life events** and health care use (e.g., Cheng, 1992; Raphael, Lundin & Weisaeth, 1989; Rubio & Lubin, 1986), life events was not a significant predictor in the present study. Millar (1996) noted a similar non-significant effect for a sample of older adults while Madison-Smith, (1998) noted a significant life events/health care link for a sample of adult women (over aged 18 years).

In the present study, life events was significant on the first step of the hospital-related health visits regression but became non-significant on subsequent steps in the analysis suggesting a mediation effect associated with the enabling variables.

The meaning of these contradictory findings is difficult to render clearly on the basis of the available data. However, a number of tentative speculations are nevertheless possible. There may be a cohort effect where older adults in the Millar study simply did not report life stress, or there were generational norms associated with independence and resilience which served to deemphasise the relationship between life events and health care use. Madison-Smith (1998) noted the link between life events and G.P. visits in women and her analyses indicated that these women were also younger, perceived their health as poor, had a community services card, and reported more chronic health conditions. Clearly there were a range of potential sources of life stress in the circumstances of these women and there may have been reciprocal feedback loops between life events and these other factors that were feeding into the link with health service use.

Acknowledging the above possibilities, there are a number of other factors that may have contributed to the non-relationship between life events and health care use observed herein. There was a slight restriction of range in the life events total score. Seven percent

($n = 36$) of the sample reported no events while 41% ($n = 207$) reported experiencing two or less events. This limited the extent to which life events could correlate with the health care use variables. This restriction of range effect has been noted in other more recent health care use studies (e.g., Beckman, 2001).

The “list of life events” approach employed herein has a number of problems. Many of the events on the list are relatively low frequency events (e.g., marriage, divorce, death of a partner). The measurement approach employed assumes that the life events are additive in terms of their stress ‘value’ and ignores the individual meaning of events which may create substantial individual differences in the perceived stress that such events generate. The approach does not acknowledge the stress created by anticipated events that did not eventuate (e.g., waiting for news of redundancy, cancer diagnoses etc). Furthermore, the life events approach does not take into account the effects of ongoing stressors associated with poverty, unemployment, and various forms of social disadvantage experienced by many Māori. Moritsugu and Sue (1983) argue that minorities can confront various forms of hostility and prejudice that may both increase the likelihood of stressful life events and exacerbate the effects of such experiences. A task for future local research is to gain a more elaborate appreciation of the New Zealand cultural context in which stressful life events occur, and possible variation in how Māori identity and cultural parameters may influence the meaning of life events and subsequent health care use.

More recent studies have noted the value of a daily hassles and uplifts approach to the notion of life event stress and there is some evidence that such experiences may be better predictors of health service use (e.g., Black & Jodorkovsky 1994; Williams, Zyzanski & Wright 1992).

Past authors such as Stone and Neale (1984) and DeLongis, Folkman and Lazarus (1988) have contended that, because of their common occurrence and accumulative nature, minor ‘daily hassles’ may be more detrimental to mental and physical health than major life events as measured in studies like the present. Pillow, Zautra and Sandler (1996) later

argued that the effects of life events as traditionally measured in the literature are mediated through minor stressors. That is, exposure to a 'significant' life event such as separation or divorce will likely result in the occurrence of more minor events or hassles such as an increased burden in childcare and new financial restraints. Such arguments suggest that the relationship between life events and health care use is more complex than that conceptualised and quantified by research such as the present (e.g., Millar, 1996; Madison-Smith, 1998). For many Māori, assistance in coping with the health need consequences of life events may be found within an individual's whānau and/or social network rather than through seeking health professional intervention. Furthermore, modern Māori may have different ideas about what constitutes a stressful life event, or be faced by different forms of societal pressures such as personal, cultural or institutional discrimination or racism (See Franklin, 2002; Ministerial Advisory Committee, 1988; Spoonley, 1993) constructs not routinely recognised in the research literature or assessed by established psychological research scales.

Recent research (e.g., Franklin, 2002) has considered the role of experiences of racism producing acute and chronic forms of stress in ethnic minority populations. Racism-related stress has been found to adversely influence mental health functioning (Landrine & Klonoff, 1996, cited in Franklin, 2002) and increase levels of psychological distress (Franklin, 2002). Studies of this kind have convincingly identified individual, institutional and cultural forms of racism (potentially measured as negative life events or sources of psychological distress) as valid forms of acute or chronic stress for ethnic minority groups. Further, they raise the profile of ethnic identity as an important psychological variable worthy of future examination in health and health care use research with populations like the New Zealand Māori.

In prior work authors such as Norris et al. (1990) suggested that **specific life events** may be reliably associated with subsequent health care use and noted the earlier work of Rubio and Lubin (1986) who found that certain types of life events (such as moving home, changing relationship status, changing employment by retiring or being dismissed, other

work changes, birth, serious illness and death) were associated with subsequent health service use in a sample of U.S. college students. These differential associations between types of events and health care use were not observed in the present study.

Psychological distress

In line with some previous findings, **psychological distress** was found to be a significant predictor of visits to mental health professionals, (e.g., Feldman et al., 1995; Naylor et al., 2003). Beyond *mental health* service use previous studies found psychological distress to be a significant predictor of use for a variety of *physical health* services such as G.P., medical inpatient and outpatient care (Kouzis & Eaton, 1998; Manning & Wells, 1992; Tessler et al., 1976). These effects were not observed in the present study, which raises questions regarding the adequacy in measuring psychological distress as conceptualised here. However, the Mental Health Inventory developed by Veit and Ware (1983) has been consistently validated and subsequently used with different ethnic cultural groups by previous authors such as Manning and Wells (1992), and more recently by Franklin (2002), Heubeck and Neill (2000), Manne and Schnoll (2001), Smith, Egert and Winkel (2002) and Wu, Xu and Li (2002). Further, the present finding that psychological distress is predictive of mental health service use among the Māori sample is in keeping with earlier work (Feldman et al., 1995; Naylor et al., 2003).

Authors such as Cousineau (1997) have argued that a degree of caution is necessary in the interpretation of self-reported measures of psychological distress. Reliance on research participants' self-evaluation of psychological distress/health may unwittingly assess '*defensive denial*' rather than actual psychological distress or well-being as measured in the present study. In reference to the Māori population, social norms and expectations may encourage the portrayal of favourable mental state in surveys such as that employed here, as an adaptive and tenacious people (i.e., in the face of adversity) impression management for many Māori may promote a bias response set. The issue of response sets such as social desirability responding remains a topic of much debate, Flett (1986) argued that in order to render the notion of social desirability responding clearly one must show that an individual reports many positive behaviours or behaves in laudable ways that are demonstrably false. Such a direct demonstration has never been done. This substitute method has been to present individuals with lists of positive behaviours and to assume that individuals who answered yes to many such behaviours are more likely to be demonstrating social

desirability responding than being genuine 'saints'. It remains difficult to distinguish between these two sources of variability in any social desirability test. Similarly a claim has often been made that individuals may deceive themselves when completing psychological tests. The notion of self deceit is a difficult one to clarify in the sense that it suggests that, at the same time, an individual is both the victim of deceit and the agent of the deception. Other researchers claim that individuals may lie when completing survey type measures. It is impossible to show that any sample does not contain some capricious liars, but in the present study the incentives for lying are reduced given the anonymous and confidential nature of the participants' response sets. In summary, while it is certainly possible that some of the measures such as mental health measures in the present study may have been affected by response sets this effect is likely to have been minimised.

Intervening variables may be moderating the link between psychological distress and subsequent use of physical health services for Māori. Psychological distress and emotional needs may be met for many Māori by support from sources other than health professionals. As a collective culture a Māori family may shoulder the burden in meeting the health needs of members. Informal forms of care available from within a Māori person's whānau (metaphorical/kaupapa-based or kin/whakapapa-based, see Metge, 1995) or tribal structure may operate to moderate the relationship between the distress variable and health care use. Alternative therapies such as traditional Māori health practices may also play a role in meeting health needs arising from psychological distress.

Thesis goal 4: The role of traumatic experience in health care utilisation

Taken as a whole, the sorts of findings reported in Chapter 7 emphasise the importance of studying the dynamics of traumatic events, experiences which are apparently not too unfamiliar or uncommon in the New Zealand Māori community. For comparative purposes the frequencies (percentages) of the range of traumatic events investigated in the present study are juxtaposed with those of a number of North American studies of non-clinical populations and presented in Table 23.

Table 23

Comparison of recent study findings: Percentages of participants reporting different types of trauma

Trauma	Breslau, Davis, Andreski & Petersen (1991)	Resnick, Kilpatrick, Dansky, Saunders & Best (1993)	Vrana & Lauterbach (1994)	Norris (1992)	The Present Study
Any event	39.1	68.89	84.0	69.0	65%
Combat			2.0	9.2	2.2%
Rape	1.6	12.6	13.0	4.4	
Other sexual assault		14.3	11 : adult 6 : child (physical/sex abuse)		13: child 7.0: adult (sexual abuse)
Physical assault	8.3	10.3		15.0	14.6
Theft by force			10.0	24.9	6.4
Vehicle accident	9.4		33.0 (farm/industrial)	23.4	14.1
Disaster	1.3			13.3 (excl. Hugo) Cyclone	4.8
Disaster precaution				15.2 (other hazard)	6.2
Traumatic death	5.7	13.4	49.0	30.2	31.1
Other trauma	2.4		23.0		
Undefined trauma			9.0		

In the three studies that sampled from the general adult population (Norris, 1992; Resnick et al., 1993; and the present study) there is a degree of agreement concerning the lifetime prevalence of exposure to traumatic events (assessed at the "any event" level). Whether any important conclusions ought to be drawn from the differences between studies in relative frequencies of individual traumatic events is unclear from the available data. Some of the differences between studies are likely to reflect methodological and sampling issues. Vrana and Lauterbach (1994) sampled undergraduate students and reported the highest lifetime prevalence of exposure to traumatic events (recorded in Table 23 as exposure to "any event"). The present research noted that reporting of traumatic events was higher in younger age groups for a number of traumas although this age difference was not evidenced in the Norris findings. The results across studies suggest that differences in survey format and questioning strategies have the potential to produce markedly different estimates of the prevalence of traumatic events (Kulka et al., 1991; Vrana & Lauterbach, 1994).

Despite these methodological issues, Green (1994) notes that there has been a marked increase of studies concerned with the exposure to and impact of traumatic events. She argues that the 'bottom line' here appears to be that "...traumatic events, when defined using objective criteria, are relatively common in the general population" (p. 356).

Findings of the present study suggests that using aggregate measurements of traumatic experience, as used in two forms here, are not particularly helpful predictors of health care use among Māori.

An additional aspect of the analyses reported in Chapter 7 concerned the question "what is it about a trauma that might be associated with subsequent health care use?" McFarlane and Girolamo (1996) emphasise that "Defining...trauma from a psychological perspective depends on understanding how these events challenge people's capacity to adapt and survive"(p.136).

The present findings provide relatively few insights into the sorts of characteristics of traumatic events which may be related to patterns of health care use. As well as considering characteristics of the event itself, future research will also need to consider characteristics of the person at the time of exposure to the trauma and characteristics of the post-traumatic-exposure environment (Fairbank, Schlenger, Saigh, & Davidson, 1995).

A trauma effect (which is likely to be modest in size) may be difficult to detect with the sorts of analyses reported here. Given the pattern of relationships between trauma and health/mental health (noted elsewhere), and the relationships between these health variables (defined as 'need' variables in the analyses reported in Chapter 6) and health care use, some more sophisticated LISREL-type modelling of the potential effects of trauma may be necessary in this context to capture the complexity of the underlying relationships.

Limitations and future research directions

This section of the Discussion considers limitations inherent in the present study and ideas for future developments in the research areas investigated in this thesis.

1) Conceptualisation of what constitutes health services for Māori

One of the potential limitations of this research was the arguably narrow conceptualisation of what constitutes health services. The definition and measurement of health care accurately reflected what leading researchers in the area (e.g., Andersen, Wolinsky & Johnson) considered to be best practice at the time. More recently there is an increasing recognition of the importance of what is often termed natural, alternative or complementary medicine for ethnic minority and indigenous populations (e.g., Cox, 1986; Gurley, Novins, Joines, Beals, Shore & Manson, 2001).

Ni, Simile and Hardy (2002) reported in a large U.S. general population survey (N = 30,801) that 29% of their sample had used therapies such as spiritual healing, prayer and herbal medicines. Ensink and Robertson (1999) looked at patient and family experiences

of psychiatric services and African indigenous healers. Respondents reported being satisfied with herbalists and faith healers and less dissatisfaction with psychiatric services than the authors expected. The findings suggest that indigenous therapies and 'mainstream' psychiatric services can sit comfortably alongside one another. Other studies of American 'Indian' veterans (e.g., Gurley et al., 2001) have similarly noted the synergy between traditional healing options and biomedical services, although problems undoubtedly remain in providing effective health services to American 'Indians' (e.g., Johnson & Cameron, 2001) given the lack of culturally appropriate models of health. Phan and Silove (1999) discuss indigenous descriptions of psychiatric problems in Vietnamese culture and note that traditional Vietnamese health care services, particularly those for mental health problems derive their principles from cosmology, metaphysics and supernatural belief systems. As in many other non-Western cultures, the Vietnamese have a holistic notion of physical and mental health based on a state of harmony which is often incompatible with the more scientific reductionist approach of Western medicine. Phan and Silove along with other writers (e.g., Lin & Cheung, 1999) note that there is often a lack of correspondence between indigenous labels for health states and Western diagnostic categories.

Clearly then the simplistic approach adopted in this thesis where health services were a simple tally of numbers of visits to various services has some limitations. Like other non-Western populations Māori have a tradition of seeing physical and mental health as being based on a state of harmony of an individual within the cosmos. This has a number of implications for how Māori might approach the conventional health care system. Traditional practices and healing methods may frequently be used to alleviate physical and psychological ill-health both before and after patients and their family members approach the health system. Health-related help seeking is often a family venture, where decision-making is shared. A simple count of number of health service visits does not adequately capture this dynamic. Other more recent writers have noted this problem (e.g., Murguia, Peterson & Zea, 2003), highlighting the importance of understanding that for Māori 'health services' mean family, non-traditional sources of help (e.g., *tohunga* or Māori health expert), complementary medicine (e.g., *rongoā rakau* or Māori natural remedies),

spiritual advisors (e.g., elders or spiritual leaders) as well as 'standard' types of health care services.

2) *Trauma and Māori health care use*

There are a number of possible explanations for the lack of relationship between trauma and health care use that emerged in this research. As noted earlier the level of measurement may have been too imprecise and, in many cases, the traumatic events too temporally distant to isolate significant relationships. More recent research continues to document a relationship between trauma and health care use for women who have experienced physical and sexual abuse (Farley & Patsalides, 2001), individuals with psychiatric illness (Katon, Sullivan & Walker, 2001), parents who had experienced the violent deaths of their children (Murphy, Lohan, Braun, Johnson, Cain & Beaton, 1999), women veterans (Ouimette et al., 2003), disaster workers (Ursano, Fullerton, Vance & Kao, 1999).

There are a number of factors that may mediate or moderate (Holmbeck, 1997) the relationship between traumatic experience and subsequent health/health care use. Friedman & Schnurr (1995) make a compelling case for the role of P.T.S.D. as a mediator of the relationship between trauma and subsequent health although a recent study is less clear about the mediating role of P.T.S.D. (Rosenberg, Rosenberg, Wolford, Manganiello, Brunette & Boynton, 2000).

A number of personality traits have been documented as having a role in moderating the effects of adverse circumstances on health outcomes. For example, Kobassa (1979) showed that a sense of hardiness (defined as feelings of commitment to the task at hand, feelings of control and sense of life as a challenge) moderated the effects of stressful life events on health outcomes among white collar workers. Antinovsky (1980) demonstrated that a sense of coherence (which he saw as having three dimensions, comprehensibility, manageability and meaningfulness) seemed to protect, to some extent, samples of Jewish women from the worst excesses of concentration camp life. Other studies have noted the

health benefits of a sense of optimism (Carver & Scheier, 1981) and the perception that life is meaningful (Frankl, 1959) while others have noted the negative consequences of a pessimistic explanatory style (Vaillant, 1977).

While conceptual and methodological debates continue regarding the relative importance of these personality factors one can nevertheless suggest that these may be useful lines of future research. There is no necessary or inevitable connection between trauma and subsequent health problems/health service use and the legacy of colonisation may have made Māori a particularly resilient population in the face of adversity. Clearly this is an empirical question that can be addressed in future research.

Studies to evaluate the health/health service use effects of trauma present considerable methodological challenges. It is very difficult to gather accurate health data "after the event". The solution centres on gathering extensive baseline medical and health data and designing large prospective studies which follow Māori people forward in time. Only then can some of the complex linkages between trauma and health outcome be further understood.

There is no way of knowing how accurate the recollections of traumatic experience might be in this study. There was a significant relationship between trauma and age with the general pattern being one where older respondents tended to report less traumatic experience. Norris (1992) offers two explanations for this pattern - a cohort effect and a reporting effect. The cohort effects centres around the idea that, for example, "...if the young are more prone to violence, and if this is more true now than in previous decades, then older people would have lower exposure rates even though they have lived through more years" (p. 417). The reporting effect centres on the idea that the memories of traumatic events simply fade over time. There is some evidence however that traumatic events (unlike 'routine' life events) are more resistant to "being forgotten" (Funch & Marshall, 1984) and Vrana and Lauterbach (1994) argue that such events may produce a 'flashbulb' memory of unusual vividness and memorability. However, events may well be remembered but, with increasing age, simply judged too insignificant to mention. Which

of these effects (the cohort versus the reporting effect) represents the best explanation of the decline in reports of trauma with increasing age is unclear from the available data.

3) *Where to now with the Andersen model?*

The model continues to have a significant profile in the research literature and has gone through a number of iterations (e.g., Andersen, 1995). Nevertheless, the model described by Andersen (1995) as “phase four” remains relatively similar to the model employed in the present study (but adds personal health practices and consumer satisfaction). Andersen and Davidson (1996, in Andersen, Rice & Kominski) further differentiate health service access into six different types which are clearly useful for policy development purposes (e.g., p.19) but provide in the way of additional insights into the psychology of health care use.

The overall picture that emerges is one where the Andersen model does little to further the understanding of health service use by Māori. As indicated earlier the notion of health worry (and the underlying health beliefs model) seems to be potentially fruitful avenues for future investigation. There are other psychological models of health-related behaviour which may also provide a direction for future Māori health care use research. The *self determination theory* of Deci and Ryan (1985) suggests that the motivation for health-related behaviour can either be *autonomous* or *externally controlled*. Under conditions of *controlled motivation* people may feel coerced into seeking health care at the insistence of others. People who seek health care because they want to do it for themselves may experience the same activity (health care use) quite differently, this is *autonomous motivation*. The theory predicts that autonomously motivated health care use may be done so more effectively and efficiently whereas health care use which is consequence of the urging of others is less likely to occur or to persist over time. This theory is yet to be applied to health care but has had some success in predicting weight loss behaviour. There are other models (e.g., the stages of change model, Prochaska & di Clemente, 1983; the self-control model of Rachlin, 1970; Ainslee, 1975) that might provide additional direction in efforts to unpack the psychology of health care use.

4) *Barriers to health care use by Māori*

Although these were not assessed directly in the present study, health services that are culturally appropriate and linguistically compatible are likely to be more effectively utilised by ethnic minorities and indigenous populations such as Chicanos (e.g., Prieto, McNeill, Walls & Gomez, 2001), Vietnamese (Phan & Silove, 1999), Native Americans (Johnson & Cameron, 2001; Tolman & Reedy, 1988) and Asian Americans (Lin & Cheung, 1999).

There is a body of research that suggests that some degree of “ethnic matching” between client and health service provider is associated with positive outcomes. Atkinson and Lowe in their review note that for U.S. mental health services:

“most ethnic minority clients prefer an ethnically similar counsellor over an ethnically dissimilar counsellor, and some ethnic minority clients assign higher credibility to an ethnically similar counsellor, express greater willingness to see an ethnically similar counsellor, and benefit more from therapy with an ethnically similar counsellor than an ethnically dissimilar counsellor.” (Atkinson & Lowe, 1995, p. 405)²⁸.

Durie (1994c) suggests a number of explanations for lower Māori health care use, including the idea that: G.P.’s may be unable to communicate effectively or to “bridge cultural gaps” with Māori consumers. He further notes that biased attitudes of both patient and professionals may mitigate against genuine partnership in the management of health problems. Similar points have been noted by other writers (e.g., Prieto et al., 2001).

In New Zealand the past two decades have witnessed the establishment of a number of health service initiatives that have sought to fill identified gaps in access and utilisation of health care for Māori. The 1991 health reforms prompted Māori to tender for provision of community-based health services, a large number of Māori initiatives designed to provide

²⁸ *Italics are original authors’.*

primary health care and related services tailored toward Māori needs have evolved as a result. In 1994-95 alone, 23 Māori health initiatives were under contract offering primary care services (Durie, 1996a). These initiatives have sought not only to improve financial and geographical access, but also cultural relevance to Māori users (Malcolm, 1995). Malcolm notes that registrations for such initiatives have grown considerably in recent times, with some of these services being more geographically based than iwi-based. The utilisation of geographically convenient services is clearly a factor associated with consumer access.

Raukura Hauora o Tainui, as an example of such an initiative, providing comprehensive care to over 5000 clients in the Waikato and South Auckland areas. The Waahi Marae health centre in Huntly was developed initially to provide health promotion, yet subsequently extended services to provide comprehensive primary health care (Pomare et al., 1995). In addition to the marae structure, this Waikato-based organisation operates from an infrastructure of community clinics, general practitioners, community health workers and registered nurses (Durie, 1996a). Beyond tribally based initiatives, Te Whānau o Waipareira Trust is an example of an urban Māori authority which offers comprehensive health care to the West Auckland community. Tipu Ora in Rotorua has a focus on provision of holistic health care programmes for Māori caregivers and their children. Organised by the Māori Women's Welfare League, the Tipu Ora programme attracts many young Māori mothers by providing Māori oriented well child care. As a result Māori immunisation uptake rates have increased considerably while Māori rates of sudden infant death syndrome in the region have decreased (Durie, 1994d). As Māori providers of integrated primary health care have increased over the past two decades, it has become increasingly apparent that Māori wish to define the threats to Māori well being and possible solutions to these threats themselves (Pomare et al., 1995). In essence, the developing Māori health service sector is a demonstration of the Māori notion of kaitiakitanga, or exercising responsibility of guardianship in the New Zealand health service setting.

Conclusion

We can ask what is the importance and usefulness of assessing Māori people's experiences of health and health care use. It is proposed that a number of products of value to social scientists, to policy makers and implementers of policy, and to those involved in health service delivery.

First, there is value in getting some baseline measures against which we can compare subsequent measures and trends of change so that we will know where we are heading. Is life in the New Zealand Māori community becoming more or less healthy? Is there stability in some areas of health service use and change in others? Is there more trauma occurring in some areas and less in others?

Second, there is value in knowing how health care use and other health-related concerns are distributed in the Māori community. How do different subgroups feel? What about the rich and the poor, the married and unmarried, men and women? Is there change in some subgroups of society and stability in others?

Third, there is value in understanding how Māori people integrate their experiences of health and health care into their overall quality of life. What aspects of the person and their health are more important than others in determining one's global quality of life? How do some individuals adapt to adversity? How can those who fail to adapt successfully best be helped?

Although the usefulness of research in the area of health care use may have to be displayed over a period of time, it is argued that the importance of research in this area does not need to be defended. Those that would lay claim to expertise regarding what is best or feasible for Māori would agree that the understanding of health-related events and experiences is an extremely important social goal.

In the opening words of *Whaiora: Māori Health Development*, Durie wrote: “Health is about people and Māori health development is essentially about Māori defining their own priorities for health and then weaving a course to realise their collective aspirations” (1998, p.1). In a reference to the role of tāngata whenua (i.e., Māori) as rightful kaitiaki (i.e., guardians) of their own health, he goes on to say:

Central to the notion of Māori health development is Māori control. While there is no denying the benefits of well-meaning health practitioners or major advances in medical science, good health cannot be simply prescribed by politicians or health professionals...Indeed, if there is a lesson from the past century it is that advances in Māori health have been associated with strong Māori leadership. Unless Māori themselves are active in developing policies for health and bringing effective health services to their own people, then no amount of expert advice will provide the necessary conviction of ownership which is crucial for developing an approach to health that makes sense to Māori (1998, p.1).-

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Appendix 1: Correlation data

Table 24 presents the correlation coefficients (using Pearson's r) for the independent variables and health care use (dependent) variables investigated, with degree of significance indicated.

Table 24

Intercorrelations between independent and dependent variables

	<i>G.P. Visits</i>	<i>Bed/ disability days</i>	<i>Hospital visits</i>	<i>Prescription items</i>	<i>Mental health visits</i>	<i>Other health professional visits</i>
Predisposing variables						
Age	.058	-.015	-.024	.219**	-.139**	-.041
Gender	.021	.017	.024	.091*	.067	.118**
Married	.043	-.008	.028	-.003	.113*	-.083
Area	.117*	-.082	-.011	.012	.002	-.013
Qualifications	-.015	-.025	.077	.039	.017	.129**
Phone	-.034	-.077	.021	-.084	-.054	-.094*
Vehicle	.068	.062	-.010	.088*	.001	-.104*
Life events	.083	.187**	.202**	.030	.178**	.069
Social contct.	.103	-.020	-.024	.002	.027	.020
Alcohol	.156**	-.056	.110*	.089*	-.028	-.041
Health worry	-.388**	-.369**	-.289**	-.358**	-.159**	-.237**
Health control	.088	.145**	.072	.141**	.098*	.074
Enabling variables						
Dr's gender	-.032	.023	-.032	.063	-.018	.097*
G.P. time	-.104	-.076	-.071	-.149**	-.075	-.048
Fees	-.037	.062	-.016	-.090*	.097*	.074
Wait time	.040	.121**	.152**	.071	-.031	.076
Paid emplmt.	.184**	-.022	.056	.132**	.068	-.079
Income	-.111	.002	-.018	-.042	-.038	.121*
Adequacy	-.075	-.012	-.021	-.010	-.089*	.031
Satisfaction	.007	-.058	-.020	.018	-.189**	-.039
C.S. card	-.110*	-.011	-.116**	-.092	-.156**	.051
H. insurance	.047	.006	.025	.015	.070	-.040
Need variables						
Health state	.342**	.294**	.201**	.377**	.069	.071
Psych. stress	.205**	.296**	.192**	.143**	.282**	.137**
Psych. w/b	-.162**	-.164**	-.148**	-.098*	-.170**	-.066
Symptoms	.245**	.361**	.193**	.358**	.141**	.155**
Activity	.414**	.233**	.163**	.339**	.210**	.163**
Body limits	.346**	.267**	.161**	.376**	.134**	.161**
Chronic	.172**	.141**	.130**	.350**	.017	.084

** Correlation significant at the 0.01 level (2-tailed).

* Correlation significant at the 0.05 level (2-tailed).

Appendix 2: Interview Instrument

SURVEY

Affix meshblock label

SECTION A: INTRODUCTION

INTRODUCTION 1

"Good morning/afternoon/evening, my name is Xxx from National Research Bureau, the market research company. We are conducting a survey on stress, health and well-being in the New Zealand population, on behalf of a team of researchers from the Department of Psychology at Massey University. The research is funded by the Accident Rehabilitation and Compensation Insurance Corporation, or ACC.

INTRODUCTION 2

(HAND INFORMATION SHEET TO RESPONDENT).

The study will include an investigation into the occurrence of stressful life experiences amongst New Zealanders and it will examine the effect of these experiences on individual's health and mental health.

If you agree to participate in the study you will be asked to take part in an interview which could take an hour of your time.

As a participant you have the following rights.

- You have the right to refuse to answer any question, and to withdraw from the study at any time.
- You provide information on the understanding that it is completely in confidence to the researchers, to be used only for the purposes of the research.
- You have the right to contact the researchers at any time to discuss aspects of the study.

Can you spare me the time at present?"

(IF YES PROCEED TO SECTION B, IF NO MAKE APPOINTMENT TO CALL BACK AT A TIME THAT IS CONVENIENT FOR THE RESPONDENT.)

SECTION B: HEALTH

"These questions are questions about your general physical health."

QB1. "Overall, would you say your health is ...?" (READ OUT LIST BEFORE CIRCLING ONE)

"Excellent" - - - 1

"Good" - - - - - 2

"Not so good" - - 3

"Poor" - - - - - 4

DO NOT READ OUT:

Don't know - 5

Refused - 6

QB2. SHOW CARD B1 "Please indicate, by choosing a number along this scale, how much each of the following problems have bothered or disturbed you during the last month.

If you haven't been bothered by the problem, indicate 1. If the problem has been an extreme bother, then indicate 5, and so on.." (READ OUT LIST CIRCLING ONE NUMBER FOR EACH PROBLEM AS YOU GO)

	Not at all	A little	Moderately	Quite a bit	Extremely	Don't know	Refuse
a. "Eye problems?"	1	2	3	4	5	6	7
b. "Ear problems?"	1	2	3	4	5	6	7
c. "Nose problems?"	1	2	3	4	5	6	7
d. "Asthma or wheezing?"	1	2	3	4	5	6	7
e. "Breathing difficulties?"	1	2	3	4	5	6	7
f. "Chest pains?"	1	2	3	4	5	6	7
g. "Racing heart?"	1	2	3	4	5	6	7
h. "Cold hands or feet, <u>even in hot</u> weather?"	1	2	3	4	5	6	7
i. "Leg cramps?"	1	2	3	4	5	6	7
j. "Insomnia or sleep problems?"	1	2	3	4	5	6	7
k. "Toothaches?"	1	2	3	4	5	6	7
l. "Stomach upset or pain?"	1	2	3	4	5	6	7
m. "Problems passing urine or motions?"	1	2	3	4	5	6	7
n. "Muscles or joint pain?"	1	2	3	4	5	6	7
o. "Sensitive, itching or tender skin?"	1	2	3	4	5	6	7
p. "Acne or pimples?"	1	2	3	4	5	6	7
q. "Boils?"	1	2	3	4	5	6	7
r. "Sweat, <u>even in cold</u> weather?"	1	2	3	4	5	6	7
s. "Headaches?"	1	2	3	4	5	6	7
t. "Hot flushes, face flushes?"	1	2	3	4	5	6	7
u. "Dizziness, feel faint?"	1	2	3	4	5	6	7
v. "Chills?"	1	2	3	4	5	6	7
w. "Numbness or tingling in any part of body?"	1	2	3	4	5	6	7
x. "Twitching of eyelid?"	1	2	3	4	5	6	7
y. "Twitching other than eyelid?"	1	2	3	4	5	6	7
z. "Hands tremble or shake?"	1	2	3	4	5	6	7
aa. "Sore throat?"	1	2	3	4	5	6	7
bb. "Nausea or vomiting?"	1	2	3	4	5	6	7

B3. "How many days over the last three months has ill health interfered with your ability to perform normal daily activities (for example, going to work, playing sport, doing housework, and so on)?"

(RECORD) _____ days

B4. "We would like you to think about long-term health problems you may have. Long-term health problems are more severe health problems that you have had for six months or more, or something that is likely to last for at least six months. Please answer 'yes' or 'no' to indicate if a doctor, nurse or other health care worker has told you that you have any of the following long-term health problems." (READ OUT LIST, CIRCLING ONE ANSWER FOR EACH PROBLEM AS YOU GO)

	Yes	No	Don't know	Refused
a. "Cancer?"	1	2	3	4
b. "Diabetes?"	1	2	3	4
c. "Epilepsy?"	1	2	3	4
d. "High blood pressure or hypertension?"	1	2	3	4
e. "Heart trouble, for example, angina or myocardial infarction?"	1	2	3	4
f. "Asthma?"	1	2	3	4
g. "Other respiratory conditions, for example, bronchitis?"	1	2	3	4
h. "Stomach ulcer or duodenal ulcer?"	1	2	3	4
i. "Chronic liver trouble, for example, cirrhosis?"	1	2	3	4
j. "Bowel disorders, for example, colitis or polyps?"	1	2	3	4
k. "Hernia or rupture?"	1	2	3	4
l. "Chronic kidney or urinary tract conditions?"	1	2	3	4
m. "Chronic skin conditions, for example, dermatitis or psoriasis?"	1	2	3	4
n. "Arthritis or rheumatism?"	1	2	3	4
o. "Hepatitis?"	1	2	3	4
p. "Hearing impairment or loss?"	1	2	3	4
q. "Sight impairment or loss?"	1	2	3	4

QB5a. "Do you have any other medical conditions, ailments or impairments you have had for three months or longer, which have not been mentioned so far?" (CIRCLE)

Yes - 1



No - 2 Don't know - 3

GO TO QB6

QB5b. "Could you please name them or describe them?" (RECORD)

QB6. "Do you ever drink alcohol?" (CIRCLE)

Yes - 1



No - 2 Refused - 3

GO TO SECTION C

QB7. SHOW CARD B2

"How often do you usually have any kind of drink containing alcohol, whether it is wine, beer, spirits, or other alcohol?" (CIRCLE)

01 02 03 04 05 06 07 08 09 Don't know - 10 Refused - 11

QB8. "On those days when you drink alcohol of any sort, how many drinks do you usually have per day?"

(RECORD) _____

Don't know - X

Refused - Y

QB9. "Have you ever felt the need to cut down on your drinking?" (CIRCLE)

Yes - 1

No - 2

Refused - 3

QB10. "Have you ever felt annoyed by criticism of your drinking?" (CIRCLE)

Yes - 1

No - 2

Refused - 3

Haven't been criticised - 4

QB11. "Have you ever felt guilty about drinking?" (CIRCLE)

Yes - 1

No - 2

Refused - 3

QB12. "Did you ever take a morning eye opener, a drink to start your day?" (CIRCLE)

Yes - 1

No - 2

Refused - 3

SECTION C: MENTAL HEALTH

INTRO:

These next questions are about how you feel, and how things have been with you over the last month."

HOW CARD C1

For each question, please indicate which number along the scale on this card best describes the way you have been feeling. During the past month, how much of the time..."

(READ OUT EACH QUESTION, CIRCLING AS YOU GO)

QC1. "Have you felt lonely?"	1	2	3	4	5	6	7	Dk - 8
QC2. "Have you felt that the future looks hopeful and promising?"	1	2	3	4	5	6	7	Dk - 8
QC3. "Has your daily life been full of things that were interesting to you?"	1	2	3	4	5	6	7	Dk - 8
QC4. "Did you feel relaxed and free of tension?"	1	2	3	4	5	6	7	Dk - 8
QC5. "Have you generally enjoyed the things you do?"	1	2	3	4	5	6	7	Dk - 8
QC6. "Have you felt loved and wanted?"	1	2	3	4	5	6	7	Dk - 8
QC7. "Have you been a very nervous person?"	1	2	3	4	5	6	7	Dk - 8
QC8. "Have you felt tense or "high-strung"?"	1	2	3	4	5	6	7	Dk - 8
QC9. "Have you felt calm and peaceful?"	1	2	3	4	5	6	7	Dk - 8
QC10. "Have you felt emotionally stable?"	1	2	3	4	5	6	7	Dk - 8
QC11. "During the past month how much of the time have you felt down hearted and blue?"	1	2	3	4	5	6	7	Dk - 8
QC12. "Were you able to relax without difficulty?"	1	2	3	4	5	6	7	Dk - 8
QC13. "Did you feel that your love relationships, loving and being loved, were full and complete?"	1	2	3	4	5	6	7	Dk - 8
QC14. "Has living been a wonderful adventure for you?"	1	2	3	4	5	6	7	Dk - 8
QC15. "Have you thought about taking your own life?"	1	2	3	4	5	6	7	Dk - 8
QC16. "Have you felt restless, fidgety, or impatient?"	1	2	3	4	5	6	7	Dk - 8
QC17. "Have you been moody or brooded about things?"	1	2	3	4	5	6	7	Dk - 8
QC18. "Have you felt cheerful, light hearted?"	1	2	3	4	5	6	7	Dk - 8
QC19. "Were you a happy person?"	1	2	3	4	5	6	7	Dk - 8
QC20. "Have you been in low or very low spirits?"	1	2	3	4	5	6	7	Dk - 8

SHOWCARD C2

"Again, for each question, please indicate which number along the scale on this card best describes the way you have been feeling. How often during the past month did... (READ OUT EACH QUESTION, CIRCLING AS YOU GO)

QC21. "You become nervous or jumpy when faced with excitement or unexpected situations?"	1	2	3	4	5	6	7	Dk - 8
QC22. "You expect to have an interesting day when you get up in the morning?"	1	2	3	4	5	6	7	Dk - 8
QC23. "Your hands shake when you tried to do something?"	1	2	3	4	5	6	7	Dk - 8
QC24. "You feel that you had nothing to look forward to?"	1	2	3	4	5	6	7	Dk - 8
QC25. "You feel like crying?"	1	2	3	4	5	6	7	Dk - 8
QC26. "You feel that others would be better off if you were dead?"	1	2	3	4	5	6	7	Dk - 8
QC27. "You feel that nothing turned out for you the way you wanted it to?"	1	2	3	4	5	6	7	Dk - 8
QC28. "You feel so down in the dumps that nothing could cheer you up?"	1	2	3	4	5	6	7	Dk - 8
QC29. "You get rattled, upset, or flustered?"	1	2	3	4	5	6	7	Dk - 8
QC30. "You find yourself having difficulty trying to calm down?"	1	2	3	4	5	6	7	Dk - 8
QC31. "You wake up feeling fresh and rested?"	1	2	3	4	5	6	7	Dk - 8

SHOWCARD C3

"Again, for each question, please indicate which number along the scale on this card best describes the way you have been feeling during the past month...". (READ OUT EACH QUESTION, CIRCLING AS YOU GO)

QC32. "Have you had any reason to wonder if you were losing your mind, or losing control over the way you act, talk, think, feel or of your memory?"	1	2	3	4	5	6	7	Dk - 8
QC33. "Did you feel depressed?"	1	2	3	4	5	6	7	Dk - 8
QC34. "Have you been in firm control of your behaviour, thoughts emotions, feelings?"	1	2	3	4	5	6	7	Dk - 8

SHOWCARD C4

"And again with this card please indicate which number along the scale best describes the way you have been feeling. During the past month..."

(READ OUT EACH QUESTION, CIRCLING AS YOU GO)

QC35. "How much have you been bothered by nervousness, or your "nerves"?"	1	2	3	4	5	6	7	Dk - 8
QC36. "Have you been anxious or worried?"	1	2	3	4	5	6	7	Dk - 8

SHOWCARD C5

"And on this card..."

QC37. "How happy, satisfied, or pleased have you been with your personal life during the past month?"	1	2	3	4	5	6	7	Dk - 8
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SHOWCARD C6

"And, finally, on this card..."

QC38. "During the past month, have you been under, or felt you were under, any strain, stress or pressure?"	1	2	3	4	5	6	7	Dk - 8
---	---	---	---	---	---	---	---	--------

SECTION D: LIFE EVENTS

D1. "Have you experienced any of the following events during the past 12 months?"
 (READ OUT LIST CIRCLING ONE NUMBER FOR EACH EVENT AS YOU GO)

	Yes	No	Don't Know
a. "You had an operation, injury or major illness (newly diagnosed or ongoing)?"	1	2	3
b. "A close family member had an operation, injury or major illness (newly diagnosed or ongoing)."	1	2	3
c. "You married?"	1	2	3
d. "You separated or divorced?"	1	2	3
e. "You reconciled after a period of separation?"	1	2	3
f. "Your partner or spouse died?"	1	2	3
g. "A close family member, other than your partner or spouse, died?"	1	2	3
h. "You, or your partner, became pregnant?"	1	2	3
i. "You, or your partner, had a baby or adopted a child?"	1	2	3
j. "A new person, other than a new baby, came to live in your household?"	1	2	3
k. "A child or other close relative left home, (other than separation)?"	1	2	3
l. "You retired?"	1	2	3
m. "You started a new job or changed jobs?"	1	2	3
n. "You lost your job or business?"	1	2	3
o. "You were unemployed and seeking work for one month or more?"	1	2	3
p. "You moved house?"	1	2	3
q. "You had major financial difficulties?"	1	2	3
r. "Your finances improved considerably?"	1	2	3
s. "You had serious legal problems with the police or authorities?"	1	2	3
t. "A close family member had serious legal problems with the police or authorities?"	1	2	3

SECTION E: SERVICE UTILISATION

QE1a. "Do you have a regular doctor? By that I mean do you usually see the same GP or family doctor?" (CIRCLE)

Yes - 1

No - 2 Don't know - 3

GOTOQE3a



QE1b. "How long have you been seeing this doctor?" (DO NOT READ OUT. CIRCLE.)

0-3 months - - - - - 1

4-12 months - - - - - 2

1-2 years - - - - - 3

3-5 years - - - - - 4

Over 5 years - - - - - 5

Don't know - - - - - 6

QE1c. "Is your doctor male or female?" (CIRCLE)

Male - 1

Female - 2

QE2. SHOWCARD E1

"The following items are concerned with how you view the overall medical care you receive from your family doctor or general practitioner. According to this card, please tell me how much you agree or disagree with each statement." (READ OUT EACH STATEMENT AND CIRCLE ONE AS YOU GO)

	Strongly agree	Agree	Unsure	Disagree	Strongly disagree	Don't know
a. "My doctor could give better care."	1	2	3	4	5	6
b. "My doctor is not as thorough as he or she should be."	1	2	3	4	5	6
c. "There are things about the medical care I receive from my doctor that could be better."	1	2	3	4	5	6
d. "My doctor doesn't explain ways to avoid illness or injury."	1	2	3	4	5	6
e. "I'm very satisfied with the medical care I receive from my doctor."	1	2	3	4	5	6
f. "My doctor encourages me to get a regular examination."	1	2	3	4	5	6
g. "The care I receive from my doctor is just about perfect."	1	2	3	4	5	6
h. "My doctor is very careful to check everything when examining me."	1	2	3	4	5	6

QE3a. "In the last 12 months, have you seen a doctor, or been visited by a doctor? By doctor, I mean a GP or family doctor, but not a specialist. This may have been a doctor from a "Shortland Street" type clinic." (CIRCLE)

Yes - 1

No - 2 Don't know - 3

GOTOQE4.

QE3b. "How many times have you seen a doctor or been visited by a doctor in the last 12 months?" (CIRCLE OR RECORD)

_____ times

Don't know - X

QE4. "Do you usually get an appointment to see the doctor the same day, the next day or at some other time?" (CIRCLE OR RECORD)

The same day - 1

The next day - 2

Other time (SPECIFY) _____

QE5. SHOW CARD E2

"According to this card, which statement best describes how you normally get to the doctor's office?" (CIRCLE OR RECORD)

Private vehicle - - - 0 1

Walk - - - - - 0 2

Bus - - - - - 0 3

Taxi - - - - - 0 4

Bicycle - - - - - 0 5

Train - - - - - 0 6

Other (SPECIFY) _____

Don't know - - - - - X

QE6. SHOW CARD E3

"According to this card, do you feel the doctor's fee ever stops you from going to the doctor when you think you should really see the doctor?" (CIRCLE)

Not at all - - - - - 1

Occasionally - - - - - 2

Some of the time - - 3

Often - - - - - 4

Don't know - - - - - 5

QE7. "How long do you usually have to wait in the doctor's waiting room before being seen by the doctor?" (CIRCLE OR RECORD)

_____ minutes

Don't know - X

QE8a. "In the past 12 months, have you been admitted as an inpatient to hospital, that is, stayed as a patient overnight?" (CIRCLE)

Yes - 1

No - 2 Don't know - 3

GOTOQE9a.



QE8b. "How many nights have you stayed in hospital altogether in the last 12 months?" (CIRCLE OR RECORD)

_____ nights Don't know - X

QE9a. "During the past 12 months, did you spend any days at home, in bed, due to your health?" (CIRCLE)

Yes - 1

No - 2 Don't know - 3

GOTOQE10.



QE9b. "How many days did you spend at home, in bed, due to your health?" (CIRCLE OR RECORD)

_____ days Don't know - X

QE10. "Did you make use of any of the following home health services in the past 12 months?"
(READ OUT LIST AND CIRCLE AS YOU GO)

	Yes	No
a. "Meal delivery services?"	1	2
b. "Visiting nurse services?"	1	2
c. "Other types of home health aide?" (SPECIFY)		
1. _____	1	2
2. _____	1	

QE11. SHOW CARD E4

"Over the past 12 months, according to this card, which statement best describes the degree of worry your overall health status has caused you?" (CIRCLE ONE)

- A great deal of worry - 1
- Some worry - - - - - 2
- Hardly any worry - - - 3
- No worry at all - - - - 4
- Don't know - - - - - 5

Q12. SHOWCARD E5

"According to this card, which statement best describes how much control you think you have over your future health?" (CIRCLE ONE)

- A great deal of control - 1
- Some control - - - - - 2
- Very little control - - - 3
- No control - - - - - 4
- Don't know - - - - - 5

Q13. "In the past 12 months, how many times have you personally used the casualty, that is, accident and emergency department of a public hospital?" (CIRCLE OR RECORD)

_____ times Don't know - X

Q14. "How many times in the past 12 months, have you personally used an outpatients department or a ward or a clinic where you went as an outpatient? (ie. not an emergency clinic)." (CIRCLE OR RECORD)

_____ times Don't know - X

Q15. "How many prescription items have you had for yourself from the chemist in the last 12 months?" (CIRCLE)

- No prescription items - - - - - 1
- 1-4 items - - - - - 2
- 5-9 items - - - - - 3
- 10-14 items - - - - - 4
- 15 or more items - - - - - 5
- Don't know/can't remember - 6

Q16. "Have you sought advice or help in the previous 12 months from the following professional groups?" (READ OUT LIST AND CIRCLE ONE AS YOU GO)

	Yes	No
a. "Medical specialist other than GP or family doctor?"	1	2
b. "Dentist or dental nurse?"	1	2
c. "Optometrist or optician?"	1	2
d. "Physiotherapist?"	1	2
e. "Chiropractor?"	1	2
f. "Psychologist?"	1	2
g. "Psychiatrist?"	1	2
h. "Occupational therapist?"	1	2
i. "Counsellor?"	1	2
j. "Social worker?"	1	2
k. "Naturopath or homeopath?"	1	2

QE17. "Here are a list of activities of daily living that people sometimes have trouble with. Do you have trouble doing any of these things because of your health?"
 (READ OUT LIST AND CIRCLE ONE AS YOU GO)

	Yes	No
a. "Bathing?"	1	2
b. "Dressing?"	1	2
c. "Getting out of bed?"	1	2
d. "Walking?"	1	2
e. "Toileting?"	1	2
f. "Meal preparation?"	1	2
g. "Shopping?"	1	2
h. "Light housework?"	1	2
i. "Heavy housework?"	1	2
j. "Managing money?"	1	2
k. "Using the telephone?"	1	2
l. "Eating?"	1	2

QE18. "Here are some bodily activities that people sometimes have difficulties with. Do you have difficulties doing any of these things?" (READ OUT LIST AND CIRCLE ONE AS YOU GO)

	Yes	No
a. "Walking half a kilometre?"	1	2
b. "Walking up 10 steps without rest?"	1	2
c. "Standing or being on your feet for two hours?"	1	2
d. "Stooping, crouching or kneeling?"	1	2
e. "Lifting or carrying 10 kilos, (22 pounds)?"	1	2
f. "Sitting for two hours?"	1	2
g. "Reaching up over your head?"	1	2
h. "Reaching out as if to shake hands?"	1	2
i. "Using fingers to grasp objects?"	1	2

SECTION F: TRAUMATIC EXPERIENCES

The next questions are about stressful events which may or may not have happened in your life."

READ OUT EACH QUESTION CIRCLING AS YOU GO

		Yes	No
QF1	"Have you ever been engaged in military combat?"	1	2
QF2	"During your childhood, did anyone ever make you have sex by using force or threatening to harm you? (This involves all unwanted sexual activity)"	1	2
QF3	"Has anyone ever made you, as an adult, have sex by using force or threatening to harm you? (This involves all unwanted sexual activity, but not as a child)"	1	2
QF4	"Have you ever been seriously beaten or attacked by a member of your family? (such as your spouse, partner, parent, child)"	1	2
QF5	"Have you ever been seriously beaten or attacked by someone who was not a member of your family?"	1	2
QF6	"Has anyone ever taken or tried to take something from you by force or threat of force, such as in a robbery, mugging, or hold-up?"	1	2
QF7	"Have you ever been in a serious motor vehicle accident in which one or more people were seriously injured or killed?"	1	2
QF8	"Have you ever been seriously injured in an accident other than a vehicle accident, such as at work?"	1	2
QF9	"Have you ever suffered serious injury and/or property damage because of a natural or manmade disaster such as a fire, flood, or earthquake?"	1	2
QF10	"Have you ever been forced to leave your home or take other precautions because of an approaching disaster such as flood, earthquake, or cyclone?"	1	2
QF11	"Have you ever experienced the violent or very unexpected death of a loved one, such as through an accident, homicide, or suicide?"	1	2
QF12	"Has anyone very close to you (a loved one) ever experienced violent assault, serious accident or serious injury?"	1	2
QF13	"Have you ever had any other experience which you feel was shocking, terrifying or otherwise traumatic, including any event which you find too difficult to name or to talk about?"	1	2

QG7. SHOW CARD G2
"According to this card which number along the scale best indicates how you think this event has affected your life?" (CIRCLE)

1 2 3 4 5 No effect - 6 Don't know - 7

QG8. SHOW CARD G3
"According to this card which number along the scale best indicates how distressing this event was for you at the time that it occurred?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG9. SHOW CARD G4
"According to this card which number along the scale best indicates how you feel that you were in control of the situation, during this event?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG10. SHOW CARD G5
"According to this card which number along the scale best indicates the degree to which this experience was unexpected or expected?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG11. SHOW CARD G6
"Thinking about why this event happened, which of the groups on this card best describes the main cause or major reason why it happened?" (CIRCLE)

1 2 3 4 Don't know - 5

QG12. SHOW CARD G7
"According to this card which number along the scale best indicates how often you have talked about the event?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG13. SHOW CARD G8
"According to the scale on this card which number best indicates how much of your feelings about your experience you have confided in others?" (CIRCLE)

1 2 3 4 5 Don't know - 6

IF RESPONDENT ANSWERED '1' IN QG13 GO TO QG15, ELSE CONTINUE

QG14. "Have you confided in any of the following people?" (READ OUT LIST CIRCLING AS YOU GO)

a.	"A mental health professional?"	Yes - 1	No - 2	
b.	"A medical professional?"	Yes - 1	No - 2	
c.	"Your partner or spouse?"	Yes - 1	No - 2	N/A - 3
d.	"Other family members?"	Yes - 1	No - 2	
e.	"Friends?"	Yes - 1	No - 2	
f.	"Any other people?"	Yes - 1	No - 2	

QG15. SHOW CARD G9

"According to this card which number best indicates the degree of physical injury you suffered as a result of this experience?" (CIRCLE)

1 2 3 4 Don't know - 5

QG16. SHOW CARD G10

"According to this card which number along the scale best indicates how much you believed that your life was in danger during the event?" (CIRCLE)

1 2 3 4 5 Don't know - 6

SECTION G, PART 2: CHARACTERISTICS OF THE EVENTS

CHECK BACK TO QF2. IF 'YES' CONTINUE, ELSE GO TO SECTION G, PART 3.

Q1. "You said that as a child you were sexually assaulted in some way. Did this happen to you more than once?" (CIRCLE)

Yes - 1

No - 2 Don't know - 3

GOTOQG4b

Q2. "How many times has this happened to you?" (RECORD) _____ Don't know - X

Q3a. "When did this first happen to you?"

APPROXIMATE DATE (RECORD MONTH/YEAR) _____

OR APPROXIMATE LENGTH OF TIME SINCE EVENT (RECORD LENGTH IN WEEKS, MONTHS OR YEARS)

Don't know - X

GOTOQG4a

Q3b. "So that was about ... <INSERT DATE OR LENGTH OF TIME SINCE EVENT WHICH WAS NOT STATED BY RESPONDENT> ...?" (YOU WILL NEED TO WORK OUT THE DATE OR LENGTH OF TIME HERE, SO THAT YOU CAN CONFIRM THAT WHAT THE RESPONDENT HAS SAID IS WHEN THE EVENT HAPPENED) (RECORD IN THE REMAINING SPACE IN QG3a ABOVE).

Q4a. Now I want you to think about the last time this happened to you and answer the rest of the questions in this section for that event only.

Q4b. "Can you tell me, very briefly, what happened?"
(RECORD A BRIEF DESCRIPTION OF THE INCIDENT - JUST THE BARE FACTS)

Q5a. "When did this event happen?" (THE MOST RECENT EVENT IF MORE THAN ONE)

APPROXIMATE DATE (RECORD MONTH/YEAR) _____

OR APPROXIMATE LENGTH OF TIME SINCE EVENT (RECORD LENGTH IN WEEKS, MONTHS OR YEARS)

Don't know - X

GOTOQG6

Q5b. "So that was about ... <INSERT DATE OR LENGTH OF TIME SINCE EVENT WHICH WAS NOT STATED BY RESPONDENT> ...?" (YOU WILL NEED TO WORK OUT THE DATE OR LENGTH OF TIME HERE, SO THAT YOU CAN CONFIRM THAT WHAT THE RESPONDENT HAS SAID IS WHEN THE EVENT HAPPENED) (RECORD IN THE REMAINING SPACE IN QG5a ABOVE).

Q6. SHOW CARD G1

"According to this card which number along the scale best indicates how much you think this event has affected your life? Just read out the number." (CIRCLE)

1 2 3 4 5 Don't know - 6

QG7. SHOWCARD G2

"According to this card which number along the scale best indicates how you think this event has affected your life?" (CIRCLE)

1 2 3 4 5 No effect - 6 Don't know - 7

QG8. SHOWCARD G3

"According to this card which number along the scale best indicates how distressing this event was for you at the time that it occurred?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG9. SHOWCARD G4

"According to this card which number along the scale best indicates how you feel that you were in control of the situation, during this event?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG10. SHOWCARD G5

"According to this card which number along the scale best indicates the degree to which this experience was unexpected or expected?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG11. SHOWCARD G6

"Thinking about why this event happened, which of the groups on this card best describes the main cause or major reason why it happened?" (CIRCLE)

1 2 3 4 Don't know - 5

QG12. SHOWCARD G7

"According to this card which number along the scale best indicates how often you have talked about the event?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG13. SHOWCARD G8

"According to the scale on this card which number best indicates how much of your feelings about your experience you have confided in others?" (CIRCLE)

1 2 3 4 5 Don't know - 6

IF RESPONDENT ANSWERED '1' IN QG13 GO TO QG15, ELSE CONTINUE

QG14. "Have you confided in any of the following people?" (READ OUT LIST CIRCLING AS YOU GO)

a.	"A mental health professional?"	Yes - 1	No - 2	
b.	"A medical professional?"	Yes - 1	No - 2	
c.	"Your partner or spouse?"	Yes - 1	No - 2	N/A - 3
d.	"Other family members?"	Yes - 1	No - 2	
e.	"Friends?"	Yes - 1	No - 2	
f.	"Any other people?"	Yes - 1	No - 2	

15. SHOW CARD G9

"According to this card which number best indicates the degree of physical injury you suffered as a result of this experience?" (CIRCLE)

1 2 3 4 Don't know - 5

16. SHOW CARD G10

"According to this card which number along the scale best indicates how much you believed that your life was in danger during the event?" (CIRCLE)

1 2 3 4 5 Don't know - 6

SECTION G, PART 3: CHARACTERISTICS OF THE EVENTS

CHECK BACK TO QF3. IF 'YES' CONTINUE, ELSE GO TO SECTION G, PART 4.

QG1. "You said that as an adult you were sexually assaulted in some way. Did this happen to you more than once?" (CIRCLE)

Yes - 1

No - 2 Don't know - 3

GOTOQG4b

QG2. "How many times has this happened to you?" (RECORD) _____ Don't know -

QG3a. "When did this first happen to you?"

APPROXIMATE DATE (RECORD MONTH/YEAR) _____

OR APPROXIMATE LENGTH OF TIME SINCE EVENT (RECORD LENGTH IN WEEKS, MONTHS OR YEARS)

Don't know - X

GOTOQG4a

QG3b. "So that was about ... <INSERT DATE OR LENGTH OF TIME SINCE EVENT WHICH WAS NOT STATED BY RESPONDENT> ...?" (YOU WILL NEED TO WORK OUT THE DATE OR LENGTH OF TIME HERE, SO THAT YOU CAN CONFIRM THAT WHAT THE RESPONDENT HAS SAID IS WHEN THE EVENT HAPPENED) (RECORD IN THE REMAINING SPACE IN QG3a ABOVE).

QG4a. Now I want you to think about the last time this happened to you and answer the rest of the questions in this section for that event only.

QG4b. "Can you tell me, very briefly, what happened?"
(RECORD A BRIEF DESCRIPTION OF THE INCIDENT - JUST THE BARE FACTS)

QG5a. "When did this event happen?" (THE MOST RECENT EVENT IF MORE THAN ONE)

APPROXIMATE DATE (RECORD MONTH/YEAR) _____

OR APPROXIMATE LENGTH OF TIME SINCE EVENT (RECORD LENGTH IN WEEKS, MONTHS OR YEARS)

Don't know - X

GOTOQG6

QG5b. "So that was about ... <INSERT DATE OR LENGTH OF TIME SINCE EVENT WHICH WAS NOT STATED BY RESPONDENT> ...?" (YOU WILL NEED TO WORK OUT THE DATE OR LENGTH OF TIME HERE, SO THAT YOU CAN CONFIRM THAT WHAT THE RESPONDENT HAS SAID IS WHEN THE EVENT HAPPENED) (RECORD IN THE REMAINING SPACE IN QG5a ABOVE).

QG6. SHOW CARD G1

"According to this card which number along the scale best indicates how much you think this event has affected your life? Just read out the number." (CIRCLE)

1 2 3 4 5 Don't know - 6

Q7. SHOW CARD G2
 "According to this card which number along the scale best indicates how you think this event has affected your life?". (CIRCLE)

1 2 3 4 5 No effect - 6 Don't know - 7

Q8. SHOW CARD G3
 "According to this card which number along the scale best indicates how distressing this event was for you at the time that it occurred?" (CIRCLE)

1 2 3 4 5 Don't know - 6

Q9. SHOW CARD G4
 "According to this card which number along the scale best indicates how you feel that you were in control of the situation, during this event?" (CIRCLE)

1 2 3 4 5 Don't know - 6

Q10. SHOW CARD G5
 "According to this card which number along the scale best indicates the degree to which this experience was unexpected or expected?" (CIRCLE)

1 2 3 4 5 Don't know - 6

Q11. SHOW CARD G6
 "Thinking about why this event happened, which of the groups on this card best describes the main cause or major reason why it happened?" (CIRCLE)

1 2 3 4 Don't know - 5

Q12. SHOW CARD G7
 "According to this card which number along the scale best indicates how often you have talked about the event?" (CIRCLE)

1 2 3 4 5 Don't know - 6

Q13. SHOW CARD G8
 "According to the scale on this card which number best indicates how much of your feelings about your experience you have confided in others?" (CIRCLE)

1 2 3 4 5 Don't know - 6

IF RESPONDENT ANSWERED '1' IN QG13 GO TO QG15, ELSE CONTINUE

Q14. "Have you confided in any of the following people?" (READ OUT LIST CIRCLING AS YOU GO)

a.	"A mental health professional?"	Yes - 1	No - 2	
b.	"A medical professional?"	Yes - 1	No - 2	
c.	"Your partner or spouse?"	Yes - 1	No - 2	N/A - 3
d.	"Other family members?"	Yes - 1	No - 2	
e.	"Friends?"	Yes - 1	No - 2	
f.	"Any other people?"	Yes - 1	No - 2	

QG15. SHOW CARD G9

"According to this card which number best indicates the degree of physical injury you suffered as a result of this experience?" (CIRCLE)

1 2 3 4 Don't know - 5

QG16. SHOW CARD G10

"According to this card which number along the scale best indicates how much you believed that your life was in danger during the event?" (CIRCLE)

1 2 3 4 5 Don't know - 6

SECTION G, PART 4: CHARACTERISTICS OF THE EVENTS

CHECK BACK TO QF4. IF 'YES' CONTINUE, ELSE GO TO SECTION G, PART 5.

Q1. "You said that you have been seriously beaten or attacked by a member of your family. Did this happen to you more than once?" (CIRCLE)

Yes - 1

No - 2

Don't know - 3

GOTOQG4b

Q2. "How many times has this happened to you?" (RECORD) _____ Don't know - X

Q3a. "When did this first happen to you?"

APPROXIMATE DATE (RECORD MONTH/YEAR) _____

OR APPROXIMATE LENGTH OF TIME SINCE EVENT (RECORD LENGTH IN WEEKS, MONTHS OR YEARS)

Don't know - X

GOTOQG4a

Q3b. "So that was about ... <INSERT DATE OR LENGTH OF TIME SINCE EVENT WHICH WAS NOT STATED BY RESPONDENT> ...?" (YOU WILL NEED TO WORK OUT THE DATE OR LENGTH OF TIME HERE, SO THAT YOU CAN CONFIRM THAT WHAT THE RESPONDENT HAS SAID IS WHEN THE EVENT HAPPENED) (RECORD IN THE REMAINING SPACE IN QG3a ABOVE).

Q4a. Now I want you to think about the last time this happened to you and answer the rest of the questions in this section for that event only.

Q4b. "Can you tell me, very briefly, what happened?"
(RECORD A BRIEF DESCRIPTION OF THE INCIDENT - JUST THE BARE FACTS)

Q5a. "When did this event happen?" (THE MOST RECENT EVENT IF MORE THAN ONE)

APPROXIMATE DATE (RECORD MONTH/YEAR) _____

OR APPROXIMATE LENGTH OF TIME SINCE EVENT (RECORD LENGTH IN WEEKS, MONTHS OR YEARS)

Don't know - X

GOTOQG6

Q5b. "So that was about ... <INSERT DATE OR LENGTH OF TIME SINCE EVENT WHICH WAS NOT STATED BY RESPONDENT> ...?" (YOU WILL NEED TO WORK OUT THE DATE OR LENGTH OF TIME HERE, SO THAT YOU CAN CONFIRM THAT WHAT THE RESPONDENT HAS SAID IS WHEN THE EVENT HAPPENED) (RECORD IN THE REMAINING SPACE IN QG5a ABOVE).

Q6. SHOW CARD G1

"According to this card which number along the scale best indicates how much you think this event has affected your life? Just read out the number." (CIRCLE)

1 2 3 4 5 Don't know - 6

QG7. SHOW CARD G2

"According to this card which number along the scale best indicates how you think this event has affected your life?" (CIRCLE)

1 2 3 4 5 No effect - 6 Don't know - 7

QG8. SHOW CARD G3

"According to this card which number along the scale best indicates how distressing this event was for you at the time that it occurred?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG9. SHOW CARD G4

"According to this card which number along the scale best indicates how you feel that you were in control of the situation, during this event?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG10. SHOW CARD G5

"According to this card which number along the scale best indicates the degree to which this experience was unexpected or expected?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG11. SHOW CARD G6

"Thinking about why this event happened, which of the groups on this card best describes the main cause or major reason why it happened?" (CIRCLE)

1 2 3 4 Don't know - 5

QG12. SHOW CARD G7

"According to this card which number along the scale best indicates how often you have talked about the event?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG13. SHOW CARD G8

"According to the scale on this card which number best indicates how much of your feelings about your experience you have confided in others?" (CIRCLE)

1 2 3 4 5 Don't know - 6

IF RESPONDENT ANSWERED '1' IN QG13 GO TO QG15, ELSE CONTINUE

QG14. "Have you confided in any of the following people?" (READ OUT LIST CIRCLING AS YOU GO)

a.	"A mental health professional?"	Yes - 1	No - 2	
b.	"A medical professional?"	Yes - 1	No - 2	
c.	"Your partner or spouse?"	Yes - 1	No - 2	N/A - 3
d.	"Other family members?"	Yes - 1	No - 2	
e.	"Friends?"	Yes - 1	No - 2	
f.	"Any other people?"	Yes - 1	No - 2	

Q15. SHOW CARD G9

"According to this card which number best indicates the degree of physical injury you suffered as a result of this experience?" (CIRCLE)

1 2 3 4 Don't know - 5

Q16. SHOW CARD G10

"According to this card which number along the scale best indicates how much you believed that your life was in danger during the event?" (CIRCLE)

1 2 3 4 5 Don't know - 6

SECTION G, PART 5: CHARACTERISTICS OF THE EVENTS.

CHECK BACK TO QF5. IF 'YES' CONTINUE, ELSE GO TO SECTION G, PART 6.

QG1. "You said that you have been seriously beaten or attacked by someone who was not a member of your family. Did this happen to you more than once?" (CIRCLE)

Yes - 1

No - 2

Don't know - 3

GO TO QG4b

QG2. "How many times has this happened to you?" (RECORD) _____ Don't know - :

QG3a. "When did this first happen to you?"

APPROXIMATE DATE (RECORD MONTH/YEAR) _____

OR APPROXIMATE LENGTH OF TIME SINCE EVENT (RECORD LENGTH IN WEEKS, MONTHS OR YEARS)

Don't know - X

GO TO QG4a

QG3b. "So that was about ... <INSERT DATE OR LENGTH OF TIME SINCE EVENT WHICH WAS NOT STATED BY RESPONDENT> ...?" (YOU WILL NEED TO WORK OUT THE DATE OR LENGTH OF TIME HERE, SO THAT YOU CAN CONFIRM THAT WHAT THE RESPONDENT HAS SAID IS WHEN THE EVENT HAPPENED) (RECORD IN THE REMAINING SPACE IN QG3a ABOVE).

QG4a. Now I want you to think about the last time this happened to you and answer the rest of the questions in this section for that event only.

QG4b. "Can you tell me, very briefly, what happened?"
(RECORD A BRIEF DESCRIPTION OF THE INCIDENT - JUST THE BARE FACTS)

QG5a. "When did this event happen?" (THE MOST RECENT EVENT IF MORE THAN ONE)

APPROXIMATE DATE (RECORD MONTH/YEAR) _____

OR APPROXIMATE LENGTH OF TIME SINCE EVENT (RECORD LENGTH IN WEEKS, MONTHS OR YEARS)

Don't know - X

GO TO QG6

QG5b. "So that was about ... <INSERT DATE OR LENGTH OF TIME SINCE EVENT WHICH WAS NOT STATED BY RESPONDENT> ...?" (YOU WILL NEED TO WORK OUT THE DATE OR LENGTH OF TIME HERE, SO THAT YOU CAN CONFIRM THAT WHAT THE RESPONDENT HAS SAID IS WHEN THE EVENT HAPPENED) (RECORD IN THE REMAINING SPACE IN QG5a ABOVE).

QG6. SHOW CARD G1

"According to this card which number along the scale best indicates how much you think this event has affected your life? Just read out the number." (CIRCLE)

1 2 3 4 5 Don't know - 6

QG7. SHOW CARD G2
 "According to this card which number along the scale best indicates how you think this event has affected your life?" (CIRCLE)

1 2 3 4 5 No effect - 6 Don't know - 7

QG8. SHOW CARD G3
 "According to this card which number along the scale best indicates how distressing this event was for you at the time that it occurred?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG9. SHOW CARD G4
 "According to this card which number along the scale best indicates how you feel that you were in control of the situation, during this event?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG10. SHOW CARD G5
 "According to this card which number along the scale best indicates the degree to which this experience was unexpected or expected?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG11. SHOW CARD G6
 "Thinking about why this event happened, which of the groups on this card best describes the main cause or major reason why it happened?" (CIRCLE)

1 2 3 4 Don't know - 5

QG12. SHOW CARD G7
 "According to this card which number along the scale best indicates how often you have talked about the event?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG13. SHOW CARD G8
 "According to the scale on this card which number best indicates how much of your feelings about your experience you have confided in others?" (CIRCLE)

1 2 3 4 5 Don't know - 6

IF RESPONDENT ANSWERED '1' IN QG13 GO TO QG15, ELSE CONTINUE

QG14. "Have you confided in any of the following people?" (READ OUT LIST CIRCLING AS YOU GO)

a.	"A mental health professional?"	Yes - 1	No - 2	
b.	"A medical professional?"	Yes - 1	No - 2	
c.	"Your partner or spouse?"	Yes - 1	No - 2	N/A - 3
d.	"Other family members?"	Yes - 1	No - 2	
e.	"Friends?"	Yes - 1	No - 2	
f.	"Any other people?"	Yes - 1	No - 2	

QG15. SHOWCARD G9

"According to this card which number best indicates the degree of physical injury you suffered as a result of this experience?" (CIRCLE)

1 2 3 4 Don't know - 5

QG16. SHOWCARD G10

"According to this card which number along the scale best indicates how much you believed that your life was in danger during the event?" (CIRCLE)

1 2 3 4 5 Don't know - 6

SECTION G, PART 6: CHARACTERISTICS OF THE EVENTS

CHECK BACK TO QF6. IF 'YES' CONTINUE, ELSE GO TO SECTION G, PART 7.

Q1. "You said that someone has taken or tried to take something from you by force or threat of force. Did this happen to you more than once?" (CIRCLE)

Yes - 1



No - 2 Don't know - 3

GOTOQG4b

Q2. "How many times has this happened to you?" (RECORD) _____ Don't know - X

Q3a. "When did this first happen to you?"

APPROXIMATE DATE (RECORD MONTH/YEAR) _____

OR APPROXIMATE LENGTH OF TIME SINCE EVENT (RECORD LENGTH IN WEEKS, MONTHS OR YEARS)

↓

Don't know - X → GOTOQG4a

Q3b. "So that was about ... <INSERT DATE OR LENGTH OF TIME SINCE EVENT WHICH WAS NOT STATED BY RESPONDENT> ...?" (YOU WILL NEED TO WORK OUT THE DATE OR LENGTH OF TIME HERE, SO THAT YOU CAN CONFIRM THAT WHAT THE RESPONDENT HAS SAID IS WHEN THE EVENT HAPPENED) (RECORD IN THE REMAINING SPACE IN QG3a ABOVE).

Q4a. Now I want you to think about the last time this happened to you and answer the rest of the questions in this section for that event only.

Q4b. "Can you tell me, very briefly, what happened?"
(RECORD A BRIEF DESCRIPTION OF THE INCIDENT - JUST THE BARE FACTS)

Q5a. "When did this event happen?" (THE MOST RECENT EVENT IF MORE THAN ONE)

APPROXIMATE DATE (RECORD MONTH/YEAR) _____

OR APPROXIMATE LENGTH OF TIME SINCE EVENT (RECORD LENGTH IN WEEKS, MONTHS OR YEARS)

↓

Don't know - X → GOTOQG6

Q5b. "So that was about ... <INSERT DATE OR LENGTH OF TIME SINCE EVENT WHICH WAS NOT STATED BY RESPONDENT> ...?" (YOU WILL NEED TO WORK OUT THE DATE OR LENGTH OF TIME HERE, SO THAT YOU CAN CONFIRM THAT WHAT THE RESPONDENT HAS SAID IS WHEN THE EVENT HAPPENED) (RECORD IN THE REMAINING SPACE IN QG5a ABOVE).

Q6. SHOW CARD G1

"According to this card which number along the scale best indicates how much you think this event has affected your life? Just read out the number." (CIRCLE)

1 2 3 4 5 Don't know - 6

QG7. SHOW CARD G2
 "According to this card which number along the scale best indicates how you think this event has affected your life?" (CIRCLE)

1 2 3 4 5 No effect - 6 Don't know - 7

QG8. SHOW CARD G3
 "According to this card which number along the scale best indicates how distressing this event was for you at the time that it occurred?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG9. SHOW CARD G4
 "According to this card which number along the scale best indicates how you feel that you were in control of the situation, during this event?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG10. SHOW CARD G5
 "According to this card which number along the scale best indicates the degree to which this experience was unexpected or expected?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG11. SHOW CARD G6
 "Thinking about why this event happened, which of the groups on this card best describes the main cause or major reason why it happened?" (CIRCLE)

1 2 3 4 Don't know - 5

QG12. SHOW CARD G7
 "According to this card which number along the scale best indicates how often you have talked about this event?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG13. SHOW CARD G8
 "According to the scale on this card which number best indicates how much of your feelings about your experience you have confided in others?" (CIRCLE)

1 2 3 4 5 Don't know - 6

IF RESPONDENT ANSWERED '1' IN QG13 GO TO QG15, ELSE CONTINUE

QG14. "Have you confided in any of the following people?" (READ OUT LIST CIRCLING AS YOU GO)

a.	"A mental health professional?"	Yes - 1	No - 2	
b.	"A medical professional?"	Yes - 1	No - 2	
c.	"Your partner or spouse?"	Yes - 1	No - 2	N/A - 3
d.	"Other family members?"	Yes - 1	No - 2	
e.	"Friends?"	Yes - 1	No - 2	
f.	"Any other people?"	Yes - 1	No - 2	

QG15. SHOWCARD G9

"According to this card which number best indicates the degree of physical injury you suffered as a result of this experience?" (CIRCLE)

1 2 3 4 Don't know - 5

QG16. SHOWCARD G10

"According to this card which number along the scale best indicates how much you believed that your life was in danger during the event?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG17. SHOWCARD G11

"According to this card which number along the scale best matches the degree of property loss or damage, (if any), you suffered as a result of this experience?" (CIRCLE)

1 2 3 4 5 Don't know - 6

SECTION G, PART 7: CHARACTERISTICS OF THE EVENTS

CHECK BACK TO QF7. IF 'YES' CONTINUE, ELSE GO TO SECTION G, PART 8.

QG1. "You said that you have been in a serious motor vehicle accident. Did this happen to you more than once?" (CIRCLE)

Yes - 1

No - 2

Don't know - 3

GO TO QG4b.

QG2. "How many times has this happened to you?" (RECORD) _____ Don't know -

QG3a. "When did this first happen to you?"

APPROXIMATE DATE (RECORD MONTH/YEAR) _____

OR APPROXIMATE LENGTH OF TIME SINCE EVENT (RECORD LENGTH IN WEEKS, MONTHS OR YEARS)

Don't know - X

GO TO QG4a

QG3b. "So that was about ... <INSERT DATE OR LENGTH OF TIME SINCE EVENT WHICH WAS NOT STATED BY RESPONDENT> ...?" (YOU WILL NEED TO WORK OUT THE DATE OR LENGTH OF TIME HERE, SO THAT YC CAN CONFIRM THAT WHAT THE RESPONDENT HAS SAID IS WHEN THE EVENT HAPPENED) (RECORD IN THE REMAINING SPACE IN QG3a ABOVE).

QG4a. Now I want you to think about the last time this happened to you and answer the rest of the questions in this section for that event only.

QG4b. "Can you tell me, very briefly, what happened?"
(RECORD A BRIEF DESCRIPTION OF THE INCIDENT - JUST THE BARE FACTS)

QG5a. "When did this event happen?" (THE MOST RECENT EVENT IF MORE THAN ONE)

APPROXIMATE DATE (RECORD MONTH/YEAR) _____

OR APPROXIMATE LENGTH OF TIME SINCE EVENT (RECORD LENGTH IN WEEKS, MONTHS OR YEARS)

Don't know - X

GO TO QG6

QG5b. "So that was about ... <INSERT DATE OR LENGTH OF TIME SINCE EVENT WHICH WAS NOT STATED BY RESPONDENT> ...?" (YOU WILL NEED TO WORK OUT THE DATE OR LENGTH OF TIME HERE, SO THAT YC CAN CONFIRM THAT WHAT THE RESPONDENT HAS SAID IS WHEN THE EVENT HAPPENED) (RECORD IN THE REMAINING SPACE IN QG5a ABOVE).

QG6. SHOW CARD G1

"According to this card which number along the scale best indicates how much you think this event has affected your life? Just read out the number." (CIRCLE)

1

2

3

4

5

Don't know - 6

QG7. SHOW CARD G2
 "According to this card which number along the scale best indicates how you think this event has affected your life?" (CIRCLE)

1 2 3 4 5 No effect - 6 Don't know - 7

QG8. SHOW CARD G3
 "According to this card which number along the scale best indicates how distressing this event was for you at the time that it occurred?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG9. SHOW CARD G4
 "According to this card which number along the scale best indicates how you feel that you were in control of the situation, during this event?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG10. SHOW CARD G5
 "According to this card which number along the scale best indicates the degree to which this experience was unexpected or expected?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG11. SHOW CARD G6
 "Thinking about why this event happened, which of the groups on this card best describes the main cause or major reason why it happened?" (CIRCLE)

1 2 3 4 Don't know - 5

QG12. SHOW CARD G7
 "According to this card which number along the scale best indicates how often you have talked about the event?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG13. SHOW CARD G8
 "According to the scale on this card which number best indicates how much of your feelings about your experience you have confided in others?" (CIRCLE)

1 2 3 4 5 Don't know - 6

IF RESPONDENT ANSWERED '1' IN QG13 GO TO QG15, ELSE CONTINUE
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QG14. "Have you confided in any of the following people?" (READ OUT LIST CIRCLING AS YOU GO)

a. "A mental health professional?"	Yes - 1	No - 2	
b. "A medical professional?"	Yes - 1	No - 2	
c. "Your partner or spouse?"	Yes - 1	No - 2	N/A
d. "Other family members?"	Yes - 1	No - 2	
e. "Friends?"	Yes - 1	No - 2	
f. "Any other people?"	Yes - 1	No - 2	

QG15. SHOWCARD G9

"According to this card which number best indicates the degree of physical injury you suffered as a result of this experience?" (CIRCLE)

1 2 3 4 Don't know - 5

QG16. SHOWCARD G10

"According to this card which number along the scale best indicates how much you believed that your life was in danger during the event?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG17. SHOWCARD G11

"According to this card which number along the scale best matches the degree of property loss or damage, (if any), you suffered as a result of this experience?" (CIRCLE)

1 2 3 4 5 Don't know - 6

SECTION G, PART 8: CHARACTERISTICS OF THE EVENTS

CHECK BACK TO QF8. IF 'YES' CONTINUE, ELSE GO TO SECTION G, PART 9.

QG1. "You said that you have been seriously injured in an accident other than a vehicle accident. Did this happen to you more than once?" (CIRCLE)

Yes - 1

No - 2 Don't know - 3

GOTOQG4b



QG2. "How many times has this happened to you?" (RECORD) _____ Don't know - X

QG3a. "When did this first happen to you?"

APPROXIMATE DATE (RECORD MONTH/YEAR) _____

OR APPROXIMATE LENGTH OF TIME SINCE EVENT (RECORD LENGTH IN WEEKS, MONTHS OR YEARS)

Don't know - X

GOTOQG4a



QG3b. "So that was about ... <INSERT DATE OR LENGTH OF TIME SINCE EVENT WHICH WAS NOT STATED BY RESPONDENT> ...?" (YOU WILL NEED TO WORK OUT THE DATE OR LENGTH OF TIME HERE, SO THAT YOU CAN CONFIRM THAT WHAT THE RESPONDENT HAS SAID IS WHEN THE EVENT HAPPENED) (RECORD IN THE REMAINING SPACE IN QG3a ABOVE).

QG4a. Now I want you to think about the last time this happened to you and answer the rest of the questions in this section for that event only.

QG4b. "Can you tell me, very briefly, what happened?"
(RECORD A BRIEF DESCRIPTION OF THE INCIDENT - JUST THE BARE FACTS)

QG5a. "When did this event happen?" (THE MOST RECENT EVENT IF MORE THAN ONE)

APPROXIMATE DATE (RECORD MONTH/YEAR) _____

OR APPROXIMATE LENGTH OF TIME SINCE EVENT (RECORD LENGTH IN WEEKS, MONTHS OR YEARS)

Don't know - X

GOTOQG6



QG5b. "So that was about ... <INSERT DATE OR LENGTH OF TIME SINCE EVENT WHICH WAS NOT STATED BY RESPONDENT> ...?" (YOU WILL NEED TO WORK OUT THE DATE OR LENGTH OF TIME HERE, SO THAT YOU CAN CONFIRM THAT WHAT THE RESPONDENT HAS SAID IS WHEN THE EVENT HAPPENED) (RECORD IN THE REMAINING SPACE IN QG5a ABOVE).

QG6. SHOWCARD G1

"According to this card which number along the scale best indicates how much you think this event has affected your life? Just read out the number." (CIRCLE)

1 2 3 4 5 Don't know - 6

QG7. SHOW CARD G2

"According to this card which number along the scale best indicates how you think this event has affected your life?" (CIRCLE)

1 2 3 4 5 No effect- 6 Don't know - 7

QG8. SHOWCARD G3

"According to this card which number along the scale best indicates how distressing this event was for you at the time that it occurred?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG9. SHOW CARD G4

"According to this card which number along the scale best indicates how you feel that you were in control of the situation, during this event?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG10. SHOWCARD G5

"According to this card which number along the scale best indicates the degree to which this experience was unexpected or expected?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG11. SHOW CARD G6

"Thinking about why this event happened, which of the groups on this card best describes the main cause or major reason why it happened?" (CIRCLE)

1 2 3 4 Don't know - 5

QG12. SHOWCARD G7

"According to this card which number along the scale best indicates how often you have talked about the event?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG13. SHOWCARD G8

"According to the scale on this card which number best indicates how much of your feelings about your experience you have confided in others?" (CIRCLE)

1 2 3 4 5 Don't know - 6

IF RESPONDENT ANSWERED '1' IN QG13 GO TO QG15, ELSE CONTINUE

QG14. "Have you confided in any of the following people?" (READ OUT LIST CIRCLING AS YOU GO)

a.	"A mental health professional?"	Yes - 1	No - 2	
b.	"A medical professional?"	Yes - 1	No - 2	
c.	"Your partner or spouse?"	Yes - 1	No - 2	N/A
d.	"Other family members?"	Yes - 1	No - 2	
e.	"Friends?"	Yes - 1	No - 2	
f.	"Any other people?"	Yes - 1	No - 2	

QG15. SHOWCARD G9

"According to this card which number best indicates the degree of physical injury you suffered as a result of this experience?" (CIRCLE)

1 2 3 4 Don't know - 5

QG16. SHOWCARD G10

"According to this card which number along the scale best indicates how much you believed that your life was in danger during the event?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG17. SHOWCARD G11

"According to this card which number along the scale best matches the degree of property loss or damage, (if any), you suffered as a result of this experience?" (CIRCLE)

1 2 3 4 5 Don't know - 6

SECTION G, PART 9: CHARACTERISTICS OF THE EVENTS

CHECK BACK TO QF9. IF 'YES' CONTINUE, ELSE GO TO SECTION G, PART 10.

QG1. "You said that you have suffered serious injury and/or property damage because of a disaster. Did this happen to you more than once?" (CIRCLE)

Yes - 1 No - 2 Don't know - 3 GOTOQG4b

QG2. "How many times has this happened to you?" (RECORD) Don't know - :

QG3a. "When did this first happen to you?"

APPROXIMATE DATE (RECORD MONTH/YEAR)

OR APPROXIMATE LENGTH OF TIME SINCE EVENT (RECORD LENGTH IN WEEKS, MONTHS OR YEARS)

Don't know - X GOTOQG4a

QG3b. "So that was about ... <INSERT DATE OR LENGTH OF TIME SINCE EVENT WHICH WAS NOT STATED BY RESPONDENT> ...?" (YOU WILL NEED TO WORK OUT THE DATE OR LENGTH OF TIME HERE, SO THAT YOU CAN CONFIRM THAT WHAT THE RESPONDENT HAS SAID IS WHEN THE EVENT HAPPENED) (RECORD IN THE REMAINING SPACE IN QG3a ABOVE).

QG4a. Now I want you to think about the last time this happened to you and answer the rest of the questions in this section for that event only.

QG4b. "Can you tell me, very briefly, what happened?" (RECORD A BRIEF DESCRIPTION OF THE INCIDENT - JUST THE BARE FACTS)

QG5a. "When did this event happen?" (THE MOST RECENT EVENT IF MORE THAN ONE)

APPROXIMATE DATE (RECORD MONTH/YEAR)

OR APPROXIMATE LENGTH OF TIME SINCE EVENT (RECORD LENGTH IN WEEKS, MONTHS OR YEARS)

Don't know - X GOTOQG6

QG5b. "So that was about ... <INSERT DATE OR LENGTH OF TIME SINCE EVENT WHICH WAS NOT STATED BY RESPONDENT> ...?" (YOU WILL NEED TO WORK OUT THE DATE OR LENGTH OF TIME HERE, SO THAT YOU CAN CONFIRM THAT WHAT THE RESPONDENT HAS SAID IS WHEN THE EVENT HAPPENED) (RECORD IN THE REMAINING SPACE IN QG5a ABOVE).

QG6. SHOW CARD G1

"According to this card which number along the scale best indicates how much you think this event has affected your life? Just read out the number." (CIRCLE)

1 2 3 4 5 Don't know - 6

QG7. SHOWCARD G2

"According to this card which number along the scale best indicates how you think this event has affected your life?" (CIRCLE)

1 2 3 4 5 No effect - 6 Don't know - 7

QG8. SHOWCARD G3

"According to this card which number along the scale best indicates how distressing this event was for you at the time that it occurred?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG9. SHOWCARD G4

"According to this card which number along the scale best indicates how you feel that you were in control of the situation, during this event?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG10. SHOWCARD G5

"According to this card which number along the scale best indicates the degree to which this experience was unexpected or expected?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG11. SHOWCARD G6

"Thinking about why this event happened, which of the groups on this card best describes the main cause or major reason why it happened?" (CIRCLE)

1 2 3 4 Don't know - 5

QG12. SHOWCARD G7

"According to this card which number along the scale best indicates how often you have talked about the event?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG13. SHOWCARD G8

"According to the scale on this card which number best indicates how much of your feelings about your experience you have confided in others?" (CIRCLE)

1 2 3 4 5 Don't know - 6

IF RESPONDENT ANSWERED '1' IN QG13 GO TO QG15, ELSE CONTINUE

QG14. "Have you confided in any of the following people?" (READ OUT LIST CIRCLING AS YOU GO)

a.	"A mental health professional?"	Yes - 1	No - 2	
b.	"A medical professional?"	Yes - 1	No - 2	
c.	"Your partner or spouse?"	Yes - 1	No - 2	N/A
d.	"Other family members?"	Yes - 1	No - 2	
e.	"Friends?"	Yes - 1	No - 2	
f.	"Any other people?"	Yes - 1	No - 2	

QG15. SHOWCARD G9

"According to this card which number best indicates the degree of physical injury you suffered as a result of this experience?" (CIRCLE)

1 2 3 4 Don't know - 5

QG16. SHOWCARD G10

"According to this card which number along the scale best indicates how much you believed that your life was in danger during the event?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG17. SHOWCARD G11

"According to this card which number along the scale best matches the degree of property loss or damage, (if any), you suffered as a result of this experience?" (CIRCLE)

1 2 3 4 5 Don't know - 6

SECTION G, PART 10: CHARACTERISTICS OF THE EVENTS

CHECK BACK TO QF10. IF 'YES' CONTINUE, ELSE GO TO SECTION G, PART 11.

QG1. "You said that you have been forced to leave your home or take other precautions because of an approaching disaster. Did this happen to you more than once?" (CIRCLE)

Yes - 1

No - 2 Don't know - 3

GOTOQG4b

QG2. "How many times has this happened to you?" (RECORD) _____ Don't know - X

QG3a. "When did this first happen to you?"

APPROXIMATE DATE (RECORD MONTH/YEAR) _____

OR APPROXIMATE LENGTH OF TIME SINCE EVENT (RECORD LENGTH IN WEEKS, MONTHS OR YEARS)

Don't know - X

GOTOQG4a

QG3b. "So that was about ... <INSERT DATE OR LENGTH OF TIME SINCE EVENT WHICH WAS NOT STATED BY RESPONDENT> ...?" (YOU WILL NEED TO WORK OUT THE DATE OR LENGTH OF TIME HERE, SO THAT YOU CAN CONFIRM THAT WHAT THE RESPONDENT HAS SAID IS WHEN THE EVENT HAPPENED) (RECORD IN THE REMAINING SPACE IN QG3a ABOVE).

QG4a. Now I want you to think about the last time this happened to you and answer the rest of the questions in this section for that event only.

QG4b. "Can you tell me, very briefly, what happened?"
(RECORD A BRIEF DESCRIPTION OF THE INCIDENT - JUST THE BARE FACTS)

QG5a. "When did this event happen?" (THE MOST RECENT EVENT IF MORE THAN ONE)

APPROXIMATE DATE (RECORD MONTH/YEAR) _____

OR APPROXIMATE LENGTH OF TIME SINCE EVENT (RECORD LENGTH IN WEEKS, MONTHS OR YEARS)

Don't know - X

GOTOQG6

QG5b. "So that was about ... <INSERT DATE OR LENGTH OF TIME SINCE EVENT WHICH WAS NOT STATED BY RESPONDENT> ...?" (YOU WILL NEED TO WORK OUT THE DATE OR LENGTH OF TIME HERE, SO THAT YOU CAN CONFIRM THAT WHAT THE RESPONDENT HAS SAID IS WHEN THE EVENT HAPPENED) (RECORD IN THE REMAINING SPACE IN QG5a ABOVE).

QG6. SHOW CARD G1

"According to this card which number along the scale best indicates how much you think this event has affected your life? Just read out the number." (CIRCLE)

1 2 3 4 5 Don't know - 6

QG7. SHOW CARD G2

"According to this card which number along the scale best indicates how you think this event has affected your life?" (CIRCLE)

1 2 3 4 5 No effect - 6 Don't know - 7

QG8. SHOW CARD G3

"According to this card which number along the scale best indicates how distressing this event was for you at the time that it occurred?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG9. SHOW CARD G4

"According to this card which number along the scale best indicates how you feel that you were in control of the situation, during this event?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG10. SHOW CARD G5

"According to this card which number along the scale best indicates the degree to which this experience was unexpected or expected?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG11. SHOW CARD G6

"Thinking about why this event happened, which of the groups on this card best describes the main cause or major reason why it happened?" (CIRCLE)

1 2 3 4 Don't know - 5

QG12. SHOW CARD G7

"According to this card which number along the scale best indicates how often you have talked about the event?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG13. SHOW CARD G8

"According to the scale on this card which number best indicates how much of your feelings about your experience you have confided in others?" (CIRCLE)

1 2 3 4 5 Don't know - 6

IF RESPONDENT ANSWERED '1' IN QG13 GO TO QG15, ELSE CONTINUE

QG14. "Have you confided in any of the following people?" (READ OUT LIST CIRCLING AS YOU GO)

a.	"A mental health professional?"	Yes - 1	No - 2	
b.	"A medical professional?"	Yes - 1	No - 2	
c.	"Your partner or spouse?"	Yes - 1	No - 2	N/A - 3
d.	"Other family members?"	Yes - 1	No - 2	
e.	"Friends?"	Yes - 1	No - 2	
f.	"Any other people?"	Yes - 1	No - 2	

QG15. SHOWCARD G9

"According to this card which number best indicates the degree of physical injury you suffered as a result of this experience?" (CIRCLE)

1 2 3 4 Don't know - 5

QG16. SHOWCARD G10

"According to this card which number along the scale best indicates how much you believed that your life was in danger during the event?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG17. SHOWCARD G11

"According to this card which number along the scale best matches the degree of property loss or damage, (if any), you suffered as a result of this experience?" (CIRCLE)

1 2 3 4 5 Don't know - 6

SECTION G, PART 11: CHARACTERISTICS OF THE EVENTS

CHECK BACK TO QF11. IF 'YES' CONTINUE, ELSE GO TO SECTION G, PART 12.

QG1. "You said that you have experienced the violent or unexpected death of a loved one. Did this happen to you more than once?" (CIRCLE)

Yes - 1 No - 2 Don't know - 3 → GOTO QG4b

QG2. "How many times has this happened to you?" (RECORD) _____ Don't know -

QG3a. "When did this first happen to you?"

APPROXIMATE DATE (RECORD MONTH/YEAR) _____

OR APPROXIMATE LENGTH OF TIME SINCE EVENT (RECORD LENGTH IN WEEKS, MONTHS OR YEARS)

----- Don't know - X → GOTO QG4a

↓
QG3b. "So that was about ... <INSERT DATE OR LENGTH OF TIME SINCE EVENT WHICH WAS NOT STATED BY RESPONDENT> ...?" (YOU WILL NEED TO WORK OUT THE DATE OR LENGTH OF TIME HERE, SO THAT YOU CAN CONFIRM THAT WHAT THE RESPONDENT HAS SAID IS WHEN THE EVENT HAPPENED) (RECORD IN THE REMAINING SPACE IN QG3a ABOVE).

QG4a. Now I want you to think about the last time this happened to you and answer the rest of the questions in this section for that event only.

QG4b. "Can you tell me, very briefly, what happened?"
(RECORD A BRIEF DESCRIPTION OF THE INCIDENT - JUST THE BARE FACTS)

QG5a. "When did this event happen?" (THE MOST RECENT EVENT IF MORE THAN ONE)

APPROXIMATE DATE (RECORD MONTH/YEAR) _____

OR APPROXIMATE LENGTH OF TIME SINCE EVENT (RECORD LENGTH IN WEEKS, MONTHS OR YEARS)

----- Don't know - X → GOTO QG6

↓
QG5b. "So that was about ... <INSERT DATE OR LENGTH OF TIME SINCE EVENT WHICH WAS NOT STATED BY RESPONDENT> ...?" (YOU WILL NEED TO WORK OUT THE DATE OR LENGTH OF TIME HERE, SO THAT YOU CAN CONFIRM THAT WHAT THE RESPONDENT HAS SAID IS WHEN THE EVENT HAPPENED) (RECORD IN THE REMAINING SPACE IN QG5a ABOVE).

QG6. SHOWCARD G1

"According to this card which number along the scale best indicates how much you think this event has affected your life? Just read out the number." (CIRCLE)

1 2 3 4 5 Don't know - 6

QG7. SHOW CARD G2
"According to this card which number along the scale best indicates how you think this event has affected your life?" (CIRCLE)

1 2 3 4 5 No effect - 6 Don't know - 7

QG8. SHOW CARD G3
"According to this card which number along the scale best indicates how distressing this event was for you at the time that it occurred?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG9. SHOW CARD G4
"According to this card which number along the scale best indicates how you feel that you were in control of the situation, during this event?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG10. SHOW CARD G5
"According to this card which number along the scale best indicates the degree to which this experience was unexpected or expected?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG11. SHOW CARD G6
"Thinking about why this event happened, which of the groups on this card best describes the main cause or major reason why it happened?" (CIRCLE)

1 2 3 4 Don't know - 5

QG12. SHOW CARD G7
"According to this card which number along the scale best indicates how often you have talked about the event?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG13. SHOW CARD G8
"According to the scale on this card which number best indicates how much of your feelings about your experience you have confided in others?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG18 "How many loved ones died in this event?" RECORD: _____ LOVED ONES

QG20. SHOW CARD G12
"According to this card, can you tell me what their relationship to you was at the time. You can pick more than one option if you like." (CIRCLE OR RECORD)

1 2 3 4 5

6 7 8 9 10

11 (SPECIFY) _____

SECTION G. PART 12: CHARACTERISTICS OF THE EVENTS

CHECK BACK TO QF12. IF 'YES' CONTINUE, ELSE GO TO SECTION G, PART 13.

QG1. "You said that someone very close to you has experienced violent assault or serious accident or injury. Did this happen to you more than once?" (CIRCLE)

Yes - 1

No - 2 Don't know - 3

GOTOQG4b

QG2. "How many times has this happened to you?" (RECORD) _____ Don't know - >

QG3a. "When did this first happen to you?"

APPROXIMATE DATE (RECORD MONTH/YEAR) _____

OR APPROXIMATE LENGTH OF TIME SINCE EVENT (RECORD LENGTH IN WEEKS, MONTHS OR YEARS)

Don't know - X

GOTOQG4a

QG3b. "So that was about ... <INSERT DATE OR LENGTH OF TIME SINCE EVENT WHICH WAS NOT STATED BY RESPONDENT> ...?" (YOU WILL NEED TO WORK OUT THE DATE OR LENGTH OF TIME HERE, SO THAT YOU CAN CONFIRM THAT WHAT THE RESPONDENT HAS SAID IS WHEN THE EVENT HAPPENED) (RECORD IN THE REMAINING SPACE IN QG3a ABOVE).

QG4a. Now I want you to think about the last time this happened to you and answer the rest of the questions in this section for that event only.

QG4b. "Can you tell me, very briefly, what happened?"
(RECORD A BRIEF DESCRIPTION OF THE INCIDENT - JUST THE BARE FACTS)

QG5a. "When did this event happen?" (THE MOST RECENT EVENT IF MORE THAN ONE)

APPROXIMATE DATE (RECORD MONTH/YEAR) _____

OR APPROXIMATE LENGTH OF TIME SINCE EVENT (RECORD LENGTH IN WEEKS, MONTHS OR YEARS)

Don't know - X

GOTOQG6

QG5b. "So that was about ... <INSERT DATE OR LENGTH OF TIME SINCE EVENT WHICH WAS NOT STATED BY RESPONDENT> ...?" (YOU WILL NEED TO WORK OUT THE DATE OR LENGTH OF TIME HERE, SO THAT YOU CAN CONFIRM THAT WHAT THE RESPONDENT HAS SAID IS WHEN THE EVENT HAPPENED) (RECORD IN THE REMAINING SPACE IN QG5a ABOVE).

QG6. SHOW CARD G1

"According to this card which number along the scale best indicates how much you think this event has affected your life? Just read out the number." (CIRCLE)

1 2 3 4 5 Don't know - 6

QG7. SHOWCARD G2

"According to this card which number along the scale best indicates how you think this event has affected your life?" (CIRCLE)

1 2 3 4 5 No effect - 6 Don't know - 7

QG8. SHOWCARD G3

"According to this card which number along the scale best indicates how distressing this event was for you at the time that it occurred?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG9. SHOWCARD G4

"According to this card which number along the scale best indicates how you feel that you were in control of the situation, during this event?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG10. SHOWCARD G5

"According to this card which number along the scale best indicates the degree to which this experience was unexpected or expected?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG11. SHOWCARD G6

"Thinking about why this event happened, which of the groups on this card best describes the main cause or major reason why it happened?" (CIRCLE)

1 2 3 4 Don't know - 5

QG12. SHOWCARD G7

"According to this card which number along the scale best indicates how often you have talked about the event?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG13. SHOWCARD G8

"According to the scale on this card which number best indicates how much of your feelings about your experience you have confided in others?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG19 "How many loved ones were involved in this event?" RECORD: _____ LOVED ONES

QG20. SHOWCARD G12

"According to this card, can you tell me what their relationship to you was at the time. You can pick more than one option if you like." (CIRCLE OR RECORD)

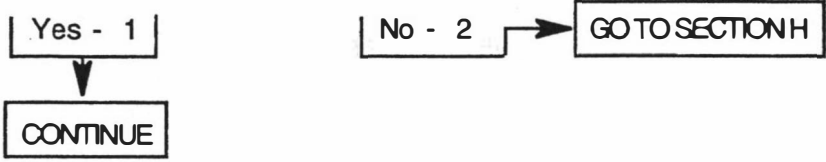
1 2 3 4 5
6 7 8 9 10
11 (SPECIFY) _____

SECTION G, PART 13: CHARACTERISTICS OF THE EVENTS

CHECK BACK TO QF13. IF 'YES' CONTINUE, ELSE GO TO SECTION H.

QG1a. "You said that you have had other experiences which you feel were traumatic?"

Do you feel able and willing to talk about any of the events with me?" (CIRCLE ONE ONLY)



QG1b. "Could you tell me, very briefly, what happened in each of the events?"

(RECORD BRIEF DESCRIPTION - JUST THE BARE FACTS)

ID NUMBER	DESCRIPTION	TICK BOX
1	----- -----	<input type="checkbox"/>
2	----- -----	<input type="checkbox"/>
3	----- -----	<input type="checkbox"/>
4	----- -----	<input type="checkbox"/>
5	----- -----	<input type="checkbox"/>
6	----- -----	<input type="checkbox"/>

QG1c. "Today I would like to talk with you about the one event out of those you have described which you feel was the worst or most significant for you. Which one was that?"

(PLACE A TICK IN THE BOX ALONGSIDE THE EVENT SELECTED)

Q1d. "Has a similar event happened to you before?" (CIRCLE)

Yes - 1

No - 2 Don't know - 3

GO TO QG6

Q2. "How many times has this happened to you?" (RECORD) _____ Don't know - X

Q3a. "When did this first happen to you?"

APPROXIMATE DATE (RECORD MONTH/YEAR) _____

OR APPROXIMATE LENGTH OF TIME SINCE EVENT (RECORD LENGTH IN WEEKS, MONTHS OR YEARS)

↓

Don't know - X

GO TO QG6

Q3b. "So that was about ... <INSERT DATE OR LENGTH OF TIME SINCE EVENT WHICH WAS NOT STATED BY RESPONDENT> ...?" (YOU WILL NEED TO WORK OUT THE DATE OR LENGTH OF TIME HERE, SO THAT YOU CAN CONFIRM THAT WHAT THE RESPONDENT HAS SAID IS WHEN THE EVENT HAPPENED) (RECORD IN THE REMAINING SPACE IN QG3a ABOVE).

Q6. "For the rest of the questions in this section I want you to answer for the event which you feel was the worst, or most significant for you."

SHOWCARD G1

"According to this card which number along the scale best indicates how much you think this event has affected your life? Just read out the number." (CIRCLE)

1 2 3 4 5 No effect - 6 Don't know - 7

Q7. SHOWCARD G2

"According to this card which number along the scale best indicates how you think this event has affected your life?" (CIRCLE)

1 2 3 4 5 Don't know - 6

Q8. SHOWCARD G3

"According to this card which number along the scale best indicates how distressing this event was for you at the time that it occurred?" (CIRCLE)

1 2 3 4 5 Don't know - 6

Q9. SHOWCARD G4

"According to this card which number along the scale best indicates how you feel that you were in control of the situation, during this event?" (CIRCLE)

1 2 3 4 5 Don't know - 6

Q10. SHOWCARD G5

"According to this card which number along the scale best indicates the degree to which this experience was unexpected or expected?" (CIRCLE)

1 2 3 4 5 Don't know - 6

Q11. SHOWCARD G6

"Thinking about why this event happened, which of the groups on this card best describes the main cause or major reason why it happened?" (CIRCLE)

1 2 3 4 Don't know - 5

QG12. SHOW CARD G7

"According to this card which number along the scale best indicates how often you have talked about the event?" (CIRCLE)

1 2 3 4 5 Don't know - 6

QG13. SHOW CARD G8

"According to the scale on this card which number best indicates how much of your feelings about your experience you have confided in others?" (CIRCLE)

1 2 3 4 5 Don't know - 6

IF RESPONDENT ANSWERED '1' IN QG13 GO TO QG15, ELSE CONTINUE

QG14. "Have you confided in any of the following people?" (READ OUT LIST CIRCLING AS YOU GO)

a.	"A mental health professional?"	Yes - 1	No - 2	
b.	"A medical professional?"	Yes - 1	No - 2	
c.	"Your partner or spouse?"	Yes - 1	No - 2	Don't have partner/spouse - 3
d.	"Other family members?"	Yes - 1	No - 2	
e.	"Friends?"	Yes - 1	No - 2	
f.	"Any other people?"	Yes - 1	No - 2	

QG15. SHOW CARD G9

"According to this card which number best indicates the degree of physical injury you suffered as a result of this experience?" (CIRCLE)

1 2 3 4 Don't know - 5

QG16. SHOW CARD G10

"According to this card which number along the scale best indicates how much you believed that your life was in danger during the event?" (CIRCLE)

1 2 3 4 5 Don't know - 6

SECTION H: PTSD

QH1. SHOW CARD H1

"We are interested in how you have been thinking and feeling about things over the last month or so. For each of the statements I read, please indicate which number best describes your experiences at present." (READ OUT LIST CIRCLING ONE NUMBER FOR EACH STATEMENT AS YOU GO)

	Never	Rarely	Sometimes	Frequently	Very Frequently	Don't know	Refuse
a. "Being in certain situations makes me feel as though I am back in my past."	1	2	3	4	5	6	7
b. "I am able to get emotionally close to others."	1	2	3	4	5	6	7
c. "Unexpected noises make me jump."	1	2	3	4	5	6	7
d. "I am an even-tempered person."	1	2	3	4	5	6	7
e. "I have nightmares of experiences in my past that really happened."	1	2	3	4	5	6	7
f. "I have trouble going to sleep and staying asleep."	1	2	3	4	5	6	7
g. "I lose my cool and explode over minor everyday things."	1	2	3	4	5	6	7
h. "I try to stay away from anything that will remind me of the things that happened in my past."	1	2	3	4	5	6	7

QH2. SHOW CARD H2 "Again, for each of the statements I read, please indicate which number best describes how you feel about each statement."

(READ OUT LIST CIRCLING ONE NUMBER FOR EACH STATEMENT AS YOU GO)

	Not at all true	Only slightly true	Somewhat true	Very true	Extremely true	Don't know	Refuse
a. "In the past I had more close friends than I have now."	1	2	3	4	5	6	7
b. "It seems that I am emotionally numb, that I have no feelings."	1	2	3	4	5	6	7
c. "I feel guilt over things that I did in the past."	1	2	3	4	5	6	7

SECTION I: CONTACTS

CHECK BACK TO SECTION F. IF RESPONDENT ANSWERED 'YES' TO ANY OF THE QUESTIONS, ASK SECTION I. OTHERWISE SKIP TO SECTION J.

Q11a. "I would like to ask you some questions about contacts you might have made after the traumatic event you told me about. I am interested in contacts you might have made on your own behalf, rather than on behalf of another person. If you have had more than one traumatic event, please answer the questions for the most recent event only.

Following the traumatic event (or most recent event), did you have contact with or seek help from the police?" (CIRCLE)

Yes - 1

No - 2 Don't know - 3 Can't remember - 4

GO TO Q12a.

Q11b. SHOW CARD I.1

"According to this card how helpful did you find them in general?" (CIRCLE)

1 2 3 4 5 Dk - 6

Q12a. "Following the traumatic event (or most recent event), did you have contact with or seek help from a medical doctor (your GP)?" (CIRCLE)

Yes - 1

No - 2 Don't know - 3 Can't remember - 4

GO TO Q13a.

Q12b. SHOW CARD I.1

"According to this card, how helpful did you find them in general?" (CIRCLE)

1 2 3 4 5 Dk - 6

Q12c. "I would like to ask you some questions about the services, help and assistance you received from your GP after the event (or most recent event). I am interested in your honest opinion, whether positive or negative. Thinking about the services you received from your doctor or GP after your trauma (or most recent trauma) ...?"

i) SHOW CARD I.2

"According to this card, how would you rate the quality of service you received from your doctor or GP?" (CIRCLE)

1 2 3 4 Dk - 5

ii) SHOW CARD I.3

"According to this card, did you get the kind of service you wanted?" (CIRCLE)

1 2 3 4 Dk - 5

iii) SHOW CARD I.4

"According to this card, to what extent did the Doctor or GP help meet your needs?" (CIRCLE)

1 2 3 4 5 Dk - 6

iv) SHOW CARD I.5

"According to this card, if a friend were in need of similar help, would you recommend you doctor or GP to him or her?" (CIRCLE)

1 2 3 4 Dk - 5

v) SHOW CARD I.6

"According to this card, how satisfied are you with the amount of help you received from your doctor or GP?" (CIRCLE)

1 2 3 4 5 Dk - 6

vi) SHOW CARD I.7

"According to this card, have the services you received from your doctor or GP helped you deal more effectively with your problems?" (CIRCLE)

1 2 3 4 Dk - 5

vii) SHOW CARD I.6

"According to this card, in an overall, general sense, how satisfied are you with the service you received from your doctor or GP?" (CIRCLE)

1 2 3 4 Dk - 5

viii) SHOW CARD I.5

"According to this card, if you were to seek help again, would you go back to the same doctor or GP?" (CIRCLE)

1 2 3 4 Dk - 5

Q13a. "Following the traumatic event (or most recent event), did you have contact with or seek help from other medical specialists?" (CIRCLE)

Yes - 1

No - 2 Don't know - 3 Can't remember - 4

GO TO Q14a.

Q13b. SHOW CARD I.1

"According to this card, how helpful did you find them in general?" (CIRCLE)

1 2 3 4 5 Dk - 6

Q14a. "Following the traumatic event (or most recent event), did you have contact with or seek help from a mental health professional such as a psychiatrist, counsellor, psychologist or social worker?" (CIRCLE)

Yes - 1

No - 2 Don't know - 3 Can't remember - 4

GO TO Q15a.

Q14b. SHOW CARD I.1

"According to this card, how helpful did you find them in general?" (CIRCLE)

1 2 3 4 5 Dk - 6

Q15a. "Following the traumatic event (or most recent event), did you have contact with or seek help from ACC staff?" (CIRCLE)

Yes - 1



No - 2 Don't know - 3 Can't remember - 4

GOTO Q16a.

Q15b. "Are you still in the process of making a claim with ACC?" (CIRCLE)

Yes - 1



No - 2

GOTO Q15c.

"Please answer the following questions according to how you have found ACC so far."

Q15c. "According to this card, how helpful did you find them in general?" (CIRCLE)

1 2 3 4 5 Dk - 6

Q15d. SHOW CARD I8

"You have said that you had some contact with or sought some help from ACC after the event or most recent event. How did that contact with ACC come about?" (CIRCLE OR RECORD ONE ONLY)

1 2 3 4

Other (SPECIFY) _____

Q15e. "I would like to ask you some questions about the services, help and assistance you received from ACC after the event (or most recent event). I am interested in your honest opinion, whether positive or negative".

i) SHOW CARD I.2

"According to this card and thinking about the services you received from ACC, after your trauma or most recent trauma, how would you rate the quality of service you received from ACC?" (CIRCLE)

1 2 3 4 Dk - 5

ii) SHOW CARD I.3

"According to this card, did you get the kind of service from ACC that you wanted?" (CIRCLE)

1 2 3 4 Dk - 5

iii) SHOW CARD I.4

"According to this card to what extent did ACC help meet your needs?" (CIRCLE)

1 2 3 4 5 Dk - 6

iv) SHOW CARD I.5

"According to this card, if a friend were in need of similar help, would you recommend ACC him or her?" (CIRCLE)

1 2 3 4 Dk - 5

v) SHOW CARD I.6

"According to this card, how satisfied are you with the amount of help you received from ACC?" (CIRCLE)

1 2 3 4 Dk - 5

vi) SHOW CARD I.7

"According to this card, have the services you received from ACC helped you deal more effectively with your problems?" (CIRCLE)

1 2 3 4 Dk - 5

vii) SHOW CARD I.6

"According to this card, in an overall, general sense, how satisfied are you with the service you received from ACC?" (CIRCLE)

1 2 3 4 Dk - 5

QI6a "Following the traumatic event(or most recent event), did you have contact with or seek help from clergy?" (CIRCLE)

Yes - 1

No - 2 Don't know - 3 Can't remember - 4

GO TO QI7a



QI6b. SHOW CARD I.1

"According to this card, how helpful did you find them in general?" (CIRCLE)

1 2 3 4 5 Dk - 6

Q17a. "Following the traumatic event(or most recent event), did you have contact with or seek help from any other professional?" (CIRCLE)

Yes - 1

No - 2 Don't know - 3 Can't remember - 4

GO TO Q18



Q17b. "What type of professional was that?" (RECORD)



Q17c. SHOW CARD I.1

"According to this card, how helpful did you find them in general?" (CIRCLE)

1 2 3 4 5 Dk - 6

Q18. CHECK BACK TO SECTION F. IF RESPONDENT ANSWERED 'YES' TO MORE THAN ONE QUESTION, CONTINUE, OTHERWISE SKIP TO SECTION J.

"I want you to think back to previous traumatic events which you experienced. Following any of those events, did you have contact with, or seek help from...?" (READ OUT LIST CIRCLING AS YOU GO)

	Yes	No	Don't know	Can't Remember
a. "Police?"	1	2	3	4
b. "Medical doctor (your GP)?"	1	2	3	4
c. "Other medical specialists?"	1	2	3	4
d. "Mental health professional such as psychiatrist, counsellor, psychologist or social worker?"	1	2	3	4
e. "ACC Staff?"	1	2	3	4
f. "Clergy?"	1	2	3	4
g. "Any other professional?" (SPECIFY)				
-----	1	2	3	4
-----	1	2	3	4

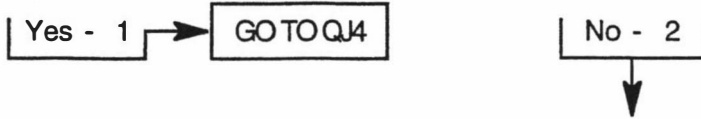
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SECTION J: DEMOGRAPHICS

QJ1. SEX (DO NOT ASK): Male - 1 Female - 2

QJ2. "In what year were you born?" (RECORD) 19 ____

QJ3a. "Are you currently married or living in a defacto relationship?" (CIRCLE)



QJ3b. SHOWCARD J1

"Which of the groups on this card best describes your marital or relationship status?" (CIRCLE ONE)

1 2 3 Don't know - 4

QJ4. SHOWCARD J2

"Which of the groups on this card best describes who you usually live with? Do not include people who are visiting or temporarily residing with you such as family or friends on holiday." (CIRCLE OR RECORD ONE)

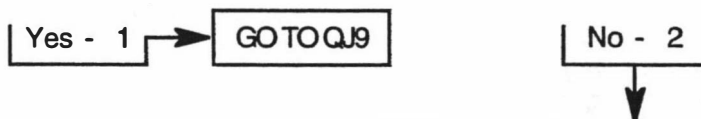
01 02 03 04 05 06 07
08 (SPECIFY) _____

QJ5. SHOWCARD J3

"Which of the groups on this card best describes what ethnic group you belong to?" (CIRCLE OR RECORD ONE)

01 02 03 04 05 06 07 08
09 (SPECIFY) _____

QJ6. "Were you born in New Zealand?" (CIRCLE)



QJ7. "In which country were you born?" (CIRCLE OR RECORD)

Australia - 01 Tonga - 02 Samoa - 03 Cook Islands - 04 Niue - 05

Other (SPECIFY) _____

QJ8a. "In years and months, how long have you lived in New Zealand?" (RECORD)

_____ years _____ months Don't know - X

QJ8b. "In years and months, how long have you lived in the town, city or rural area in which you currently live?" (RECORD)

_____ years _____ months Don't know - X

QJ9. SHOW CARD J4

"Which of the groups on this card shows your highest educational or job qualification?" (CIRCLE OR RECORD)

01 02 03 04 05 06 07

08 (SPECIFY) _____ Refused - X

QJ10. "Are you engaged in any paid employment?" (CIRCLE)

Yes - 1

No - 2

GOTO QJ13

QJ11. "How many hours do you work each week on average?" (RECORD)

_____ hours Don't know - X

QJ12. "What is your main paid job?" (PROBE AND RECORD FULLY)

QJ13. SHOW CARD J5

"Which of the groups on this card is most appropriate for you?" (CIRCLE ONE ONLY)

01 02 03 04 05 06

07 (SPECIFY) _____

QJ14. "What is your personal yearly income before tax? Include income from all sources."

(RECORD. REMEMBER, THE RESPONDENT MAY NOT KNOW HIS OR HER ANNUAL INCOME SO YOU CAN RECORD THE WEEKLY, FORTNIGHTLY OR MONTHLY AMOUNT IF THEY KNOW THAT INSTEAD. ALSO, WE DON'T NEED TO KNOW THE EXACT FIGURE - YOU CAN ROUND TO THE NEAREST \$1,000 OR NEAREST \$5,000 IF YOU LIKE)

\$____,000 YEARLY or \$_____ WEEKLY / FORTNIGHTLY / MONTHLY (CIRCLE ONE)

Refused - X

QJ15. SHOW CARD J6

"Which of the groups on this card best describes your current living arrangements?" (CIRCLE ONE)

01 02 03 04 (SPECIFY) _____

QJ16. "Do you have a working telephone in your home?" (CIRCLE)

Yes - 1

No - 2

QJ17. "Do you have access to a motor vehicle for your regular private use?" (CIRCLE)

Yes - 1 No - 2

QJ18. "Do you belong to any health insurance scheme which refunds any of your money when you pay fees or charges for health care?" (CIRCLE)

Yes - 1 No - 2 Don't know - 3

QJ19. "Do you have a high use health card or a 'chronically ill' certificate?" (CIRCLE)

Yes - 1 Have applied for one - 2 No - 3 Don't know - 4 Can't remember -

QJ20. "Do you have a community services card?" (CIRCLE)

Yes - 1 Have applied for one - 2 No - 3 Don't know - 4 Can't remember -

QJ21. SHOW CARD J7

"According to this card, which statement best describes how satisfied you are with your overall standard of living?" (CIRCLE)

Very dissatisfied - - 1
Dissatisfied - - - - - 2
Satisfied - - - - - 3
Very satisfied - - - - 4
Don't know - - - - - 5

QJ22. SHOW CARD J8

"According to this card, which statement best describes how you feel about your ability to get along on your income?" (CIRCLE)

Can't make ends meet - - - - - 1
Have just enough money - - - - - 2
Have enough with a little left over - 3
Always have money left over - - - - 4

QJ23. "Do you have any living brothers/sisters or children?" (CIRCLE)

Yes - 1 No - 2

QJ24. "Have you spoken on the phone with relatives and friends over the past two weeks?" (CIRCLE)

Yes - 1 No - 2 Don't know/can't remember - 3

QJ25. "Have you got together with relatives and friends over the past two weeks?" (CIRCLE)

Yes - 1 No - 2 Don't know/can't remember - 3

QJ26. "Have you attended church in the past two weeks?" (CIRCLE)

Yes - 1

No - 2

Don't know/can't remember - 3

QJ27. RECORD NUMBER OF PEOPLE IN HOUSEHOLD AGED 18 YEARS OR OVER FROM
SELECTION GRID: _____

CLOSE:

"Well that brings us to the end of our questionnaire. May I just have your first name and phone number in case my Supervisor wishes to check my work?"

NAME: _____ PHONE: _____

AREA OF INTERVIEW: _____

"Thank you for your time, it is much appreciated. As I said my name is Xxx and I'm from National Research Bureau."

(HAND FOLLOW UP SHEET AND ENVELOPE TO RESPONDENT)

CERTIFICATION: I hereby certify that this is a true and accurate record of an interview
conducted by me at the time and place specified. TICK WHEN CHECKED:

Interviewer Sign: _____

Date: _____

Area: _____

Supervisor Sign: _____

Field Check: _____

Doctoral Research Committee, Massey University
APPLICATION TO BE EXAMINED

Name: (in full) Paul Ryan Hirini

Address: C/- The School of Psychology, Massey University,
Turitea Campus, Palmerston North

I request that I be examined for the degree of Doctor of Philosophy in the following field(s): **Psychology**

Doctoral Candidate signed:



Supervisor: I approve/~~do not approve~~ that the thesis is ready for examination.
(please delete one)

Supervisor signed:



Date:

11/03/04



CERTIFICATE OF REGULATORY COMPLIANCE

This is to certify that the research carried out in the Doctoral Thesis entitled
"Ngā Ara Whaiora: He Whākaaro Noa. A Study of Māori Health Care Use: An
Evaluation of the Andersen Model" in the School of Psychology at Massey University,
New Zealand:

- (a) is the original work of the candidate, except as indicated by appropriate attribution in the text and/or in the acknowledgements;
- (b) that the text, excluding appendices/annexes, does not exceed 100,000 words;
- (c) all the ethical requirements applicable to this study have been complied with as required by Massey University, other organisations and/or committees which had a particular association with this study, and relevant legislation.

Candidate's Name: Paul Hirini

Signature: 

Date: 11/3/2004

Supervisor's Name: Ross Flett

Signature: 

Date: 11/3/2004



SUPERVISOR'S DECLARATION

This is to certify that the research carried out for the Doctoral thesis entitled "Ngā Ara Whaiora: He Whakaaro Noa. A Study of Māori Health Care Use: An Evaluation of the Andersen Model." was done by Paul Ryan Hirini in the School of School of Psychology, Massey University, (Turitea Campus), New Zealand. The thesis material has not been used in part or in whole for any other qualification, and I confirm that the candidate has pursued the course of study in accordance with the requirements of the Massey University regulations.

Supervisor's Name Dr. Ross Flett

Signature

R Flett

Date 11/03/2004



CANDIDATE'S DECLARATION

This is to certify that the research carried out for my Doctoral thesis entitled "Ngā Ara Whaiora: He Whakaaro Noa. A Study of Māori Health Care Use: An Evaluation of the Andersen Model." in the School of Psychology, Massey University, (*Campus*), New Zealand is my own work and that the thesis material has not been used in part or in whole for any other qualification.

Candidate's Name

Rayl Hiria:

Signature

Date 11/3/2004