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Health anxiety among older people:
A study of health anxiety and safety behaviours in a
cohort of older adults.

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Abstract

There is a pervasive stereotype that characterises older people as excessively anxious about their health; however, there is little research into this phenomenon. The present study examined three aspects of the subject. Firstly, the study considered whether a cohort of older adults was unduly health anxious. Secondly, determined which demographic and health factors contributed to health anxiety. Lastly, the study examined the relationship between health anxiety and safety behaviours and medical utilisation to determine whether this aspect of the cognitive behavioural model of health anxiety was applicable to older adults.

Participants were a convenience sample of individuals over 65 and living independently in the greater Auckland area. Participants completed an anonymous self report questionnaire measuring demographic factors, physical health and disability, health anxiety, safety behaviours and medical utilisation. 104 women and 41 men completed the survey.

Although a majority of participants reported some physical illness and limitations on physical activity this cohort of adults over 65 was not unduly health anxious. Only increased physical disability and lower education were significant contributors to scores on the health anxiety measure.

Consistent with the cognitive behavioural model of health anxiety; health anxiety was a significant predictor of safety behaviours. Demographic and health factors did not make a significant contribution to this relationship. Health anxiety also predicted medical utilisation, although increased disability was a better predictor.

In spite of stereotypes to the contrary, this cohort of over 65's was not excessively health anxious. Factors that contributed to scores on the health anxiety measure were similar to those found in other studies. The proposition that the cognitive behavioural model of health anxiety may be applicable to older people was supported. The implications of the findings and directions for future research were discussed.

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CHAPTER ONE

INTRODUCTION

Rationale and Research Questions

Research into the psychology of older people is becoming increasingly important because as life expectancy increases, the number of older people is rising. In addition, the 'baby boomer' generation (the name commonly given to those born in the period of increased birth-rate between 1946 and 1964) will reach 65 in 2011 which will further increase the proportion of older people compared to the general population. For example, Ministry of Health New Zealand statistics estimate that the population over 65 will increase from 12% of the population in 2002 to 25% in 2051 (Fletcher, 2002).

Worries about health and illness are a common experience and there is a perception that as a person ages, they become more preoccupied by and worried about their health. Although the incidence of health anxiety among older people is not known, the incidence of worry and anxiety about illness and health in the community has been reported to be between 6% and 13%, and it appears that health worry increases with age (Lindesay et al., 2006; Looper & Kirmayer, 2001, Rief, Hessel, & Braehler, 2001). A summary of the literature by Snyder and Stanley (2001) concluded that presentation of anxiety in both clinical and community samples of older adults tended to be dominated by health related fears. Elevated health worry has been associated with anxiety, depression, premature death in cardiac disease, high use of health care services and other help-seeking, poor subjective health and disability (Kubzansky et al., 1997; Looper & Kirmayer, 2001; Taylor & Asmundson, 2004). Hence health anxiety has the potential to be a significant barrier to the health and well being of older people. The present study gives an indication whether older people are highly health anxious and which factors are likely to contribute to health anxiety in an older population.

Cognitive behavioural theory characterises health anxiety as a continuum that ranges from normal and transient concerns about personal health to severe and persistent worry about health that may fulfil the criteria for clinical hypochondriasis (Warwick & Salkovskis, 1990). The cognitive behavioural model of health anxiety has strong empirical support and forms the theoretical background to this study (Marcus, Gurley, Marchi, & Bauer, 2007). There is no extant research on the applicability of this model to older populations (Snyder & Stanley, 2001). Establishing the utility of the cognitive behavioural model of health anxiety in older adults has potential to contribute to understanding health anxiety in this population.

Cognitive behavioural theory predicts that anxiety is maintained by specific behavioural consequences, called 'safety behaviours' (Salkovskis, 1991; 1996b). The literature describes the role of safety behaviours and their importance in therapy for disorders such as panic, and social phobia, however there is limited research into the role of safety behaviours in health anxiety. Health anxiety has been shown to predict safety behaviours and medical utilisation in a student sample (Abramowitz, Deacon, & Valentiner, 2007). The current study investigates this relationship in an older cohort.

In view of the lack of information about health anxiety among older people, the present study has three aims. Firstly, examine whether a cohort of older adults are unduly health anxious. Secondly, determine which demographic and health factors contribute to health anxiety. Lastly, investigate whether an aspect of the cognitive behavioural model of health anxiety is applicable to older adults. This is empirically examined by investigating the relationship between health anxiety and safety behaviours and medical utilisation. These aims were realised by conducting a survey study among a cohort of community dwelling older adults. The survey was carried out by means of an anonymous self-report questionnaire specifically designed for this project.

Structure of the Report

The most commonly used terms to describe anxiety and worry about health are health anxiety and hypochondriasis. Although anxieties about health occur in many anxiety disorders, most research in this field has been conducted into hypochondriasis and this research is the focus of the current review.

When researching the topic of health anxiety, there are a number of overlapping concepts, Chapter 2 untangles these and set the definitions used throughout this report. Chapter 3 considers the prevalence of health anxiety. Theoretical explanations for health anxiety with a focus on cognitive behavioural theory are discussed in Chapter 4. Chapter 5 considers the concept of safety behaviours. An integration and overview with specific reference to older populations and study hypotheses is provided in Chapter 6. Methodology is described in Chapter 7, followed by results in Chapter 8. Discussion of results is provided in Chapter 9 together with limitations of the study and suggestions for future research. The conclusion of the report is presented in Chapter 10.

CHAPTER TWO

DEFINING HEALTH ANXIETY

Defining the topic of study is an important first step in research. To provide a wide perspective on health anxiety, this discussion first touches on the concepts of illness behaviour and somatisation. The history of hypochondriasis from ancient times to current diagnostic criteria is then briefly reviewed. Finally, various definitions of health anxiety are described and the definition of health anxiety that is used throughout this report is set out.

Illness Behaviour

The term 'Illness behaviour' was first introduced by Mechanic and Volkart in 1961, and describes the way in which an individual behaves when faced with symptoms of ill health. Illness behaviour is complex and is influenced by medical, psychological, demographic, social and economic factors (see Young, 2004 for a review). Illness behaviour exists along a spectrum from denial through adaptive behaviour to exaggeration of illness (Kirmayer & Looper, 2006). Behaviour that falls at either end of the spectrum is called 'abnormal illness behaviour' (Pilowsky, 1967). Somatisation and hypochondriasis are manifestations of abnormal illness behaviour, whereas health anxiety may encompass the continuum from adaptive to abnormal illness behaviour.

Somatisation

In the literature 'somatisation' is used to describe a form of abnormal illness behaviour in which physical symptoms and illness are experienced that are not fully explained by medical illness (Kirmayer & Looper 2006). Somatic concerns may be a feature of transient emotional distress and clinical disorders such as panic disorder, depression and hypochondriasis.

Hypochondriasis

Somatic complaints with no discernable physical cause have been recognised since Grecian times (Berrios, 2001). The 'Hypochondrium' (the abdominal region under the ribcage) was considered by the Greeks to be the source of emotional distress and this view was held until the 17th century. Later, hypochondriasis was considered to be a nervous disorder and brain disease. By 1850, writers had acknowledged that hypochondriasis was equated with insanity and could be confused with physical disease.

It was not until the publication of the second edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-II, American Psychiatric Association, 1968) that a diagnosis of 'Hypochondriasis' was formalised as a mental disorder that was manifest as the fear of having a disease or preoccupation with bodily functions that persist in spite of there being no discernable disease. This definition has been refined over subsequent revisions of the DSM. Current diagnosis of hypochondriasis requires an individual to exhibit a preoccupation with and erroneous belief that they have a serious disease and that this belief persists in spite of 'appropriate medical reassurance' (American Psychiatric Association [APA], 2000).

The diagnosis of hypochondriasis within existing nosologies is considered by some to be inadequate (e.g. Rachman, 2001; Williams, 2004). There are several controversies in the diagnosis of hypochondriasis, including whether hypochondriasis should be categorised as a somatoform or anxiety disorder, whether hypochondriasis should be a categorical or dimensional diagnosis, and whether current diagnostic criteria are suitable for older populations (e.g. Kirmayer & Looper, 2006; Noyes, 1999; Noyes, Stuart, & Watson, 2008; Schmidt, 1994; Starcevic, 2001; Wijeratne & Hickie, 2001). While the scope of this project precludes the detailed analysis of these contentious issues; within the clinical psychology literature the concept of 'health anxiety' has been introduced as a means of addressing some of these controversies, and this are discussed next.

Health Anxiety

Health anxiety is an ambiguous term and has been variously described as an adaptive response to health threats or worry about illness (Asmundson, Taylor, Sevgur, & Cox, 2001), a non-specific abnormal illness behaviour that is responsive to reassurance (Fava & Mengelli, 2001), a form of and a synonym for hypochondriasis (Rachman, 2001; Salkovskis & Warwick, 1986), a spectrum of disorder that encompasses unwarranted anxiety about health and disease phobia through hypochondriasis to somatic delusions (Taylor & Asmundson, 2004) and finally, a continuum of behaviours and cognitions from mild concern about bodily symptoms through to obsessive thoughts about and preoccupation with, illness (Salkovskis & Warwick, 1986).

Anxiety about health is often an individual's normal and adaptive response to changes in health status and in this context health anxiety is used interchangeably with illness worry to describe an unspecified level of concern about illness or poor health (Asmundson et al., 2001). This anxiety fades when the individual seeks appropriate medical advice and care.

Another use of 'health anxiety' is a diagnostic category to explain 'sub syndromal' or abridged hypochondriasis (Fava & Mengelli, 2001). In this case, health anxiety is described as worry about health that becomes disproportionate to the level of threat, but in contrast to hypochondriasis responds to medical reassurance; however, new worries may appear after some time.

A diagnosis of hypochondriasis has long been contentious and remains so today. Hypochondriasis is deemed by many to be a pejorative term, synonymous with 'imaginary disease' or 'malingerer' (Lipsitt & Starcevic, 2001). It is considered by clinicians and researchers that 'health anxiety' might be a more acceptable label that is also more inclusive of anxiety about health that occurs in conjunction with other conditions such as depression and anxiety (Salkovskis & Warwick, 1986). In this context, some writers have suggested

that 'health anxiety disorder' might be a more inclusive description of behaviours ranging from acute anxiety about health to somatic delusions (Noyes et al., 2008; Taylor & Asmundson, 2004).

A careful definition of health anxiety has the potential to attenuate the unacceptability of a diagnosis of hypochondriasis, acknowledge that categorical diagnostic criteria for hypochondriasis may exclude individuals with significant debilitating health worries and finally, that worry and anxiety exist on a continuum from the adaptive to maladaptive and a diagnostic model that recognises this may be more useful in clinical practice.

A definition of health anxiety that encompasses the criteria described above has been proposed within a cognitive behavioural paradigm. In this case, health anxiety is a continuum from 'mild concern' about a symptom to a preoccupation with illness that dominates the individual's life (Lucock & Morley, 1996; Salkovskis & Warwick, 1986). In some cases, the individual at the dysfunctional end of the spectrum would receive a diagnosis of hypochondriasis. This definition acknowledges health anxiety that occurs as part of other clinical disorders. The theoretical basis for this study is the cognitive behavioural model, therefore this last definition has been adopted for this study.

Summary

The concept of illness behaviour was introduced to describe an individual's reactions when faced with a threat to their well being. Sometimes these reactions are a source of distress to the individual and have been described as abnormal illness behaviours. Exaggeration of illness is part of this spectrum and descriptions such as somatisation, hypochondriasis and health anxiety are frequently used interchangeably. For the purposes of this study health anxiety describes the spectrum of illness behaviour from adaptive to maladaptive and which may include hypochondriasis. Hypochondriasis refers to the clinical

condition, unless noted otherwise. When discussing the research literature, the terminology used reflects that used in the original reports.

CHAPTER 3

EPIDEMIOLOGY AND CONSEQUENCES OF HEALTH ANXIETY

An examination of the incidence and consequences of health anxiety illustrates the importance of this condition. There is little or no extant epidemiological research on health anxiety per se and most information is from studies of the occurrence of the related constructs of hypochondriasis, sub-syndromal hypochondriasis and illness worry. This chapter firstly examines the prevalence of hypochondriasis in primary care settings and the community, then the incidence of illness worry. The review touches briefly on health anxiety that occurs as part of other disorders and finally, discusses the risk factors for and consequences of these conditions.

Hypochondriasis

Measurement of the incidence of hypochondriasis is complicated by methodological concerns (Noyes, 2001; 2004). Under current nosologies diagnosis is categorical and may only be confirmed if there is no medical reason for the condition. This carries the implication that researchers should access medical opinion or medical records to verify diagnosis. The alternative to this rigorous approach is to measure incidence using either a structured interview or a self report questionnaire with a cut-off score that can reliably diagnose hypochondriasis. To complicate matters further, diagnostic criteria exclude individuals with comorbid conditions such as depression and anxiety, which may rule out those with acute health anxiety that occurs as part of these conditions. As a consequence of these methodological difficulties, prevalence studies of hypochondriasis give highly variable results and incidence increases when hypochondriasis is considered as dimensional construct.

Frequent attendance at primary care facilities is a characteristic of hypochondriasis and most prevalence studies take place in medical settings (Kirmayer & Loper, 2001). Creed and Barsky (2004) reviewed eleven studies in primary care and found incidence of

hypochondriasis ranged from .8% to 6.3%. Estimates from medical settings may be confounded by treatment seeking and community studies give a better assessment of prevalence.

The review by Creed and Barsky (2004) found only four studies conducted in community populations and incidence of hypochondriasis ranged from .2% to 7.7%. More recently, two studies of hypochondriasis in German samples found the incidence of DSM-IV hypochondriasis was .4% and .05%, (Bleichhardt & Hiller, 2007; Martin and Jacobi, 2006). For the majority of these studies, determination of a diagnosis of hypochondriasis was made by questionnaire and not from medical examination. A methodologically important study was carried out by Faravelli and colleagues (1997). The study was conducted in a representative community sample in Florence (Italy). Interviews were carried out by General Practitioners (GP) with psychiatric training and interviewers had access to the medical records of the participants to assist with their diagnosis of somatoform disorders. These researchers reported the one year prevalence of DSM-III hypochondriasis as 4.5%. There are even fewer studies that have specifically targeted older populations.

The literature search found two community studies of a population of over 65's. One study was conducted in Liverpool (UK) and Zaragoza (Spain), and the other in United Arab Emirates (Ghubash, El-Rufaie, Zoubeidi, Al-Shboul, & Sabri, 2004; Saz, Copeland, de la Camara, Lobo, & Dewey, 1995). The reported prevalence of hypochondriasis ranged from 1.1% to 4.4%. There are no epidemiological studies of hypochondriasis or other somatisation disorders in New Zealand. The recent Mental Health Survey carried out by the Ministry of Health did not include hypochondriasis in their assessments (Oakley Browne, Wells, & Scott, 2006).

More significantly for this study, prevalence statistics are greater when either diagnostic criteria are relaxed or when the incidence of health anxiety or illness worry is measured.

Illness Worry

Several studies have shown that sub-syndromal hypochondriasis is more prevalent than hypochondriasis. For example, a large international study carried out in primary care settings across 14 countries found that incidence of hypochondriasis was .8%, but if the criterion of 'resistance to reassurance' was dropped, prevalence rose to 2.2% (Gureje et al., 1997). Studies in community populations have shown similar results. For example, Looper and Kirmayer (2001) studied a Canadian community sample. The incidence of hypochondriasis was reported as .2% (one participant out of 533) and abridged hypochondriasis 1.3%.

When the criteria are widened to include those with health anxiety or illness worry, prevalence rises again. A number of studies have found incidence of health anxiety ranging from 2.12% to 13% (Bleichhardt & Hiller, 2007; Looper & Kirmayer, 2001; Martin and Jacobi, 2006; Noyes, Carney, Hillis, Jones, & Langbehn, 2005; Rief, Hessel, & Braehler 2001). Looper and Kirmayer reported 'illness worry' in 6.2% of their study population. Similarly Bleichhardt and Hiller found although prevalence of hypochondriasis was only .4%, severe health anxiety was reported by 6% of the survey population. A contributor to the incidence of health anxiety may be anxieties about health that occur in the context of other conditions.

Health Anxiety in Other Conditions

Although health anxiety is primarily associated with hypochondriasis, it is frequently a feature of anxiety disorders (Noyes, 1999). Anxiety has high prevalence in community samples. For example, the recent New Zealand Mental Health Survey reported 12 month prevalence of any anxiety disorder across all age groups as 14.8% and in adults over 65 as 6% (Oakley Brown et al., 2006). Anxiety about health is part of the expression of anxiety disorders such as panic, generalised anxiety disorder (GAD), obsessive-compulsive disorder (OCD) and specific phobia (Noyes, 1999). In primary care samples, the

comorbidity of hypochondriasis and anxiety disorders is very high (Barsky, Barnett, & Cleary, 1994). For example, between 25% and 59% of panic patients may exhibit symptoms of health anxiety (Barsky et al., 1994; Warwick & Salkovskis, 1990). Health anxiety and panic are very similar as both feature catastrophic misinterpretation of bodily sensations as core characteristics (Warwick & Salkovskis, 1990). The key differentiating feature is that in panic, the catastrophe is more immediate than in acute health anxiety (e.g. interpreting heart related symptoms as an imminent heart attack versus heart disease). Worries about health are frequently a feature of GAD, especially as age increases (Montorio, Nuevo, Marquez, Izal, & Losada, 2003; Noyes 1999). Obsession and compulsions in OCD are often health focussed and specific phobia of illness may be considered as part of the spectrum of health anxiety (Noyes, 1999).

Health anxiety may also be part of the presentation of depression (Noyes, 2001). Prevalence of hypochondriacal symptoms among depressed inpatients has been reported between 18% and 69% (see Noyes, 2001 for review). Rates among older adults may be as high as 60% to 64%.

Regardless of the underlying cause of health anxiety, the consequences can be debilitating and these are considered next.

Consequences of Hypochondriasis and Health Anxiety

A large international study by Gureje et al., (1997) found that there was little difference in the negative consequences of both hypochondriasis and abridged hypochondriasis. Both were associated with disorders such as depression and generalised anxiety disorder, poor self perceived health, greater physical disability and high use of health services.

As noted above, the incidence of 'illness worry' in the general population is higher than hypochondriasis or sub-threshold hypochondriasis however the negative consequences may be equally debilitating. Illness worry contributes to high levels of distress, health care

utilization and disability (Bleichhardt & Hiller, 2007; Loooper & Kirmayer, 2001; Martin & Jacobi, 2006; Noyes et al., 2005). A detailed study of a US sample found that the 1 month incidence of illness worry was 13.1% and worry for 6 months or more was 6%, although none of the participants met the full criteria for hypochondriasis, most were functionally impaired, and were high users of health care (Noyes et al., 2005). Similarly, Loooper and Kirmayer (2001) found illness worry was associated with negative effects on function and health status independent of physical illness. Elevated health anxiety also contributes to increased work disability and death in cardiac disease and negative reactions to health screening (Hlatky et al., 1986; Kubzansky et al., 1997; Rimes & Salkovskis, 2002).

Risk Factors for Health Anxiety

It is uncertain which characteristics contribute to health anxiety. Health anxiety and somatisation occurs across cultures, although manifestations differ (Kirmayer & Young, 1998; Gureje et al., 1997). Elevated levels of hypochondriacal concerns and illness worry have been associated with lower education, and disability (Creed & Barsky, 2004; Kirmayer & Loooper, 2001; Loooper & Kirmayer, 2001). There does not appear to be a relationship between health anxiety and demographic factors such as marital status and gender. The relationship between physical illness and health anxiety is not clear. Physical illness may not contribute to health anxiety and hypochondriasis (Barsky, Cleary, & Klerman, 1992, Loooper & Kirmayer, 2001), although illness severity and health anxiety may be correlated (Kirmayer & Loooper, 2001). Epidemiological evidence for an association between increasing age and increased health anxiety is also equivocal. Whereas there is little evidence of a correlation between age and hypochondriasis (Creed & Barsky, 2004; Barsky, Frank, Cleary, Wyshak, & Klerman, 1991), epidemiological studies show health anxiety increases with age (e.g. Bleichhardt & Hiller, 2007; Rief, et al., 2001). This topic is explored further in Chapter 6.

Summary

Hypochondriasis is rare in the community; however, there is a higher incidence of illness worry and health anxiety. Some of this increased incidence may be attributable to health anxiety that occurs as part of other disorders such as anxiety and depression. The negative consequences of health anxiety are similar to those of full hypochondriasis, which include anxiety, depression, disability, high health care use and poor subjective health. Risk factors for elevated health anxiety include lower education and decreased physical function. Severity of illness and not physical illness per se may contribute to high health anxiety. The existing literature suggests that although hypochondriasis may not be associated with age, illness worry may increase with age. The relationship between age and health anxiety is discussed further in Chapter 6.

CHAPTER 4

THEORIES OF HEALTH ANXIETY

There are a number of theoretical models that have been proposed to explain hypochondriasis and health anxiety. Key theoretical models that have been suggested are: psychodynamic, social learning, personality and cognitive behavioural (Sadock & Sadock, 2003). This chapter provides an outline of the various theories and concentrates on cognitive behavioural theory as this has the most comprehensive empirical support and forms the theoretical background for this study.

Theoretical Models of Health Anxiety

Current theoretical understanding of hypochondriasis is based on psychodynamic, social learning, personality and cognitive behavioural models (Sadock & Sadock, 2003). Psychodynamic theory of health anxiety suggests that aggression and hostility are expressed through displacement as physical complaints (Lipsitt, 2001; Sadock & Sadock, 2003). Alternatively, hypochondriasis is explained as a defensive mechanism against guilt or atonement for wrong doing. Interpersonal theory suggests that adoption of the 'sick role' allows an individual to not only elicit care, but also escape from problems postpone action and be excused from normal activities (Noyes, 2004; Sadock & Sadock, 2003). Although these theories have clinical utility, there is a dearth of empirical data to support them and they are not explored further here (Lipsitt, 2001; Taylor & Asmundson, 2004; Warwick & Salkovskis, 1990).

There is some evidence to support the role of personality in health anxiety (McClure & Lilienfeld, 2001). There is a reliable and moderate association between negative emotionality and health anxiety. High levels of negative emotionality do not always lead to health anxiety which suggests that other factors such as environment may be equally important. Some writers suggest that hypochondriasis may be a personality disorder because of early onset and an enduring maladaptive pattern of behaviour. Alternatively, health

anxiety may be a manifestation of a dysfunctional personality rather than a separate personality disorder.

Lastly, cognitive behavioural theory assumes a health anxious person augments somatic sensations and focuses on bodily sensations which are misinterpreted due to faulty cognitive schema (Sadock & Sadock, 2003; Salkovskis & Warwick, 2001a, b). This is considered in greater detail in the following sections.

Cognitive Behavioural Theory

The cognitive behavioural theory of health anxiety is an extension of the cognitive behavioural theory of anxiety. The discussion briefly reviews this theory, then moves on to the specific theoretical predictions of and empirical support for cognitive behavioural theory of health anxiety.

Cognitive Behavioural Theory of Anxiety

The cognitive theory of anxiety is derived from Beck's (1976) cognitive theory of emotion that states that emotion arises from a cognitive appraisal and interpretation of an event. This interpretation depends on previous experiences, the context of the event and mood. Anxiety is a normal and adaptive reaction to threat information, however in some individuals this threat assessment becomes distorted and the individual perceives greater risk and threat in an event than objective assessments would imply.

Cognitive behavioural theory of anxiety hypothesises that anxiety arises when the individual believes that an event threatens physical or social harm; the interpretation or misinterpretation of this event drives the individual's actions (Beck, Emery, & Greenburg, 1985). The theory proposes that if cognitive processes become 'stuck' then anxiety can rise to disabling levels. In this formulation, anxiety is a continuum and the degree of anxiety depends on perceptions of the probability and awfulness of the event. The perceived ability

of the individual to cope with the event and the probability of rescue reduce anxiety.

Salkovskis (1996b) illustrated this as:

$$\text{Anxiety} = \frac{\text{probability} \times \text{awfulness}}{\text{Coping} + \text{rescue}}$$

Salkovskis and Warwick (1986; Warwick & Salkovskis, 1990) propose that hypochondriasis is an extreme manifestation of anxiety about health and extend the general cognitive formulation of anxiety to include health anxiety. In this case the feared event is illness or some other health related experience.

Cognitive Behavioural Theory of Health Anxiety

Cognitive behavioural theory of health anxiety states that innocuous symptoms and stimuli are (mis) interpreted as a serious threat to health or a sign of illness (Salkovskis, 1996a; Salkovskis & Warwick 1986; Warwick & Salkovskis 1990). Cognitive theory assumes that a predisposition and/or prior experience leads to the development of dysfunctional assumptions about health and illness. A 'critical incident' then triggers these schema and negative interpretations which then lead to elevated health anxiety. The discussion first reviews empirical support for the likely predisposing factors of biology, genetics and childhood experience in the development of health anxiety, then the evidence for the role of critical incidents. Finally, support for cognitive and perceptual factors is reviewed.

Biology and Genetics: There is limited support for the place of biological or genetic factors in the aetiology of health anxiety. Some research suggests that the serotonergic system may be implicated in somatisation, others that dysfunction of the hypothalamic-pituitary-adrenal (HPA) axis contribute to somatic disorders such as chronic fatigue (Kirmayer & Looer, 2006). However there is no empirical evidence to show the relevance of these factors to health anxiety (Taylor & Asmundson, 2004).

There is also little clear evidence that hypochondriasis is heritable. A review of family and twin studies by Noyes (2004) concluded that aspects of somatisation but not hypochondriasis may be heritable. More recently, a twin study concluded that most of the individual differences in health anxiety were accounted for by environmental differences, not genetics (Taylor, Thordarson, Jang, & Asmundson, 2006).

Childhood environment: There is evidence to show that trauma in childhood, early illness experiences and death of a family member contribute to the development of hypochondriasis (Barsky, Wool, Barnett, & Cleary, 1994; Noyes et al., 2002; Noyes, 2004). The conclusions of these cross-sectional studies are strengthened by a longitudinal study in London which reported adult somatisation is correlated with parental lack of care and childhood illness (Craig, Boardman, Mills, Daly-Jones, & Drake, 1993). The role of parental lack of care in development of insecure attachment and clinical distress is well documented (see Main, 1996 for review). The association between early trauma, insecure attachment and hypochondriacal symptoms has been demonstrated in both medical and community samples (Noyes et al., 2002; Waldinger, Schulz, Barsky, & Ahern, 2006).

Critical incident triggers: Cognitive theory assumes that health anxiety is activated by external or internal health related events. Clinical observation has shown that negative events such as a cancer diagnosis or illness of a close friend or family member can trigger health anxiety (Salkovskis & Warwick, 2001a, b). There are few studies of the relationship between critical incidents, life events and the development of health anxiety (Noyes, 2004; Marcus et al., 2007). An epidemiological study by Looper & Kirmayer (2001) indicated life events were more common for participants with illness worry than those without illness worry. A recent study of hypochondriasis patients by Abramowitz and Moore (2007) showed that exposure to idiosyncratic triggers caused health anxiety to rise. A review by Marcus et al. (2007) reported only two relevant experimental studies. One study found health anxiety was elevated when participants were exposed to information that they were at

risk for serious illness (Lecci & Cohen, 2002), however the other study did not show this effect (Marcus, 1999).

Cognitive and perceptual factors: There is clear empirical support for the position of cognitive and perceptual factors in the development and maintenance of health anxiety and these form the basis of the cognitive behavioural model of health anxiety (Marcus et al., 2007; Salkovskis & Warwick, 2001a, b; Taylor & Asmundson, 2004). Key elements of the model are dysfunctional beliefs and assumptions about illness, misinterpretation of bodily sensations and negative cognitions about illness.

A meta-analysis by Marcus and colleagues (2007) found evidence that individuals with high levels of health anxiety have dysfunctional beliefs and assumptions about illness related constructs and the effect was greater in clinical than in non-clinical samples. This research examined results from 16 cognitive content studies and five cognitive process studies. Typical cognitive content studies examined catastrophic interpretations of bodily complaints and pain. For example, Barsky, Coeytaux, Sarnie, and Cleary (1993) compared hypochondriacal patients with a non clinical group on their responses to the Health Norms Sorting task in which the participant classifies symptoms as 'healthy' or 'not healthy'. Patients with hypochondriasis were more likely to endorse a significantly higher number of symptoms as signs of disease. The researchers concluded that patients with hypochondriasis mistakenly believe good health is symptom free. Typical cognitive process studies operationalise selective threat attention as memory bias for illness related words (e.g. Hitchcock & Matthews, 1992; Owens, Asmundson, Hadjistavropoulos, & Owens, 2004). Meta-analysis of 21 cognitive process studies by Marcus and colleagues found a moderate effect size of .28. The authors noted that a high level of heterogeneity across the studies was largely accounted for by the differences between clinical and non-clinical populations.

Clinical observation suggests that individuals high in health anxiety misinterpret the significance of minor bodily changes and think that they signify deadly disease (Barsky,

2001). Barsky, Wyshak, & Klerman (1990) have developed a self report questionnaire to measure the tendency to amplify bodily sensations (Somatosensory Amplification Scale, SAS). Barsky and colleagues found the SAS measure is highly correlated with measures of health anxiety and hypochondriasis. Meta-analysis of eleven studies of the relationship between health anxiety and somatosensory amplification confirmed this conclusion, finding a 'robust effect size' of .42 (Marcus et al., 2007). In contrast, studies to measure awareness of physical phenomena indicate that individuals with elevated health anxiety may not be more accurate than other people in detecting physical changes (Barsky, 2001). Meta-analysis of nine studies that measured accuracy of bodily perception gave a non significant effect size (Marcus et al., 2007). For example, patients with hypochondriasis were no more aware of changes in heart beat than a non-clinical control group (Barsky, Brener, Coeytaux, & Cleary, 1995). These results suggest that although self report of somatosensory amplification is high, an individual with high health anxiety may not be accurate in their perception of physical sensations (Barsky, 2001; Marcus et al., 2007).

Negative cognitions about threat and danger of illness have been shown in several studies. For example, Haenen, de Jong, Schmidt, Stevens, & Visser, (2000) reported that hypochondriacal patients had higher estimates of negative outcomes in ambiguous situations than a non-health anxious group. Others have reported that increased health anxiety is related to greater assessments of disease risk (Hadjistavropoulos, Craig, & Hadjistavropoulos, 1998). In a non-clinical group, Marcus (1999) found that high health anxiety was correlated with a belief in catastrophic outcomes. Other research has indicated a correlation between health anxiety and estimates of the probability that symptoms indicate serious illness (Marcus & Church, 2003).

Summary

Health anxiety may be learned behaviour arising from early childhood experiences such as illness, parental neglect and abuse. These factors give rise to an insecure attachment

style that has been associated with hypochondriacal concerns. In addition, certain personality traits and cognitive and perceptual processes contribute to the development of health anxiety in some individuals. One theoretical model that integrates most of these features is the cognitive behavioural theory.

There is a large body of evidence that supports the cognitive and perceptual aspects of cognitive theory of health anxiety. A meta-analytic study has shown empirical support for most aspects of cognitive behavioural theory of health anxiety. There is clinical evidence for the importance of critical incidents or triggers in the development of health anxiety; however experimental evidence is contradictory.

The next chapter explores factors that contribute to the maintenance of health anxiety.

CHAPTER 5

SAFETY BEHAVIOURS AND HEALTH ANXIETY

Cognitive theory of anxiety presupposes that threat appraisal and anxiety is maintained by selective attention to threat, physiological change and behavioural response (Salkovskis, 1996a; 1996b). Chapter 4 outlined empirical evidence for maladaptive information processing and physiological reactions in health anxious individuals and is not revisited here. This chapter discusses the behavioural consequences of health anxiety.

Safety Behaviours

Classical behavioural theory proposes that fear is extinguished if the individual is exposed to the feared object until the anxiety dissipates (Salkovskis, 1996a, b). Anxiety is not extinguished if exposure is either prevented by avoidance behaviour or terminated (or shortened) by some form of escape behaviour. Escape from, or avoidance of, the anxiety provoking situation creates a relief from the anxiety, leading to a compulsion to seek further escape when anxiety rises again. Thus, avoidance behaviour prevents exposure to the feared situation and reinforces anxiety. In anxiety disorders such as panic disorder, a 'neurotic paradox' occurs, in which anxiety persists in spite of repeated experiences of being unharmed by a feared situation (Salkovskis, Clark, Hackmann, Wells, & Gelder, 1999). Cognitive theory proposes that for example; an individual may believe that they are experiencing a heart attack during panic, however they also believe that by performing certain behaviours (e.g. avoiding physical activity) they will avert this frightening catastrophic event.

The concept of 'safety behaviours' was developed as a means of describing this constellation of often idiosyncratic behaviours that reduce short term anxiety and prevent long term cognitive change (Salkovskis, 1991; 1996a, b; Salkovskis, et al., 1999). Thus safety behaviour maintains anxiety because it prevents disconfirmation of the feared disaster (Salkovskis, Clark, & Gelder, 1996).

When faced with a frightening situation, most people have developed coping strategies to help reduce anxiety. Frequently, adaptive coping and safety behaviours lie on a continuum, the difference between them being determined by intention, function and benefit to the individual (Salkovskis, 1996a; Thwaites & Freeston, 2005). The intention behind the behaviour is important. Coping relieves anxiety, but safety behaviour averts catastrophe. For example, an adaptive response to illness cues may be to visit the doctor. However in a highly health anxious individual, minor illness information is misinterpreted as serious disease. Catastrophic interpretation of the illness cues and possible ambiguity of reassurances, leads to repeated attempts to obtain reassurances from family and a variety of medical professionals. This behaviour maintains and increases attention to and negative cognitions about disease and illness. Reducing reliance on or eliminating safety behaviours is an important component of cognitive behavioural therapy for anxiety disorders. Studies have shown the effectiveness of reducing reliance on safety behaviours in conditions such as social phobia, claustrophobia, insomnia, health anxiety, panic, and pain disorders (e.g. Harvey, 2002; Morgan & Raffle, 1999; Powers, Smits, & Telch, 2004; Ree & Harvey, 2004; Salkovskis et al., 1999; Salkovskis & Warwick, 1986; Tang et al., 2007; Wells et al., 1995).

Safety Behaviours in Health Anxiety

Clinical observation suggests that there are four categories of safety behaviours in health anxiety, reassurance seeking, checking, avoidance and safety signals (Taylor & Asmundson, 2004).

Reassurance seeking is considered to be the most problematic safety behaviour because the highly health anxious person repeatedly seeks guarantees that their worrying symptoms do not mean that they have a serious illness (Salkovskis & Warwick, 2001a, b). This behaviour frequently has negative effects on interpersonal relationships with medical personnel, friends and family. Although 'reassurance' is an ill defined concept, it is generally accepted that it is an assertion that 'nothing is wrong' (Starcevic, 2001). When

faced with worrying symptoms, most people consult others such as family and medical professionals to gain reassurance about the seriousness or otherwise of their symptoms. Health anxious individuals repeatedly seek reassurance from a variety of sources such as friends, family, doctors, other health professionals, health help lines and internet chat rooms (Salkovskis & Warwick, 2001a, b; Taylor & Asmundson, 2004). In the short term, reassurance reduces anxiety, but in high health anxious individuals, these effects are short lived (Lucock, White, Peake, & Morley, 1998; Salkovskis & Warwick, 1986). The reasons for the transient effects are uncertain. Some studies have shown that high health anxiety is associated with incorrect and biased recall of the reassurance information given (Lucock et al., 1998; Rief, Hietmuller, Reisburg, & Ruedel, 2006). Intolerance of uncertainty may also be a factor, (Taylor & Asmundson, 2004). For example, conflicting messages from physicians and ambiguity of medical test results may increase uncertainty and disease focus. Within the cognitive behavioural paradigm, it may be considered that health anxiety persists because of and not in spite of reassurances (Salkovskis & Warwick, 1986).

Bodily checking is a common response to anxiety about health (Taylor & Asmundson, 2004). Bodily checking includes palpating or prodding areas of inflammation or pain, checking bodily functions and repeated checking of pulse or blood pressure. Such behaviour occurs on a continuum from the adaptive, for example occasionally checking whether a rash is worsening, to continuous checking that increases symptoms and preoccupation with potential disease.

Avoidance of a fear provoking situation is common in anxiety. Individuals who fear contracting a disease (sometimes described as illness phobia) avoid health related information or contact with people who are ill (Taylor & Asmundson, 2004). Once again this may be a highly adaptive behaviour if for example an individual does not visit a friend to avoid contracting influenza. However, this avoidance becomes maladaptive if the person believes that they are at high risk of contracting a disease and therefore avoids any contact

with people who are ill, avoids hospitals and other medical facilities, medical tests and any information about illness e.g. media and books.

The last and most idiosyncratic type of safety behaviour is reliance on safety signals (Taylor & Asmundson, 2004). These may range from wearing a medic alert bracelet or carrying a doctor's phone number, to having medical equipment such as a defibrillator. Again, highly adaptive coping strategies in the face of actual disease, but maladaptive if they are performed to protect the individual from a feared event.

The significance of safety behaviours to the cognitive model of health anxiety has not been extensively studied. A case study by Salkovskis and Warwick (1986) illustrated the relationship between 'reassurance' and the maintenance of health anxiety. Treatment of two people with hypochondriasis was reported. In both cases, reassurance gave a reduction in health anxiety followed by a return to original anxiety levels. During treatment, the patients were prevented from seeking reassurance from any source, including health professionals, family members and medical texts. This resulted in a long-term reduction in anxiety. The authors concluded that reassurance may be a form of avoidance behaviour that maintains health anxiety.

More recently, Abramowitz and Moore (2007) demonstrated that safety behaviours produce a rapid reduction in anxiety in hypochondriasis patients. In this experimental study, 27 patients with hypochondriasis were separated into two groups and exposed to individual health related stimuli. Examples of triggers were 'looking at a sore on her arm', 'dry mouth', 'entertaining images of one's own funeral' and 'eating food past the "sell by" date'. The safety behaviour condition group was instructed to perform safety behaviours such as; seeking reassurance from a parent, information seeking on internet, taking a benzodiazepine and monitoring blood pressure. The response prevention group was instructed to refrain from all safety behaviours and were given other tasks to perform (e.g. playing a video game or knitting). Measurement of subjective anxiety showed that after exposure, anxiety

increased and that safety behaviours reduced anxiety immediately. For the response prevention group, anxiety only subsided gradually. These findings demonstrated the role of safety behaviours in reducing health related anxiety. The relationship between health anxiety and safety behaviours has also been demonstrated in a non-clinical sample.

As part of a larger study by Abramowitz, Deacon, & Valentiner (2007), 442 medically healthy university students completed measures of health anxiety and safety behaviours. Safety behaviours measured included medical visits, discussing health with family and friends, information seeking from the internet and medical texts, and bodily checking. The authors reported that consistent with the cognitive behavioural model of health anxiety; health anxiety was a significant predictor of safety behaviours. A separate analysis showed health anxiety moderately predicted medical utilisation. The authors concluded that health anxiety uniquely predicted safety behaviours but was not a unique predictor of medical utilisation. Given the paucity of research on safety behaviours in health anxiety, the current study investigates further the relationship between safety behaviours and health anxiety in a non-clinical group of older adults.

Summary

Adaptive coping is a normal response to anxiety provoking situations. However when individuals experience acute anxiety, responses are intended to avert a catastrophic outcome which paradoxically reinforces and maintains their anxiety. These maladaptive behavioural responses to acute anxiety are called safety behaviours. Safety behaviours in health anxiety include reassurance seeking from medical personnel, family and friends, information seeking from medical texts, media, and internet, checking bodily functions and symptoms and safety signals. Within the cognitive behavioural paradigm, the role of safety behaviours has been established in various disorders such as panic, claustrophobia, pain and insomnia. There are a small number of studies that demonstrate the role of safety behaviours

in health anxiety. This project will contribute to this literature by examining the relationship between health anxiety and safety behaviours in a group of older adults.

CHAPTER 6

HEALTH ANXIETY AMONG OLDER PEOPLE

Previous chapters have outlined current research in health anxiety. This chapter focuses attention on research in older populations. The first section reviews the incidence of health anxiety and whether older people are vulnerable to health anxiety. Next, the importance of the cognitive behavioural model is evaluated. Finally the aims and hypotheses for the study are delineated.

Prevalence

There are no longitudinal studies on the incidence of health anxiety; therefore it is unknown whether health anxiety increases with age (Asmundson et al., 2001). Cross-sectional studies indicate that rate of hypochondriasis may be similar across age groups. As reported in Chapter 3, two community studies of samples of older adults found incidence of hypochondriasis was within the range reported for the general population (Ghubash et al., 2004; Saz et al., 1995). A review of population studies of somatisation in the elderly (the review included hypochondriasis in the definition of somatisation) showed no reliable increase in somatisation with age (Sheehan & Banerjee, 1999). Similarly, the study by Creed & Barsky (2004) found a significant relationship between age and hypochondriasis in only three of the eleven studies reviewed. Of the studies reported in Chapter 3, three showed health anxiety increases with age (Bleichhardt & Hiller, 2007; Looper & Kirmayer, 2001; Rief et al., 2001). However the study by Looper & Kirmayer did not include participants over 65.

There has been one study to examine the relationship between hypochondriasis and age. This cross-sectional study compared hypochondriasis patients with a control group and found that hypochondriacal symptoms were unrelated to age (Barsky, Frank, Cleary, Wyshak, & Klerman, 1991). Even when the greater medical morbidity of older participants was controlled for, there was still no age difference between the two groups. The authors

reported that older hypochondriacal patients reported greater levels of disability when compared to younger patients.

Some authors argue that the stability of hypochondriasis and somatic disorders with age is an artefact of measurement and diagnosis, and that the exclusion of medical pathology discriminates against older people (Wijeratne, Brodaty, & Hickie, 2003; Wijeratne & Hickie, 2001). As noted above, there are no longitudinal studies of health anxiety therefore most studies are subject to cohort effects. In addition survey methodology may serve to underestimate the incidence of health anxiety among older people. For example, surveys may not include many older people, tend to place participants over 65 into one group, participants may not be representative of older populations and survey samples may be biased towards healthy and active older adults (Moraitu & Efklides, 2007; Sheehan & Banerjee, 1999). In older populations there is considerable practical difficulty in determining the difference between medically explained and unexplained symptoms, due to multiple medical problems and medication (Wijeratne, et al., 2003). This complicates diagnosis under DSM- IV-TR criteria that requires exclusion of medical causes for the concerns about disease (APA, 2000). In addition excessive concern about health may be interpreted by physicians as adaptive coping rather than hypochondriasis (Stein, 2003). Indeed the notes given for differential diagnosis of hypochondriasis states ‘...the onset of **health concerns in old age** [emphasis in original], is more likely to be realistic or to reflect a Mood disorder rather than Hypochondriasis’ (p 506, APA, 2000).

The evidence presented here highlights the uncertainty surrounding the incidence of acute health anxiety among older populations. Although not epidemiological research, the present study provides an indication of the incidence of severe health anxiety in a non-clinical cohort of older adults.

Vulnerability to Health Anxiety

There is a perception that older people are preoccupied with illness and are hypochondriacal (Hart, 1990). Factors that may contribute to increased health anxiety are psychological distress, medical morbidity, frailty and social isolation (Snyder & Stanley, 2001). In older populations, health worries are a feature of anxiety disorders such as panic, generalised anxiety disorder and obsessive compulsive disorder. Sub-syndromal anxiety in later life occurs in up to 20% of people and is often 'dominated' by health related fears. As people age, there is evidence that they are more likely to worry about their health, particularly if they have an anxiety disorder (Jeon, Dunkle, & Roberts, 2006; Lindsay et al., 2006; Montorio et al., 2003).

A majority of over 65's have at least one chronic disease and this may contribute to somatisation (Hart, 1990; Snyder & Stanley, 2001). Medical morbidity also contributes to increased disability and poor subjective health which have been correlated with hypochondriacal concerns (Barsky, Cleary, & Klerman 1992; Hickie, 2002). Social relationships and subjective health are interrelated (Paul, 2007). Age may reduce social interactions due to mortality of life partners and friends, thereby increasing the likelihood of health anxiety (Snyder & Stanley, 2001).

In contrast, there is also evidence that older people may not be more vulnerable to health anxiety. Part of the manifestation of health anxiety is awareness and reporting of symptoms and disease. Symptom reporting is related to self awareness, neuroticism and negative affect (Lyons & Chamberlain, 2006). The literature shows that neuroticism is stable as age increases and older adults report more positive affect (Costa & McCrae, 1985; Moraitu & Efklides, 2007; Snyder & Stanley, 2001). However, increased negative affect is associated with ill health in the very old (Moraitu & Efklides, 2007). Older adults often have a positive appraisal of health because of comparison with peers, declining 'health aspirations' and physical sensations being attributed to age not illness (Hart, 1990; Lyons &

Chamberlain, 2006). Pinquart (2001) found that as objective health deteriorates with age, most people adapt their subjective health assessments and consider themselves in better health than their medical status would imply.

Again, the evidence is unclear, on one hand; older people are more likely to encounter risk factors for health anxiety such as increased medical morbidity and disability. However other evidence shows that older people may use coping strategies which lessen health anxiety. The present study determines which risk factors contribute to health anxiety in an older cohort and whether the study cohort experiences high levels of health anxiety.

Cognitive Behavioural Theory of Health Anxiety and Older Adults

As outlined in Chapter 4, cognitive theory assumes that early experiences lead to dysfunctional assumptions about health and illness. When exposed to a stressor, these negative cognitions about health are activated and health anxiety increases. There is no current empirical data to verify the applicability of the cognitive behavioural model of health anxiety to older people (Snyder & Stanley, 2001). The central precepts of cognitive behavioural theory are examined below to determine the likelihood that this model is applicable to older adults.

Early environment is a significant factor in the development of health anxiety. Clinical experience shows these early experiences have 'enduring influence' on older adults (Zarit & Zarit, 2007). Thus it seems that some individuals may have a lifelong vulnerability to health anxiety, which is triggered when exposed to life events that occur in older age.

Events that trigger health anxiety are more likely to occur as people age (Snyder & Stanley, 2001). Most people over 65 experience a number of distressing events for example, the death or illness of a spouse or close companion, personal illness and disability. As noted previously, disability predicts hypochondriacal concerns, although the influence of other life events is as yet untested (Barsky, et al., 1992; Noyes, 2004). Medical morbidity means increasing interaction with medical personnel, which may in turn serve to focus attention on

illness and increases the likelihood of iatrogenic effects (Snyder & Stanley, 2001; Taylor & Asmundson, 2004).

Selective attention to health related stimuli is a key factor in the development of health anxiety (Snyder & Stanley, 2001). Attention to health may be heightened by actual disease and somatic change due to increased physical decline. Changes in sensory and cognitive facilities may also contribute to increased attention to somatic clues.

In some individuals, physiological change may be attributed to illness not age (Snyder & Stanley, 2001). Physiological change increases with age which may in turn heighten illness fears with a consequent spiralling of attention to physiological change and an intensification of existing health anxiety.

Lastly, older people have developed coping behaviours over time and although for most they are adaptive, in some more vulnerable people they may develop into safety behaviours which reinforce and maintain health anxiety (Snyder & Stanley, 2001). In addition, it is possible that increasing disability and cognitive decline may render the coping mechanisms less effective. The current study provides some evidence for the applicability of the cognitive behavioural model of health anxiety to an older cohort by examining the concept of safety behaviours.

Safety Behaviours

As discussed in Chapter 5, the role of safety behaviours in health anxiety has not been extensively studied and there is no research specific to older adults. Behavioural responses are generally assumed to be unchanged by age (Belsky, 1999), thus it seems reasonable to suppose that safety behaviours are similar across the age span. One type of behaviour, reassurance seeking from medical personnel, requires particular attention. The study by Abramowitz and colleagues (2007) illustrated that in a student cohort, health anxiety uniquely predicted safety behaviours, whereas other factors influenced the prediction of medical utilisation. A plethora of factors influence medical utilisation by older people.

These include; socio- demographic factors, mental health, health beliefs, medical morbidity and disability (e.g. Wolinsky et al., 1983; Wolinsky & Johnson, 1991). While, as noted above, there are no studies specific to health anxiety, there is literature that shows anxiety is correlated with medical utilisation among older adults (e.g. de Beurs et al., 1999). There is also evidence that 'health worry' predicts health care utilisation in older cohorts (Millar, 1996; Linden, Hargas, Gliberg, & Steinhagen-Thiessen, 1997; Wolinsky & Johnson, 1991).

The current study investigates the relationship between health anxiety and safety behaviours in an older cohort. Because medical utilisation may be influenced by other factors, the relationship between health anxiety and medical utilisation is examined separately.

Summary

Prevalence estimates indicate that hypochondriasis but not health anxiety is stable over age groups. However, there are no longitudinal studies to confirm this conclusion. Evidence for increased vulnerability of older people to health anxiety is equivocal. Older people worry more about their health and are exposed to established risk factors for increased health anxiety. However, factors that influence symptom reporting are generally stable across the age span. In spite of medical morbidity and disability, many people reduce their health expectations as they age and may not experience high health anxiety. From this it may be concluded that the factors contributing to health anxiety may not change across the age span. However greater disability and physical illness in older people may contribute to elevated health anxiety in vulnerable individuals.

Cognitive behavioural model of health anxiety has extensive empirical support, however there is no empirical evidence to support the utility of the cognitive behavioural model of health anxiety among older people. There are a number of factors associated with aging that support the applicability of the model to this population. Of particular interest to

the present study is the possibility that coping behaviours may become safety behaviours over time and serve to maintain and reinforce health anxiety.

Aims and Hypotheses

This review has illustrated that very little is known about health anxiety among older people. To provide preliminary insight into the topic, the present study has three aims. Firstly, demonstrate whether a cohort of older adults is unduly health anxious. Secondly, determine which demographic and health factors contribute to health anxiety. Lastly, the study investigates whether an aspect of the cognitive behavioural model of health anxiety is applicable to older adults. This is examined by investigating the relationship between health anxiety and safety behaviours. As noted above, there are a number of potential confounding factors when examining the relationship between health anxiety and medical utilisation, therefore this relationship is examined separately.

From the evidence reviewed, four specific hypotheses were formulated:

1. The study cohort of older people would be highly health anxious.
2. Factors contributing to health anxiety would be consistent with existing literature.
3. Consistent with predictions derived from the cognitive behavioural model of health anxiety, health anxiety would predict safety behaviours in a cohort of older adults.
4. Consistent with predictions derived from the cognitive behavioural model of health anxiety, health anxiety would predict medical utilisation in a cohort of older adults.

CHAPTER 7

METHODOLOGY

Initial Considerations

Given the limitations of a Masters project the study was a cross-sectional survey design, using a convenience sample of older adults. When undertaking research among older adults, there are a number of considerations. These are: choosing a lower age limit for the study sample, accounting for the effects of cognitive decline and lastly, particular considerations when designing a questionnaire for older adults.

In New Zealand, the age of retirement is 65 years, and this was adopted as the lower age limit for participants. Cognitive decline is a common problem among older adults, and controlling for this was an important component of the design. Measurement of cognitive competency is normally undertaken by personal interview or by informant assessments (McDowell, 2006). Because of the limitations of the present study, these options were not available. The assumption was made that individuals living independently in the community were unlikely to be experiencing cognitive decline at a level that would compromise their participation. In addition, the survey group was self selected and individuals that were too mentally impaired to participate would be unlikely to return the questionnaire. Lastly, particular practical considerations when working with older adults are: brevity of the questionnaire to encourage participation and legibility of the questionnaire.

Questionnaire Development

The questionnaire was designed to measure demographic and health factors that were likely to contribute to health anxiety, obtain sufficient demographic information to determine the representativeness of the sample, measure health anxiety within the cognitive behavioural paradigm and measure safety behaviours and medical utilisation. The next sections give the rationale for each part of the questionnaire.

Demographics

Demographic factors such as age, gender, ethnicity, education and marital status were included in the survey to discover the factors that contribute to health anxiety in this cohort. This information would also determine the representativeness of the participant cohort. As participants were over 65, it was assumed that the majority were no longer in full time employment, employment status was excluded. Socio-economic status is normally measured by income; to decrease the intrusiveness of this question and to determine if level of income was a stressor, respondents were asked for a subjective assessment of the adequacy of their income.

Health

Physical health: Physical health is an important determinant of quality of life and psychological well being in older adults (Lawton & Lawrence, 1994). Subjective ratings of physical health are very popular and have been shown to be related to health behaviours and hypochondriacal behaviours (Barsky, Cleary, & Klerman, 1992; Rohrer, Young, Sicola, & Houston, 2007). However, subjective health varies with psychological well being and may confound the dependent and independent variables; therefore a more objective measure of physical health was considered to be more appropriate for this study (Lawton & Lawrence, 1994).

To maintain questionnaire brevity, medical health was a single measure. Possible measurements are: a standardised scale with a single score, a symptom list, or a disease list (Lawton & Lawrence, 1994). Standardised scales are generally quite long, and were not considered. A symptom list may be confounded by somatic symptoms in health anxiety and would therefore be unsuitable for this study (Liang & Whitelaw, 1990). A disease list is a commonly used method. This is usually regarded as an objective measure because the participant has been given the information by a health professional and this information can be verified (Lawton & Lawrence, 1994). For this study, participants were requested to list

any diagnosed physical illness and verify this diagnosis by listing prescribed medication. When scoring the questionnaires, this information was converted into 'number of physical illnesses'.

Physical function: Activities of Daily living (ADL) and instrumental activities of daily living (IADL) scales are commonly used to measure physical disability in both clinical and survey contexts (Kovar & Lawton, 1994). Reliability and validity are adequate (Liang & Whitelaw, 1990). There is a wide choice of scales available, and selection rests on study methodology. The criteria for the current study were, self report, brief and suitable for community dwelling older adults (i.e. unlikely to require significant assistance with normal daily activities). The physical functioning scale of the Short Form 36 Health Survey (SF36, Ware & Sherbourne, 1992) is such a measure. The SF36 is one of the leading general health measures with excellent psychometric properties (McDowell, 2006). The scale comprises a ten item list of activities of increasing levels of difficulty from 'bathing or dressing yourself', to 'climbing one flight of stairs' and 'vigorous activities such as running, lifting heavy objects, participating in strenuous sports'. Internal consistency for this scale is reported as .93 for older people, test retest correlation was .8.

Health Anxiety

There are several structured interviews and self report assessment tools available for assessing health anxiety and hypochondriasis. Structured interviews are used to assist in the diagnosis of DSM –IV hypochondriasis, whereas self report tools are used to measure some of the core features such as health anxiety and illness fears (Stewart & Watt, 2001). This study was to be carried out by means of a self report anonymous questionnaire; the structured interview measures would not be suitable and are not reviewed here.

The most commonly used self report questionnaires are the Whitley Index, (WI, Pilowsky 1967), Illness Attitude Scale (IAS, Kellner, 1987), Illness Behaviour Questionnaire (IBQ, Pilowsky & Spence, 1994) and more recently, Health Anxiety

Questionnaire (HAQ, Lucock & Morley, 1996), Multidimensional Inventory of Hypochondriacal Traits (MIHT; Longley, Watson, & Noyes, 2005) and Health Anxiety Inventory (HAI, Salkovskis, Rimes, Warwick, & Clark, 2002). Of these only the HAQ and HAI have been developed from cognitive theory and are considered here.

Health Anxiety Questionnaire (HAQ; Lucock & Morley, 1996): The HAQ (Lucock & Morley, 1996) was developed to measure the dimensional construct of 'health anxiety' within a 'sound theoretical basis' (p. 139) and that it would discriminate between health anxiety and general anxiety. The authors were concerned that the measure should also be relevant to clinical and non-clinical groups. The initial studies identified a four factor structure, interference with life, fear of illness and death, health worry and preoccupation, and reassurance seeking behaviour. The questionnaire showed good to excellent psychometric properties and was tested on clinical and non-clinical groups (See Table 7.1). The HAQ discriminated between health anxiety and other health anxious patients. The measure has been shown to predict response to reassurance (Lucock et al., 1998).

Health Anxiety Inventory (HAI; Salkovskis et al., 2002): Like the HAQ, the HAI was developed from cognitive theory and was designed to identify the range of health anxiety from mild concern to clinical hypochondriasis and to differentiate between those with physical illness and high and low health anxiety. The development research for the 23 item questionnaire consisted of five studies designed to test the ability to differentiate between health anxiety and other psychiatric conditions, sensitivity to treatment effects, consistency and test retest validity and to compare the properties of a 14 item short version of the inventory (SHAI) with the full version. The final study described the development of an additional four item scale to measure the negative consequences of illness.

The first development study tested the specificity of the measure by comparing two groups of patients, one with a diagnosis of hypochondriasis and the other with other disorders, including panic patients whose symptoms are closely related to hypochondriasis

patients (Salkovskis et al., 2002). This test showed that the scale has significant specificity to hypochondriasis. This finding has been confirmed by an independent study that showed hypochondriasis and panic were differentiated by the total score on the Short Health Anxiety Inventory (SHAI, Abramowitz, Olatunji, & Deacon, 2007).

A second study was carried out to determine whether HAI scores were reduced after treatment (Salkovskis et al., 2002). The treatment group showed a significant reduction in HAI scores when compared to a wait list group, which indicated the clinical validity of the measure. Study three compared patients with and without actual illness to determine whether the HAI scores were significantly affected by illness. The data showed that HAI scores were not substantially raised in patients with physical illness. The fourth study compared the properties of the 23-item version with a 14-item version, which showed that both measures had similar psychometric properties. The report concluded that the SHAI may have greater utility because of its brevity. The last study described the negative consequences of illness (NC) scale. The NC scale was shown to be highly specific to health anxiety and independent of the main SHAI scale.

Psychometric properties of the SHAI and NC scales have been independently tested on a clinical sample, medically healthy university students and a group of pregnant women (Abramowitz, Deacon, & Valentiner, 2007; Abramowitz, Olatunji, & Deacon, 2007; Kowalyk & Hadjistavropoulos, 2007). All of the studies reported psychometric properties for SHAI and NC scales comparable to those given in the development studies.

The SHAI has been used to measure health anxiety in a variety of studies. For example, the study of psychological reactions to health screening (Rimes & Salkovskis, 2002), research into chronic pain (Rode, Salkovskis, Dowd, & Hanna, 2006; Tang et al., 2007), and an examination of cognitive behavioural therapy for hypochondriasis (Barsky & Ahern, 2004).

SHAI and HAQ have the same theoretical basis and similar reliability and validity in clinical and non-clinical groups (see Table 7.1). Psychometric properties of the SHAI are similar to those for HAI and have been independently assessed in both clinical and non-clinical samples (Abramowitz, Deacon, & Valentiner, 2007; Abramowitz, Olatunji, & Deacon, 2007; Kowalyk & Hadjistavropoulos, 2007). No independent assessments of the HAQ have been reported. Both HAQ and SHAI have proved useful in predicting medical visits, safety behaviours and other help seeking (Abramowitz, Deacon, & Valentiner, 2007; Conroy, Smyth, Siriwardena, & Fernandes, 1999; Eastin & Guinsler, 2006). The HAI has been shown to be sensitive to treatment effects and minimally influenced by medical illness (Salkovskis et al., 2002); there are no extant studies that give this information for the HAQ.

Table 7.1: Comparison of Psychometric properties of HAQ and HAI

	Internal consistency	Test retest (clinical group)	Test retest (non-clinical group)	Split half
HAQ (Lucock & Morley, 1996)	.92	.95	.87	.91
HAI (Salkovskis et al., 2002)	.95	.90	.76	
SHAI (Salkovskis et al., 2002)	.89			

The group surveyed for this study was adults over 65 who were more likely to have some physical illness; therefore it was important that scores for the measure chosen was not excessively influenced by physical illness and other extraneous factors. SHAI scores are not unduly elevated by actual illness, and in addition, has been independently tested on both clinical and non clinical samples. Permission was obtained from the authors to use this measure in the current study (see personal correspondence Appendix G).

Safety Behaviours and Medical Utilisation

Measurement of safety behaviours was divided into medical utilisation and safety behaviours. These measures were developed from the Medical Utilisation Questionnaire,

(MUQ; Abramowitz, Deacon, & Valentiner, 2007). A copy of the original MUQ was obtained from the authors (see personal correspondence Appendix G).

Safety behaviours: The original MUQ (Abramowitz et al., 2007) was a list of 10 safety behaviours scored on a Likert scale from 'never' to 'all of the time'. The behaviours listed were mainly reassurance seeking and checking behaviours. No avoidance or safety signal type behaviours were included in the list. As noted previously, avoidance behaviours are a common response to health anxiety particularly in illness phobia which may be considered as part of the spectrum of health anxiety (Taylor & Asmundson, 2004; Noyes, 2001). For this study, some of the more commonly observed behaviours such as avoiding health media, avoiding physical exertion, and avoiding medical testing were included (Salkovskis & Warwick, 2001; Taylor & Asmundson, 2004). Including safety signal behaviours was more problematic as these are usually highly idiosyncratic (Taylor & Asmundson, 2004). One of the more common behaviours is carrying a doctor's phone number and this was included in the final list.

Medical utilisation: As noted previously, the most frequent behaviour in health anxiety is reassurance seeking and most of this reassurance seeking takes place in a medical setting (Salkovskis & Warwick, 2001a). Medical utilisation is a very important component of the measurement of the behavioural consequences of health anxiety. A number of studies that show that health anxiety and hypochondriasis are associated with high use of medical facilities, from nurses, general practitioners to hospital admissions (e.g. Barsky, Ettner, Horsky, & Bates 2001; Conroy, et al., 1999; Looper & Kirmayer, 2001). The original MUQ (Abramowitz et al., 2007), asked participants to estimate how many times they had visited each of 20 practitioners in the previous 6 months. For the present study, the list was reduced by combining some items, (e.g. specialist medical practitioners were combined under one item instead of having a different item for each specialist). This then gave the opportunity to add practitioners specific to the New Zealand context (e.g. 'Maori or Pacific Island Health

worker’) and keep the list to 12 items. In order to aid memory, the frequencies of visits were given on a scale (none, 1, 2-3, to ‘more than 12 times’).

Method

Participants

A convenience sample of 270 community dwelling adults over 65 were invited to participate in the study. 146 people (41 men and 104 women) completed the questionnaire (54% response rate). All of the respondents were over 65 and half were in the age range 75-85. Almost all (97.9%) were New Zealanders of European origin. All respondents lived in the community.

Measures

The Health Concerns Questionnaire consisted of four sections. Section one was 13 questions regarding demographic and health status. Section two was the SHAI health anxiety measure, section three measured medical utilisation and section four measured safety behaviours. The full questionnaire is given in Appendix A.

Demographic information: This section contained questions regarding age, gender, education, ethnicity, marital status, whether the participant lived alone or with others and subjective satisfaction with income.

Physical health: Participants were requested to list any health problems diagnosed by a health professional and list prescription medications. This information was used to generate the number of physical health problems experienced by participants and whether the individual had been prescribed medication for mental health problems.

Physical function: The last part of this section was a measure of physical functioning. This list of activities was taken from the physical functioning scale of the SF36 (Ware & Sherbourne, 1992). This comprised a ten item list of activities of increasing levels

of difficulty from 'bathing or dressing yourself', to 'climbing one flight of stairs' and 'vigorous activities such as running, lifting heavy objects, participating in strenuous sports'. The items were scored 1-3; 'yes limited a lot', 'yes, limited a little' and 'no not limited at all'. The internal consistency for this scale is reported at .93 for older people, test retest correlation was .8 (McDowell, 2006).

Short Health Anxiety Inventory (SHAI; Salkovskis et al., 2002): The SHAI measured health anxiety within a cognitive behavioural framework. The SHAI consisted of two scales, a main scale and a negative consequences scale. The main scale contained 14 items that measure worry about health, feared consequences of having an illness, and bodily sensations. The negative consequences scale consisted of 4 items that measured the feared consequences of a serious illness. Items were scored 0 – 3, and the total score used for each scale. The scale has good psychometric properties which have been described earlier (see Table 7.1).

Medical utilisation: Participants indicated how frequently they had used each of 12 medical services in the previous 6 months; 'none, once, 2-3 time, 3-5 times, 6-11 times and more than 12 times'. These were scored 0 (none) to 5 (more than 12 times). In addition to GP, hospital and nursing services, the list included items such as 'Maori or Pacific Island Health worker' and 'traditional healer such as tohunga, rongoa Maori specialist or fofo'.

Safety behaviours: Participants indicated how frequently they had engaged in 12 safety seeking behaviours out of concern for their health over the past month. Items included common reassurance seeking behaviours such as talking to friends and family, checking behaviours e.g. checking pulse or blood pressure and avoidant behaviours e.g. avoiding physical exertion. These were scored on a 5 point Likert scale ranging from 0 (never out of concern for my health) to 4 (all the time out of concern for my health). The scale had a moderate Chronbach's alpha of .60.

Procedure

The researcher obtained permission from various community based organisations and retirement village communities in the greater Auckland area to approach their members with an invitation to participate in the project. 270 anonymous quantitative self report questionnaires specifically designed for this study were distributed. In order to take part, respondents were required to be 65 and over and living independently (i.e. not in a nursing home or hospital). Participants completed the questionnaire at home then returned it to the researcher in the post paid envelope provided. Informed consent to participate in the research was implicit when the questionnaire was returned. Ethics approval for this study was received from Massey University Human Ethics Committee: Northern, Application 08/022. The information sheet given to participants is given in Appendix B.

CHAPTER 8

RESULTS

Analysis

Multivariate regression analysis is a flexible and powerful statistical technique used to assess the relationship between one dependent variable and several independent variables (Tabachnick & Fidell, 2007). Regression permits the researcher to compare the ability of the various independent variables to predict the dependent variable. Sequential or hierarchical regression is useful for model testing and allows the researcher to control the sequence in which the variables are entered into the equation. The sequence in which variables are entered is determined by theoretical considerations. For the present study, separate sequential multivariate regression analyses were carried out to determine predictors of SHAI scores, prediction of safety behaviours and lastly medical utilisation. Independent variables were entered in groups from least important to most important to evaluate what each group added to the prediction of the dependent variable.

An important first check was to ensure that there were sufficient participants to allow meaningful analysis. For a sequential regression analysis with potentially 10 independent variables, the sample size should be at least $104 + 10 = 114$ (Tabachnick & Fidell, 2007). In this study, this minimum number was exceeded as 145 valid questionnaires were returned.

Using *SPSS Graduate Pack 16.0 for Windows* raw data was checked for the effects of missing data and outliers, and assumptions for regression analysis were evaluated. Inspection for missing data showed that of the 146 questionnaires returned, 16 were incomplete, which represented approximately 11% missing data. Respondents with data missing from the demographic information were deleted. This left 145 responses. The majority of this missing data (9 cases) occurred in the answers to the health anxiety measure. Non-random missing data in a small data-set represents an important loss of information. To

determine the effect of this; two preliminary analyses were carried out, the first with missing data deleted and the second with missing data replaced by mean values (Tabachnick & Fidell, 2007). Replacing missing data gave more conservative results, therefore this approach was adopted and these results are reported here.

The data were inspected for outliers, normality, linearity and homoscedasticity. Scores for SHAI, medical utilisation and safety behaviours all showed skewed distributions. Outliers were inspected, all appeared to be from the target population, therefore the scores were reassigned as the highest score plus one, which reduced the skewness to within the acceptable limits of $-1 < 0 < +1$ (Dancey & Reidy, 2004; Tabachnick & Fidell, 2007). Square root and logarithmic transformations were performed to further improve the normality of the results, none changed the conclusions of the analysis, and therefore the final analysis was carried out using reassignment of outliers only.

Results

Descriptive Statistics

Descriptive statistics are given to allow comparison to the Auckland population to determine the representativeness of this cohort.

Demographic data: The demographic data for this cohort and population statistics from Statistics New Zealand 2006 Census for the Auckland region are shown on Table 8.1. A majority of respondents were women, (71.7 %.), half were in the age range 75 to 85. Almost all (97.9%) were New Zealanders of European origin. A majority lived alone (62%) and almost half were widowed (48%). Most (59.3%) considered their income sufficient or more than sufficient for their needs, only 14 participants (9.7%) considered that they had insufficient income. 40.7% had a post school qualification and 50.3% had a secondary school qualification. Comparison between the demographic characteristics of the study group and the greater Auckland population over 65, show this group was not a representative sample. The cohort had a higher proportion of women than the Auckland population, and the

age group 75 – 85 were over represented. The participant group did not reflect the ethnic diversity of the Auckland region.

Table 8.1: Demographic characteristics of sample and population statistics from Statistics NZ Census 2006

Characteristic		N	%	Auckland region
Age	65-75	37	25.5	54*
	75-85	72	49.7	34*
	over 85	36	24.8	12*
Gender	Male	41	28.3	44*
	Female	104	71.7	56*
Ethnicity	Pakeha/New Zealander of European descent	142	97.9	56.5**
	Maori	1	.7	11.1**
	Other	2	1.4	32.4**
Marital status	Married	55	37.9	
	Permanently separated/divorced	14	9.7	
	Widow or widower	70	48.3	
	Never married	6	4.1	
Highest qualification	No Qualification	13	9.0	20.3**
	Secondary School Qualification	73	50.3	
	Trade Qualification	31	21.4	42.5**
	University Degree	28	19.3	(% post school qualification)
Subjective income	Income not enough	14	9.7	
	Income just enough	45	31.0	
	Income enough	63	43.4	
	Income more than enough	23	15.9	

* % Auckland Population over 65; ** % total Auckland Population (Statistics New Zealand, Census 2006)

Health status: Table 8.2 shows the health status of the group. Only 17 people (11.7%) reported no health problems and 15 people (10.3%) reported that they were being prescribed medication for mental health issues (mainly antidepressants). The median number of physical illnesses was 2 (*mean*=1.81, *SD*= 1.18, *range* 0 – 6).

Participants had a median physical functioning score of 23 (*Mean* = 22.39; *SD* = 5.45; mean transformed score = 62) and approximately 9% were dissatisfied with their physical capabilities. As a comparison, population norms for the US population for the physical functioning scale of the SF36, range from 52 for elderly males to 84 for the general

population (McDowell, 2006). Physical functioning and physical health raw scores may be found in Appendix E.

The first question of the SHAI asks how often the respondent worries about their health (never, occasionally, much of the time and most of the time). 32 people (22%) said that they do not worry about their health and 73.8 % ($n= 107$) worried occasionally about their health, only 4 (2.8%) participants spent much or most time worrying about their health.

Table 8.2: Health status

Characteristic		N	%
Mental health	No medication for mental health concerns	130	89.7
	Medication for mental health concerns	15	10.3
Physical health	No health problems	17	11.7
	Health problems	128	88.3
Health worry	No Health worry	32	22.1
	Occasional Health worry	107	73.8
	Much time worrying about health	3	2.1
	Most time worrying about health	1	.7
	Missing data	2	1.4

Health anxiety: Health anxiety was measured using the SHAI (Salkovskis et al., 2002). Three scores are reported: main SHAI (SHAI), Negative consequences scale (NC) and total SHAI (sum of SHAI and NC scales). Table 8.3 gives statistics for SHAI, NC and total SHAI scores. Mean score for SHAI was 7.04 ($SD = 4.31$). Previous work has suggested a SHAI score of 15 or greater as indicative of acute health anxiety and scores of 18 or higher indicating possible hypochondriasis (Rode et al., 2006). Three (2%) people scored between 15 and 18 and 8 people (5.6%) scored greater than 18. Raw scores for SHAI are given in Appendix E.

Table 8.3: Health anxiety, medical utilisation and safety behaviour summary statistics.

N=145	SHAI	NC scale	Total SHAI	Medical utilisation	Safety behaviours
Mean	7.04	2.40	9.62	3.57	4.21
Median	6.00	2.00	9.00	3.00	4.00
Std. Deviation	4.31	1.96	5.95	3.14	2.69

Safety behaviours: The mean of safety behaviours was 4.21 ($SD = 2.69$). There were 22 (15%) participants that scored zero on the safety behaviour scale. All of the safety behaviours were endorsed at least once. The most frequently endorsed behaviour was 'discussed your health with family or friends' at least once or twice in the previous month ($n = 88, 61\%$). The next most frequently endorsed behaviour was reading health related books etc. ($n = 54, 37\%$). Only 3 participants called a health help line. The most commonly endorsed avoidant behaviour was 'avoiding physical exertion' ($n = 35, 24\%$). Other avoidant behaviours had approximately equal frequencies ($n = 21-23, 14\%-16\%$). The full frequency table for safety behaviours is given in Appendix C.

Medical utilisation: The median number of visits to medical facilities was 3 ($mean = 3.57, SD = 3.14$). The most frequently used service was the general practitioner; 136 (94%) of participants reported at least one visit to their GP in the previous six months; 54 (37%) saw the GP Practice nurse and 49 (34%) specialist medical practitioners. The most infrequently used services were clinical psychologist or counsellor ($n = 3$), Maori or Pacific Island health worker ($n = 1$) and traditional healer ($n=0$). The full frequency table for medical utilisation is given in Appendix D.

Hypothesis one: The study cohort of older people would be highly health anxious

Inspection of SHAI scores showed that this was not a very health anxious group. Only 2.8% of the participants reported worrying about their health much or most of the time.

Table 8.4 gives comparison mean SHAI scores for the current study and other research with younger cohorts. Mean total SHAI score for this group was 9.62 ($SD = 5.95$) compared with 10.59 ($SD = 6.38$) reported by Abramowitz and colleagues (2007) for a group of student participants. Three other studies reported SHAI scores ranging from 6 to 9.4 for control groups with no illness and 11.4 for a group of people who were ill (Rode et al., 2005; Salkovskis et al., 2002; Tang et al., 2007). These results suggest that this cohort were not more health anxious than younger groups.

Table 8.4: Comparison mean health anxiety score across studies

	SHAI	NC scale	Total SHAI	Sample age
Current study	7.04 (4.3)	2.4 (1.96)	9.6 (5.95)	65+
Abramowitz et al., (2007)			10.6 (6.38)	University undergraduates
Salkovskis et al., (2002)				
control group				mean 47.7 (14.0)
'illness group'	9.4 (5.1)	2.8 (2.1)	12.2 (6.2)	
	11.4 (4.6)	2.4 (1.9)	13.9 (7.4)	mean 47.0 (16.2)
Rode et al., (2005)	8.5 (4.4)			mean 41.7 (18.3)
Tang et al., (2007)	6.0 (2.6)			mean 42.1 (14.0)

(*SD in brackets*).

Note: In the following analyses, the results are reported for SHAI scores only with other results reported where there are important differences.

Hypothesis two: Factors contributing to health anxiety

A sequential multivariate regression analysis was carried out with SHAI score as the dependent variable (DV). Two blocks of variables were entered (a) demographic variables, followed by (b) health status variables. Results are shown on Table 8.5 and summary statistics are given in Appendix F.

SHAI scores were predicted by health status variables, demographic variables as a group did not reach significance. At step 1, demographic variables as a group were not significant predictors of SHAI scores, and accounted for 5% of the variance. Examination of Pearson's correlation showed highest qualification was significantly but weakly and negatively correlated to SHAI ($r = -.20, p < .01$), i.e. as educational level increased, SHAI decreased. At step 1 of the regression analysis, highest qualification was the best predictor of SHAI scores ($t = -2.2, p < .05$). At step 2, health status variables accounted for an additional 14% of the variance and were significant predictors of SHAI scores ($R = .43, F_{inc}(2, 137) = 12.00, p < .001$). Increasing disability was positively correlated with health anxiety ($r = -.34, p < .001$), and number of illnesses was correlated with higher SHAI scores ($r = .23, p < .01$). In the regression analysis, disability was a significant predictor of health anxiety ($t = -4.06, p < .001$). Physical illness did not reach significance as a predictor of health anxiety, but showed significant trend ($t = 1.9, p = .059$). Qualification showed significant trend at $p < .10$.

A second analysis was carried out for total SHAI scores. Results are shown on Table 8.6. The notable difference between this and the previous analysis was that at step 2, total SHAI scores were predicted by highest qualification ($t = -2.35, p < .05$), and physical functioning ($t = -3.87, p < .001$). Physical illness did not predict total SHAI scores.

Table 8.5: Predictors for SHAI scale.

Model	Unstandardized Coefficients		Standardized Coefficients	R^2	change R^2	p
	B	Std. Error	Beta			
Step 1				.05		
Age	.15	.53	.03			ns
Gender	-.18	.89	-.02			ns
Marital status	.32	.82	.04			ns
Highest qualification	-.94	.42	-.20			.027
Subjective Income	-.30	.44	-.06			ns
Step 2				.19	.14	
Age	-.85	.54	-.14			ns
Gender	-.46	.84	-.05			ns
Marital status	.18	.77	.02			ns
Highest qualification	-.72	.39	-.15			.07*
Subjective Income	-.09	.41	-.02			ns
Physical Function	-.28	.07	-.36			.001
Diagnosed illness	.56	.29	.15			.059*

Figures in bold significant at $p < .05$ or better. ns = not significant

*significant trend at $p < .1$

Table 8.6: Predictors for total SHAI scores

Model		Unstandardized Coefficients		Standardized Coefficients	R^2	change R^2	p
		B	Std. Error	Beta			
Step 1					.06		ns
	Age	.801	.725	.096			ns
	Gender	-.220	1.223	-.017			ns
	Marital status	.372	1.128	.031			ns
	Highest qualification	-1.561	.578	-.238			.008
	Subjective Income	-.186	.599	-.027			ns
Step 2					.18	.12	
	Age	-.504	.753	-.060			ns
	Gender	-.630	1.166	-.048			ns
	Marital status	.210	1.064	.017			ns
	Highest qualification	-1.287	.548	-.196			.020
	Subjective Income	.054	.569	.008			ns
	Physical function	-.374	.097	-.342			.000
	Diagnosed illness	.562	.405	.111			ns

Figures in bold significant at $p < .05$ or better. ns = not significant
 *significant trend.

Hypothesis 3: Health Anxiety predicts Safety Behaviours.

A sequential multivariate regression analysis was carried out with safety behaviours as the DV. Three blocks of variables were entered (a) demographic variables, followed by (b) health status variables and (c) SHAI scores. Results are shown on Table 8.7. A model summary and correlations are given in Appendix F.

SHAI scores predicted safety behaviours ($R = .521, F_{inc}(1,136) = 42.17, p < .001$). Health anxiety accounted for 23% of variance in safety behaviour scores. At step 1, demographic variables did not predict safety behaviours, and accounted for 1% of variance. Similarly at step 2, the health variables did not predict safety behaviours and accounted for only 4% of additional variance.

Examination of Pearson's r show there was a significant but small correlation between safety behaviours and diagnosed illness ($r = .143, p < .05$). However at step 2 in the

regression analysis, diagnosed illness was not a significant predictor of safety behaviours ($t=.73, p=.12$). At step 3, only SHAI scores predicted safety behaviour.

Table 8.7: Predictors of safety behaviours

	Unstandardized Coefficients		Standardized Coefficients	R^2	change R^2	p
	B	Std. Error	Beta			
Step 1				.01		
Age	-.32	.39	-.07			ns
Gender	-.21	.66	-.03			ns
Marital status	-.01	.61	-.002			ns
Highest qualification	-.09	.31	-.03			ns
Subjective Income	-.02	.33	-.01			ns
Step 2				.05	.04	
Age	-.62	.43	-.14			ns
Gender	-.24	.66	-.04			ns
Marital status	-.1	.61	-.01			ns
Highest qualification	.01	.31	-.004			ns
Subjective Income	.07	.32	.02			ns
Physical Function	-.08	.06	-.14			ns
Diagnosed illness	.36	.23	.14			.12*
Step 3				.27	.23	
Age	-.3	.38	-.07			ns
Gender	-.07	.58	-.01			ns
Marital status	-.16	.53	-.03			ns
Highest qualification	.27	.28	.08			ns
Subjective Income	.10	.28	.03			ns
Physical Function	.03	.05	.05			ns
Diagnosed illness	.15	.21	.06			ns
SHAI	.38	.06	.53			.001

Figures in bold significant at $p < .05$ or better. ns = not significant
*significant trend.

Hypothesis 4: Health Anxiety predicts Medical Utilisation.

A sequential multivariate regression analysis was carried out with medical utilisation score as the DV. As before, three blocks of variables were entered (a) demographic variables, followed by (b) health status variables and (c) SHAI scores. Results are shown on Table 8.8. Model summaries and correlation matrix are given in Appendix F.

Medical utilisation was predicted by health status ($R=.40$, $F_{inc}(2,137) = 9.68$, $p<.001$) and SHAI scores ($R=.44$, $F_{inc}(1,136) = 6.18$, $p<.05$). SHAI was significantly correlated with medical utilisation ($r = .31$, $p<.001$), however when demographic and health variables were entered, this relationship was reduced. At step 1 of the regression analysis, demographic variables accounted for 4% of variance in medical utilisation. T- test results showed that increased age was the best predictor of medical utilisation ($t=2.19$, $p<.05$), at steps 2 and 3, age no longer reached significance. At step 2 health status variables accounted for 12% of variance. Physical functioning score ($t = -3.51$, $p<.001$) was the best predictor of medical utilisation and physical illness ($t=1.94$, $p= .054$) did not quite reach significance. At step 3, health anxiety scores added 4% variance. In this model, physical illness again showed a significant trend and the best predictors were physical functioning score ($t= -2.56$, $p<.05$) and SHAI ($t=2.49$, $p<.05$).

Table 8.8: Predictors of medical utilisation

	Unstandardized Coefficients		Standardized Coefficients	R^2	change R^2	p
	B	Std. Error	Beta			
Step 1				.04		
Age	.73	.33	.19			.030
Gender	.28	.56	.05			ns
Marital status	.24	.52	.04			ns
Highest qualification	-.06	.26	-.02			ns
Subjective Income	-.17	.27	-.06			ns
Step 2				.16	.12	
Age	.17	.34	.05			ns
Gender	.14	.53	.02			ns
Marital status	.15	.49	.03			ns
Highest qualification	.07	.25	.02			ns
Subjective Income	-.05	.26	-.02			ns
Physical Function	-.16	.04	-.31			.001
Diagnosed illness	.36	.19	.16			.054*
Step 3				.19	.04	
Age	.29	.34	.08			ns
Gender	.20	.52	.03			ns
Marital status	.12	.48	.02			ns
Highest qualification	.16	.25	.05			ns
Subjective Income	-.04	.26	-.01			ns
Physical Function	-.12	.05	-.24			.012
Diagnosed illness	.29	.18	.13			.123*
SHAI	.13	.05	.21			.014

Figures in bold significant at $p < .05$ or better. ns = not significant
 *significant trend.

CHAPTER 9

DISCUSSION

This research had three major aims; to provide a preliminary indication of the levels of health anxiety in a group of adults over 65, determine which demographic and health factors contribute to health anxiety in this cohort and examine whether an aspect of the cognitive behavioural model of health anxiety is applicable to older adults. This chapter considers each of these aims in turn then discusses limitations of the research and suggestions for future studies.

Discussion of Results

Incidence of Health Anxiety

The prediction that this cohort would exhibit high levels of health anxiety was examined by first comparing SHAI scores obtained from the present study with those reported in other studies using the same measure. Secondly, the incidence of severe health anxiety in this cohort was compared with epidemiological findings. It should be noted that this was a small study and comparisons of levels of hypochondriasis, illness worry and health anxiety between this group and other studies should be interpreted with care.

In spite of stereotypes to the contrary, the study group of older people are not very health anxious, and hypothesis one was not supported. Only four participants (2.8%) reported worrying about their health all or most of the time. A majority of the participant group reported some physical illness, but SHAI scores were not elevated, hence the assertion that illness does not elevate SHAI scores was supported (Salkovskis et al., 2002). Mean SHAI and total SHAI scores for this group were similar to those reported in other studies for younger people without chronic illness (Abramowitz, Deacon, & Valentiner, 2007; Rode et al., 2005; Salkovskis et al., 2002; Tang et al., 2007). For example, mean total SHAI score for this group was 9.62 which is similar to mean score of 10.59 reported by Abramowitz and

colleagues (2007) for a group of student participants who had no chronic illness. Table 8.3 in Chapter 8 provides a summary of these comparisons.

This result is supported by previous findings that show while older adults worry most about their health; as a group, they worry less overall than younger people (Hunt, Wisocki, & Yanko, 2003; Lindsay et al., 2006). Similarly, other studies have found that when faced with illness threat, older cohorts show less emotional distress than younger groups (Leventhal, Leventhal, & Schaefer, 1992). In addition, older people frequently have a positive appraisal of health due to physical sensations being attributed to age not illness and reduced health aspirations (Hart, 1990; Lyons & Chamberlain, 2006).

There are several factors that may have contributed to the low level of health anxiety. For instance, there may have been a cohort effect as this generation of older people are less likely to report negative feelings, which may have reduced health anxiety scores (Zarit & Zarit, 2007). Health is strongly associated with social and environmental living conditions (Lyons & Chamberlain, 2006). This group probably had good living conditions as they were recruited from retirement communities and social groups from the more affluent Auckland suburbs. Secondly, financial difficulties and high levels of disability contribute to high levels of worry (Hunt et al., 2003; Looper & Kirmayer, 2001). Reported levels of physical function were generally high and a majority reported sufficient income for their needs. These factors imply a high functioning well resourced group with good living conditions, which may have had positive impact on their health and anxiety levels.

Although levels of health anxiety were generally low, there were a number of participants that exhibited high levels of health anxiety. A suggested cut off for 'severe health anxiety' is a score of 15 on the SHAI scale and 18 for a possible diagnosis of hypochondriasis (Rode et al., 2005). Eleven participants (7.6%) had SHAI scores above 15. Closer inspection of the original data revealed that all had some physical illness or health related event such as impending surgery that potentially eliminated a diagnosis of

hypochondriasis under DSM criteria. While it may not be possible to say whether any of these participants would qualify for a diagnosis of hypochondriasis, it is clear that all had severe health anxiety and that the incidence was within the range of incidence of illness worry of 2.12% – 10% reported in general population studies (Bleichhardt & Hiller, 2007; Looper & Kirmayer, 2001; Martin and Jacobi, 2006; Noyes et al., 2005; Rief et al., 2001). This finding indicates that severe health anxiety is at least as significant a problem for older adults as younger individuals.

Factors Contributing to Health Anxiety

To determine the factors that contributed to health anxiety, two analyses with SHAI and total SHAI scores as dependent variables were carried out. As predicted in hypothesis two, factors that predicted health anxiety were similar to those found in other studies. A consistent significant predictor of health anxiety was decreasing physical function. When the total SHAI scores were considered, lower education reached significance. Physical illness did not reach significance as a predictor in either analysis. Gender, marital status, age and subjective income were not significant predictors.

Previous research has suggested hypochondriacal concerns and illness worries are associated with lower education and disability (Kirmayer & Looper, 2001; Looper & Kirmayer, 2001). Gender and marital status may not contribute to health anxiety (Kirmayer & Looper 2001). Illness worry and hypochondriasis have been shown to be independent of physical illness (Barsky et al., 1991; Barsky, Wyshak, Latham, & Klerman, 1991; Looper & Kirmayer, 2001). While others have shown that illness severity may be a factor in health anxiety (Kirmayer & Looper, 2001). The relationship between health anxiety and physical illness warrants further study using a more sophisticated measure to estimate illness severity. The findings with regards to age are inconclusive.

Epidemiological evidence for an association between increasing age and increased health anxiety is ambiguous. Health anxiety may increase with age (e.g. Bleichhardt &

Hiller, 2007; Rief, et al., 2001), whereas hypochondriasis may not (Creed & Barsky, 2004; Barsky et al., 1991). Inspection of Pearson's r for age and health anxiety showed a very small non-significant correlation in the current study. Any conclusion regarding the effects of age on health anxiety from this study would be imprecise because the young old (65-75) and old old (85+) were under-represented. A longitudinal or prospective study with a more representative distribution of age groups would be required to give clarity.

Prediction of Safety Behaviours

Hypothesis three was supported, SHAI scores predicted safety behaviours, and demographic and health status variables did not significantly effect this relationship. Health anxiety accounted for almost a quarter of the variance in safety behaviours. This is consistent with the cognitive behavioural model of health anxiety that states health anxiety predicts certain types of behavioural consequences. The result obtained here provides support for the applicability of the cognitive behavioural model of health anxiety to older people. Abramowitz and colleagues (2007) also found that demographic variables were not significant contributors to safety behaviours and that health anxiety was a unique predictor of safety behaviours. Health status variables were not considered in their analysis. Other support for the association between health anxiety and safety behaviours can be found in literature on pain disorders. For example, a study of patients with chronic pain, found patients with chronic pain and high health anxiety engaged in significantly more safety behaviours than no pain controls (Tang et al., 2007).

The majority of participants endorsed at least one safety behaviour. After grouping the behaviours into reassurance, checking, avoidance and safety signals, the most frequently endorsed behaviours were reassurance behaviours, followed by avoidance, checking, and then safety signals. As expected, responses fell across the Likert scale. Most responses were in the 'rarely (once or twice)' category and very few responses were in the 'often (most days)' or 'all the time (every day)' categories. This pattern of response taken with the

generally low levels of health anxiety may indicate that the majority of the behaviours were coping behaviours rather than safety behaviours as such. However, these conclusions can only be tentative as the differentiation between these two types of behaviour relies upon the intention behind the behaviour, which was not studied here (Salkovskis, 1996a; Thwaites & Freeston, 2005).

As noted previously, reassurance seeking behaviours are the most common behavioural manifestation of health anxiety (Salkovskis et al., 2002; Taylor & Asmundson, 2004); consequently finding that these are the most frequently endorsed behaviours is unsurprising. Interestingly, avoidance behaviours as a group were the second most commonly endorsed set of behaviours. This validates the inclusion of this set of behaviours in the modified version of the safety behaviours measure. It should be noted that 'avoiding physical exertion' accounted for a third of the responses. This may have been associated with reduced activity due to illness such as arthritis, joint problems or heart disease. The relatively high proportion of avoidance behaviours that includes avoiding medical facilities and tests may have some implications for the recognition of health anxiety, as these individuals are less likely to come to the attention of primary medical services.

Prediction of Medical Utilisation

The results support the fourth prediction that health anxiety would predict medical utilisation; which reflects the results found by Abramowitz and colleagues (2007) for a younger cohort. There is considerable literature that considers the complexity of factors that contribute to medical utilisation. For example, studies of groups of adults over 65 by Wolinsky and colleagues (Wolinsky et al., 1983; Wolinsky & Johnson, 1991) considered demographic, nutritional, social, and physical and mental health factors to explain the variance in medical utilisation. Given the plethora of factors that influence utilisation of medical services, it is unsurprising that health anxiety accounted for only four percent of the variance in medical utilisation. Reassurance seeking in the form of medical utilisation may

be confounded by avoidance behaviours. In some cases, high health anxiety is associated with behaviours such as avoiding medical facilities and medical tests, which would in turn reduce medical utilisation. Most of the variance is accounted for by health status variables which is consistent with studies of health utilisation in this age group (e.g. Linden et al., 1997; Millar, 1996; Wolinsky et al., 1983; Wolinsky & Johnson, 1991).

Research has shown a significant relationship between 'health worry' and medical utilisation in samples of older people in New Zealand, Germany and the United States (Millar, 1996; Linden et al., 1997; Wolinsky & Johnson, 1991). Increased physical disability is a significant contributor to medical utilisation in older populations (Wolinsky & Johnson, 1991), which is reflected in these results. Surprisingly, physical illness did not reach significance (at $p < .05$). However, perceptions of health rather than actual medical morbidity are a significant factor in the prediction of medical utilisation (Hickey, 2002; Wolinsky & Johnson, 1991). Alternatively, this result may be due to the relatively small sample size or measurement factors. For instance, the measure of physical illness in this study may not be sufficiently sensitive. A 'disease list' as a measure of physical illness is not only confounded by memory and help seeking, but also does not take account of the severity of illness, which may be a significant contributor to medical utilisation (Bellon, Delgado, De DiosLuna, & Lardelli, 1999; Liang & Whitelaw, 1990). Future studies could consider a more sensitive measure that takes account of the severity of illness.

Implications

The present study has shown that the factors that are associated with health anxiety are similar to previous work. The findings also show that health anxiety scores for this group of older New Zealanders are no higher than those reported for younger cohorts. The incidence of severe health anxiety is comparable to prevalence estimates given for illness worry in other studies. This indicates that while health anxiety levels are generally low, there is an important sub-group that experience high levels of health anxiety.

The findings of the present study are a step towards empirical support for the applicability of the cognitive model of health anxiety to older people. This has implications for treatment of health anxiety in older adults. Cognitive behavioural therapy has empirical support as an effective treatment for health anxiety, although evaluation has been undertaken solely in adults younger than 60 (Barsky & Ahern, 2004; Furer, 2007; Hollon & Beck, 2004; Snyder & Stanley, 2001). The results of this project give an indication that cognitive behavioural principles may be useful in treating health anxiety among older people. Of particular interest is the unique relationship between health anxiety and safety behaviours found here. The current study provides evidence that the relationship between health anxiety and safety behaviours is independent of demographic and health factors. The similarity of this finding to those of the previous study by Abramowitz, Deacon and Valentiner (2007) suggests that safety behaviours may be similar across the age span.

Judicious reduction of safety behaviours within cognitive behavioural therapy has been reported as an effective component of treatment for disorders such as social phobia, insomnia, and health anxiety (e.g. Morgan & Raffle, 1999; Rachman, Radomsky, & Shafran, 2008; Ree & Harvey, 2004; Salkovskis & Warwick, 1986). Other researchers have developed questionnaires to identify safety behaviours in panic and insomnia (Kamphuis & Telch, 1998; Ree & Harvey, 2004). Results reported here show that the safety behaviour questionnaire has potential to be useful in the identification of safety behaviours in health anxiety.

Shortcomings in the research

This study has a number of shortcomings that limit the generalisability of the results. These are the sample characteristics, study methodology and measurement instruments.

The characteristics of the survey cohort reflect the bias towards healthy and active older people shown in many other studies among older people (Moriatu & Efklides, 2007). The study cohort was a convenience sample of individuals living independently, the majority

of whom were residents of retirement communities. Comparison between the demographic characteristics of the survey cohort and the greater Auckland population over 65, show this group was not a representative sample. The cohort was predominantly European women between the ages of 75 and 85. The group had generally high levels of physical function and were well resourced. In spite of these limitations, the results obtained here are comparable with those obtained in research among younger cohorts. Surveying a more representative sample would increase the generalisability of the results.

Secondly, this was a cross sectional study with a self selected sample that completed a self report questionnaire. Cross sectional studies are subject to cohort effects, i.e. social and historical influence on a particular age group has produced norms about health behaviours that may be different to those in younger age groups, and interpretation of results must take this into consideration (Zarit & Zarit, 2007). Self selected samples may not be representative of the population as a whole, for example they may experience different levels of health anxiety than the general population. Finally, self report questionnaires are subject to bias, for example, respondents may present a more positive image of themselves. This cohort is also from a generation that may under report negative feelings (Zarit & Zarit, 2007) which may have lowered health anxiety scores.

Measurement may be compromised. Although SHAI has been used in general samples that include adults over 65 (e.g. Rimes & Salkovskis, 2002) there are no extant validation studies for the use of SHAI for older people. The safety behaviours measure was modified from a measure used in previous studies and has not been validated in this modified form. However the measure is based on clinically observed behaviours and has good face validity and moderate internal consistency. The measure has also produced useful results.

Future studies

There is much work to be done. Research on health anxiety in older populations is almost non-existent; therefore there are numerous possibilities for future research. Potential investigations include epidemiological studies to determine the incidence of health anxiety across different age groups in the New Zealand community, investigation of the cognitive behavioural model of health anxiety in older cohorts and validation of measures based on cognitive behavioural theory as diagnostic and therapeutic tools for older people.

This study was not epidemiological research; therefore any observations about the incidence of health anxiety can only be indicative and preliminary. Future more rigorous studies would determine the extent of the 'problem' of health anxiety by examining the incidence and consequences of health anxiety of a representative sample and across age groups. Ideally these would be longitudinal or prospective studies to give a clearer indication whether the incidence of health anxiety changes across the age span.

This is possibly the first study to apply and examine cognitive behavioural theory of health anxiety to an older cohort, and as such can only be a first step in validating the relevance of the theory to this population. An important set of studies would be to replicate the cognitive and perceptual studies that have been carried out on younger groups; which would provide further evidence for the applicability of cognitive behavioural theory of health anxiety to older people.

Having a valid and reliable test for health anxiety based on cognitive behavioural theory would be useful in clinical practice. In the cognitive behavioural paradigm, health anxiety exists on a continuum. The SHAI measure has been useful in differentiating between normal health concerns and severe health anxiety in both clinical and research settings. Testing the psychometric properties of the SHAI measure with people over 65 would be useful in further determining the utility of this instrument.

Finally, the present study surveyed a non-clinical cohort, extending this work to a clinical group would give further evidence of the specificity of safety behaviours to health anxiety. Development of the safety behaviour questionnaire could prove useful in the treatment of problematic health anxiety.

CHAPTER 10

CONCLUSIONS

Generally low levels of health anxiety among this cohort of older individuals challenge the pervasive stereotype of the hypochondriacal older person. It appears that in spite of physical illness, people who enjoy a physically active and well supported old age are able to adapt to the challenges of increasing age and are not more health anxious than younger individuals. It should be noted however, severe health anxiety appears to occur at similar rates to younger populations and the extent and consequences of this problem should not be ignored.

This is possibly the first study to examine the cognitive behavioural model of health anxiety in a cohort of older adults. The findings provide preliminary support for the applicability of the model to adults over 65. Most importantly, the study found that safety behaviours are highly specific to health anxiety and are potentially a better indicator of problematic health anxiety than high use of medical services.

This study is only a first step in gathering empirical data on the phenomenon of health anxiety among older adults and it is hoped that this leads to further studies on this intriguing and under researched topic.

APPENDICES

APPENDIX A

Health Concerns Survey

How to complete this survey:

- Use black or blue pen.
- Mark your response clearly with a tick.
- When asked to write a response, please write clearly.
- If you make a mistake, put a cross over the incorrect response and tick your new answer.

PLEASE READ THIS

- All of the information you give us is in confidence and will be used only for the purposes of this study.
- There are no right or wrong answers; we want the response that is best for you.
- Do not spend too long on each question; your first response is usually the best.
- Completion and return of the survey implies consent to take part in this study.
- You have the right to decline to answer any particular question.

When you have completed the survey please return it in the prepaid envelope supplied.

Thank you for participating in this study

Section 1:

This section is to give us some general information about you, please tick the box that best describes you.

1. What is your age? 65-75 75-85 over 85

2. Are you? male female

3. Which ethnic group do you belong to?

(tick all that apply to you)

- Pakeha/New Zealander of European descent
- Maori
- Samoan
- Cook Island Maori
- Tongan
- Niuean
- Chinese
- Indian

Other please specify

4. What is your marital status?

- I am married
- I am in a de facto/partnered relationship
- I am permanently separated or divorced from my husband or wife
- I am a widow or widower
- I have never been married

5. How many people live with you? _____

6. What is your highest qualification?

- No qualifications
 - Secondary school qualification
 - Trade qualification
 - University degree
 - Other qualification, please specify
-

7. How well does your total income meet your everyday needs for such things as accommodation, food, clothing, and other necessities?

- My income is not enough
- My income is just enough
- My income is enough
- My income is more than enough

8. Have you had health problems diagnosed by your doctor? No Yes

If **yes**,

9. What is/are they called?

10. Do you take any prescription medication? No Yes

If **yes**,

11. Please list the names of your prescription medications, if you know them.

Please turn to page 4

12. Please read the following list of activities and tell us: in a typical day does your health now limit you in these activities. If so how much?
(please tick one box in each line)

	Yes limited a lot	Yes limited a little	Not limited at all
Vigorous activities – such as running, lifting heavy objects, participating in strenuous sport.			
Moderate activities - such as moving a table, pushing a vacuum cleaner, playing bowls.			
Lifting or carrying groceries.			
Climbing several flights of stairs.			
Climbing one flight of stairs.			
Bending, kneeling or stooping.			
Walking more than one kilometre.			
Walking several blocks.			
Walking one block.			
Bathing or dressing yourself.			

13. How satisfied are you with your physical ability to do what you want to do?

- Completely satisfied
- Very satisfied
- Somewhat satisfied
- Very dissatisfied
- Completely dissatisfied

Section 2

Each question in this section consists of a group of four statements. Please read each group of statements carefully and then select the one which best describes your feelings, over the past **six months**. Identify the statement by ticking the box next to it i.e. if you think that statement (a) is correct, tick statement (a).

(Please note: it may be that more than one statement applies, in which case, please tick any that are applicable.)

1.	(a) I do not worry about my health.	
	(b) I occasionally worry about my health.	
	(c) I spend much of my time worrying about my health.	
	(d) I spend most of my time worrying about my health.	
2.	(a) I notice aches/pains less than most other people (of my age).	
	(b) I notice aches/pains as much as most other people (of my age).	
	(c) I notice aches/pains more than most other people (of my age).	
	(d) I am aware of aches/pains in my body all the time.	
3.	(a) As a rule, I am not aware of bodily sensations or changes.	
	(b) Sometimes I am aware of bodily sensations or changes.	
	(c) I am often aware of bodily sensations or changes.	
	(d) I am constantly aware of bodily sensations or changes.	
4.	(a) Resisting thoughts of illness is never a problem	
	(b) Most of the time I can resist thoughts of illness.	
	(c) I try to resist thoughts of illness but am often unable to do so.	
	(d) Thoughts of illness are so strong that I no longer even try to resist them.	
5.	(a) As a rule I am not afraid that I have a serious illness.	
	(b) I am sometimes afraid that I have a serious illness.	
	(c) I am often afraid that I have a serious illness.	
	(d) I am always afraid that I have a serious illness.	
6.	(a) I do not have images (mental pictures) of myself being ill.	
	(b) I occasionally have images of myself being ill.	
	(c) I frequently have images of myself being ill.	
	(d) I constantly have images of myself being ill.	

7	(a) I do not have any difficulty taking my mind off thoughts about my health.	
	(b) I sometimes have difficulty taking my mind off thoughts about my health.	
	(c) I often have difficulty in taking my mind off thoughts about my health.	
	(d) Nothing can take my mind off thoughts about my health.	
8.	(a) I am lastingly relieved if my doctor tells me there is nothing wrong.	
	(b) I am initially relieved but the worries sometimes return later.	
	(c) I am initially relieved but the worries always return later.	
	(d) I am not relieved if my doctor tells me there is nothing wrong.	
9.	(a) If I hear about an illness I never think I have it myself.	
	(b) If I hear about an illness I sometimes think I have it myself.	
	(c) If I hear about an illness I often think I have it myself.	
	(d) If I hear about an illness I always think I have it myself.	
10.	(a) If I have a bodily sensation or change I rarely wonder what it means.	
	(b) If I have a bodily sensation or change I often wonder what it means.	
	(c) If I have a bodily sensation or change I always wonder what it means.	
	(d) If I have a bodily sensation or change I must know what it means.	
11.	(a) I usually feel at very low risk for developing a serious illness.	
	(b) I usually feel at fairly low risk for developing a serious illness.	
	(c) I usually feel at moderate risk for developing a serious illness.	
	(d) I usually feel at high risk for developing a serious illness.	
12.	(a) I never think I have a serious illness.	
	(b) I sometimes think I have a serious illness.	
	(c) I often think I have a serious illness.	
	(d) I usually think that I am seriously ill.	
13.	(a) If I notice an unexplained bodily sensation I don't find it difficult to think about other things.	
	(b) If I notice an unexplained bodily sensation I sometimes find it difficult to think about other things.	
	(c) If I notice an unexplained bodily sensation I often find it difficult to think about other things.	
	(d) If I notice an unexplained bodily sensation I always find it difficult to think about other things.	

14.	(a) My family/friends would say I do not worry enough about my health.	
	(b) My family/friends would say I have a normal attitude to my health.	
	(c) My family/friends would say I worry too much about my health.	
	(d) My family/friends would say I am a hypochondriac.	

For the following questions, please think about what it **might** be like if you had a serious illness of a type which particularly concerns you (such as heart disease, cancer, multiple sclerosis and so on). If you do not have the illness, obviously you cannot know for definite what it would be like; please give your best estimate of what you think might happen, basing your estimate on what you know about yourself and serious illness in general. If you do have the illness, please tell us what it is like for you.

15.	(a) If I had a serious illness I would still be able to enjoy things in my life quite a lot.	
	(b) If I had a serious illness I would still be able to enjoy things in my life a little.	
	(c) If I had a serious illness I would be almost completely unable to enjoy things in my life.	
	(d) If I had a serious illness I would be completely unable to enjoy life at all.	

16.	(a) If I developed a serious illness there is a good chance that modern medicine would be able to cure me.	
	(b) If I developed a serious illness there is a moderate chance that modern medicine would be able to cure me.	
	(c) If I developed a serious illness there is a very small chance that modern medicine would be able to cure me.	
	(d) If I developed a serious illness there is no chance that modern medicine would be able to cure me.	

17.	(a) A serious illness would ruin some aspects of my life.	
	(b) A serious illness would ruin many aspects of my life.	
	(c) A serious illness would ruin almost every aspect of my life	
	(d) A serious illness would ruin every aspect of my life.	

18.	(a) If I had a serious illness I would not feel that I had lost my dignity.	
	(b) If I had a serious illness I would feel that I had lost a little of my dignity.	
	(c) If I had a serious illness I would feel that I had lost quite a lot of my dignity.	
	(d) If I had a serious illness I would feel that I had totally lost my dignity.	

Section 3

The following questions concern your use of medical services in the past **six months**. Below is a list of types of medical and health-related practitioners and services. Please indicate whether or not you used each type of practitioner/service **for yourself** in the past **six months**, and if so, approximately how many times. (Please tick one box in each line.)

	None	Once	2-3 times	3-5 times	6-11 times	More than 12 times	Don't know
1. General or Family Practitioner.							
2. Hospital Emergency Clinic or Outpatient Emergency Clinic.							
3. Inpatient hospital stay.							
4. GP Practice Nurse without also seeing the doctor.							
5. Specialist medical practitioner, such as neurologist, oncologist, cardiologist.							
6. Clinical psychologist or counsellor.							
7. District, public health or other nurse.							
8. Chemist or pharmacist for health advice.							
9. Maori health worker, Pacific Island health worker.							
10. Chiropractor or osteopath.							
11. Traditional healer such as tohunga, rongoa Maori specialist or fofo.							
12. Alternative therapist, such as naturopath, homeopath, iridologist or acupuncturist.							

Section 4 The following questions are about your health related behaviours in the **past month**. Below is a list of behaviours that people engage in out of concern for their physical health. Please read the list and tick how often you have engaged in each behaviour **out of concern for your own health**. Do not include behaviours that you have engaged in for purposes other than concern about your health eg checking pulse after exercise or finding information out of concern for someone else

	Never out of concern for my health (not at all)	Rarely out of concern for my health (once or twice)	Sometimes out of concern for my health (once or twice a week)	Often out of concern for my health (most days)	All the time out of concern for my health (every day)
1. Called a health helpline.					
2. Accessed health related information on the internet.					
3. Read health-related books, magazines, articles, pamphlets etc.					
4. Discussed your health with friends or family.					
5. Checked your pulse, blood pressure or heart rate.					
6. Checked your body for potential signs of illness.					
7. Taken over the counter medications or herbal supplements to prevent an illness from developing.					
8. Carried your doctor's phone number.					
9. Avoided watching TV programmes or reading about illness or health issues.					
10. Avoided physical exertion.					
11. Avoided contact with people who are ill.					
12. Avoided medical facilities and/or medical tests of any kind.					

If you have any comments, please write them here.

Thank you for participating in this survey.

Please return it in the prepaid envelope supplied by 11th August 2008

If you would like to receive a summary of the results please give your details below.
[Please note that the results summary may not be available until early 2009.]

To preserve your privacy:

- the envelope containing your questionnaire will be not be opened by the researcher
- any personal information supplied here will be kept separately from your survey responses.

Name

Postal address

APPENDIX C

Frequency Table: Safety Behaviours

	Rarely	Some- times	Often	All the time	TOTAL
Called a health helpline.	3				3
Accessed health related information on the internet.	8	1			9
Read health-related books, magazines, articles, pamphlets etc.	43	10		1	54
Discussed your health with friends or family.	77	10		1	88
Checked your pulse, blood pressure or heart rate.	30	6	6		42
Checked your body for potential signs of illness.	23	2	1	1	27
Taken over the counter medications or herbal supplements to prevent an illness from developing.	22	7	6	2	37
Carried your doctor's phone number.	7	2		7	16
Avoided watching TV programmes or reading about illness or health issues.	17	5		1	23
Avoided physical exertion.	27	8	3		35
Avoided contact with people who are ill.	18	3			21
Avoided medical facilities and/or medical tests of any kind.	21	1			22

APPENDIX D

Frequency Table: Medical Utilisation

	Once	2-3 times	3-5 times	6-11 times	More than 12 times	TOTAL
General or Family Practitioner.	33	78	17	6	1	136
Hospital Emergency Clinic or Outpatient Emergency Clinic.	15	9	3	1		28
Inpatient hospital stay.	18	3	2	1		24
GP Practice Nurse without also seeing the doctor.	28	19	2	5		54
Specialist medical practitioner, such as neurologist, oncologist, cardiologist.	35	11	3			49
Clinical psychologist or counsellor.	3					3
District, public health or other nurse.	1	4	3	1	2	11
Chemist or pharmacist for health advice.	15	9	1			25
Maori health worker, Pacific Island health worker.	1					1
Chiropractor or osteopath.	5	2	1	1		9
Traditional healer such as tohunga, rongoa Maori specialist or fofo.						0
Alternative therapist, such as naturopath, homeopath, iridologist or acupuncturist.	3			1	1	5

APPENDIX E

Raw Data Frequency Tables

Number Of Physical Illnesses

	Frequency	Percent	Valid Percent	Cumulative Percent
0	17	11.7	11.7	11.7
1	45	31.0	31.0	42.8
2	46	31.7	31.7	74.5
3	26	17.9	17.9	92.4
4	8	5.5	5.5	97.9
5	2	1.4	1.4	99.3
6	1	.7	.7	100.0
Total	145	100.0	100.0	

Physical Function

	transformed score*	Frequency	Percent	Valid Percent	Cumulative Percent
10	0	2	1.4	1.4	1.4
11	5	3	2.1	2.1	3.4
12	10	2	1.4	1.4	4.8
13	15	6	4.1	4.1	9.0
14	20	4	2.8	2.8	11.7
15	25	5	3.4	3.4	15.2
16	30	3	2.1	2.1	17.2
17	35	7	4.8	4.8	22.1
18	40	7	4.8	4.8	26.9
19	45	4	2.8	2.8	29.7
20	50	7	4.8	4.8	34.5
21	55	6	4.1	4.1	38.6
22	60	8	5.5	5.5	44.1
23	65	13	9.0	9.0	53.1
24	70	6	4.1	4.1	57.2
25	75	7	4.8	4.8	62.1
26	80	13	9.0	9.0	71.0
27	85	5	3.4	3.4	74.5
28	90	26	17.9	17.9	92.4
29	95	6	4.1	4.1	96.6
30	100	5	3.4	3.4	100.0
Total		145	100.0	100.0	

*transformed score= $\frac{\text{actual score} - \text{lowest possible score}}{\text{Raw score range}} \times 100$

SHAI Raw Scores

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	4	2.8	2.9	2.9
	1	6	4.1	4.4	7.4
	2	8	5.5	5.9	13.2
	3	12	8.3	8.8	22.1
	4	14	9.7	10.3	32.4
	5	13	9.0	9.6	41.9
	6	18	12.4	13.2	55.1
	7	10	6.9	7.4	62.5
	8	8	5.5	5.9	68.4
	9	9	6.2	6.6	75.0
	10	7	4.8	5.1	80.1
	11	3	2.1	2.2	82.4
	12	6	4.1	4.4	86.8
	13	3	2.1	2.2	89.0
	14	4	2.8	2.9	91.9
	16	2	1.4	1.5	93.4
	17	1	.7	.7	94.1
	18	2	1.4	1.5	95.6
	19	2	1.4	1.5	97.1
	20	1	.7	.7	97.8
	21	1	.7	.7	98.5
	22	1	.7	.7	99.3
	24	1	.7	.7	100.0
		Total	136	93.8	100.0
Missing	99	9	6.2		
Total		145	100.0		

APPENDIX F

Model Summary and Correlation Tables

F.1: Dependent Variable: SHAI

Model Summary

Model R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					
				R Square Change	F Change	df1	df2	Sig. F Change	
1	.215 ^a	.046	.012	4.2808	.046	1.350	5	139	.247
2	.434 ^b	.188	.147	3.9777	.142	11.995	2	137	.000

a. Predictors: (Constant), Subjective Income , marital status, Highest qualification, Age, Gender

b. Predictors: (Constant), Subjective Income , marital status, Highest qualification, Age, Gender, physillnes, Functional Disability

Correlations

	SHAI	Age	Gender	Married	Highest qual	Income	Disability	phys illness
Pearson Corr	1.000	-.006	.031	.016	-.204	-.103	-.337	.233
Sig. (1-tailed)		.470	.356	.426	.007	.109	.000	.002

Significant correlations shown in bold

F2: Dependent variable, total SHAI scores

Model Summary

Model R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					
				R Square Change	F Change	df1	df2	Sig. F Change	
1	.249 ^a	.062	.028	5.8670	.062	1.843	5	139	.108
2	.424 ^b	.180	.138	5.5261	.118	9.839	2	137	.000

a. Predictors: (Constant), Subjective Income , Living alone or with others, Highest qualification, Age, Gender

b. Predictors: (Constant), Subjective Income , Living alone or with others, Highest qualification, Age, Gender, SMEAN(physillnes), Functional Disability

Correlations

	total SHAI	Age	Gender	Married	Highest qual	Income	Disability	phys illness
Pearson Corr	1.000	.067	.037	-.008	-.230	-.073	-.351	.192
Sig. (1-tailed)		.213	.330	.460	.003	.190	.000	.010

Significant correlations shown in bold

F.3: Dependent variable: Safety Behaviours (SB)

Model Summary

Model R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					
				R Square Change	F Change	df1	df2	Sig. F Change	
1	.082 ^a	.007	-.029	3.1824	.007	.188	5	139	.967
2	.213 ^b	.045	-.004	3.1428	.039	2.763	2	137	.067
3	.521 ^c	.271	.228	2.7559	.226	42.173	1	136	.000

a. Predictors: (Constant), Subjective Income, marital status, Highest qualification, Age, Gender

b. Predictors: (Constant), Subjective Income, marital status, Highest qualification, Age, Gender, physillnes, Functional Disability

c. Predictors: (Constant), Subjective Income, marital status, Highest qualification, Age, Gender, physillnes, Functional Disability, SHAI

Correlations

		SB	Age	Gender	married y/n	Highest qual	Incom e	Disability	phys illness	SHAI
Pearson Corr	SB	1.0	-.074	-.018	.025	-.026	-.016	-.099	.157	.504
Sig. (1-tailed)	SB		.187	.415	.382	.379	.426	.117	.030	.000

Significant correlations shown in bold

F.4: Dependent variable: Medical utilisation (medu)

Model Summary

Model R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					
				R Square Change	F Change	df1	df2	Sig. F Change	
1	.191 ^a	.036	.002	2.682	.036	1.049	5	139	.391
2	.395 ^b	.156	.113	2.529	.119	9.681	2	137	.000
3	.439 ^c	.192	.145	2.482	.037	6.180	1	136	.014

a. Predictors: (Constant), Subjective Income, marital status, Highest qualification, Age, Gender

b. Predictors: (Constant), Subjective Income, marital status, Highest qualification, Age, Gender, physillnes, Functional Disability

c. Predictors: (Constant), Subjective Income, marital status, Highest qualification, Age, Gender, physillnes, Functional Disability, SHAI

Correlations

		medu	Age	Gender	married y/n	Highest qual	income	Disability	phys illness	SHAI
Pearson Correlation	medu	1.000	.172	.037	-.031	-.029	-.041	-.360	.219	.313
Sig. (1-tailed)	medu		.020	.329	.358	.363	.312	.000	.004	.000

Significant correlations shown in bold

APPENDIX G

E-mail Correspondence regarding SHAI and MUQ

E-mail correspondence with Professor Salkovskis

From: Anderson, Lesley [REDACTED]
Sent: Wednesday, 19 March 2008 5:29 a.m.
To: Ann Boston
Subject: RE: QUERY FOR PROFESSOR SALKOVSKIS - REQUEST TO USE SHAI MEASURE

Dear Ann,

I've just spoken to Paul about this and he said it's absolutely fine to use the SHAI. In terms of scoring the questionnaire, he said that the main score is the first fourteen items totalled. If you have any further questions Paul said to drop him an e-mail direct
[REDACTED]

Good luck with the project.

Regards,
Lesley

From: Ann Boston [REDACTED]
Sent: Friday, 14 March 2008 1:39 p.m.
To: 'Anderson, Lesley'
Subject: RE: QUERY FOR PROFESSOR SALKOVSKIS - REQUEST TO USE SHAI MEASURE

Dear Lesely

Thank you for your prompt reply. I am hoping to submit my research proposal by the end of March, so would really appreciate it if Professor Salkovskis could indicate whether he is able to grant permission to use the SHAI in my study before then.

thank you
Regards
Ann

From: Anderson, Lesley [REDACTED]
Sent: Thursday, 6 March 2008 2:07 a.m.
To: Ann Boston
Subject: RE: QUERY FOR PROFESSOR SALKOVSKIS - REQUEST TO USE SHAI MEASURE

Dear Ann,

Thanks for this, I'll check it out with Professor Salkovskis when I see him. His schedule is pretty hectic so it might take a few days to get back to you.

Regards,
Lesley

From: Ann Boston [REDACTED]
Sent: 05 March 2008 1:47 AM
To: Anderson, Lesley
Subject: QUERY FOR PROFESSOR SALKOVSKIS - REQUEST TO USE SHAI MEASURE

Dear Professor Salkovskis

I am a Postgraduate Student at Massey University New Zealand, and am part of Associate Professor Paul Merrick's team studying the elderly and anxiety. My research interest is the relationship between health anxiety (as defined by the cognitive behavioural model) and safety behaviours in older adults.

I am aware from my literature search that you have developed a measure of health anxiety based on the cognitive model (SHAI; Salkovskis, Rimes, Warwick & Clark, 2002) and request permission to utilize this measure in my study. I note that the inventory is published as an appendix to the paper; however I would appreciate some guidance on the scoring method used. I would also value any comments you may have on the use of the SHAI in an older population.

I will of course acknowledge your assistance in my report and share any relevant findings with you.

Thank you in anticipation of your help.

Regards
Ann Boston

(Salkovskis, P. M., Rimes, K. A., Warwick, H. M. C., & Clark, D. M. (2002). The Health Anxiety Inventory: development and validation of scales for the measurement of health anxiety and hypochondriasis. *Psychological Medicine*, 32(5), 843-853).

E-mail correspondence with Dr Brett Deacon

From: Ann Boston [REDACTED]
Sent: Wednesday, 5 March 2008 9:23 p.m.

Subject: RE: QUERY FROM POSTGRADUATE STUDENT REGARDING MEDICAL UTILISATION QUESTIONNAIRE

Hi Brett

Thanks for your very prompt reply, the measure looks very useful. I will be in touch when I get some results.

Regards

Ann

From: Brett Jason Deacon [REDACTED]
Sent: Wednesday, 5 March 2008 7:22 p.m.

To: Ann Boston

Subject: RE: QUERY FROM POSTGRADUATE STUDENT REGARDING MEDICAL UTILISATION QUESTIONNAIRE

Hi Ann. Here it is. Scoring is simple – just add the responses on the second half for the total score. Good luck with your study.

Best,

Brett

Brett Deacon, Ph.D.

[REDACTED]

From: Ann Boston [REDACTED]
Sent: Tuesday, March 04, 2008 11:21 PM

To: Brett Jason Deacon

Subject: QUERY FROM POSTGRADUATE STUDENT REGARDING MEDICAL UTILISATION QUESTIONNAIRE

Dear Dr Deacon

I have been given your email address by Jon Abramowitz as the person to contact regarding the MUQ.

I am a postgraduate student at Massey University New Zealand and am part of Associate Professor Paul Merrick's group studying the elderly and anxiety. My research interest is the relationship between health anxiety and safety behaviours in older adults.

At this point, my focus is on the construct of safety behaviours and I note that in a recently published paper (Abramowitz, Deacon & Valentiner, 2007), you have developed a measure of safety behaviours called the Medical Utilization Questionnaire. I was hoping that I may be able to utilize this measure (adapted for older adults) in my study, and would of course acknowledge your assistance in my report and share any relevant data with you.

If you agree to this request, I would be most grateful if you could forward a copy of the questionnaire and scoring information to this email address.

Thank you in anticipation of your help

Regards

Ann Boston

Reference

Abramowitz, J. S., Deacon, B.J., & Valentiner, D. P. (2007). The Short Health Anxiety Inventory: Psychometric properties and construct validity in non-clinical sample. *Cognitive Therapy & Research*, 31, 871-883.

REFERENCES

REFERENCES

- Abramowitz, J. S., Deacon, B. J., & Valentiner, D. P. (2007). The Short Health Anxiety Inventory: Psychometric properties and construct validity in a non-clinical sample. *Cognitive Therapy and Research, 31*, 871-883.
- Abramowitz, J. S., & Moore, E. L. (2007). An experimental analysis of hypochondriasis. *Behaviour Research and Therapy, 45*, 413-424.
- Abramowitz, J. S., Olatunji, B. O., & Deacon, B. J. (2007). Health anxiety, hypochondriasis, and the anxiety disorders. *Behavior Therapy, 38*, 86-94.
- American Psychiatric Association. (1968). Diagnostic and statistical manual of mental disorders (2nd ed.). Washington D.C.: Author.
- American Psychiatric Association. (2000). Diagnostic and statistical manual of mental disorders (4th ed. text rev.). Washington D.C.: Author.
- Asmundson, G. J. G., Taylor, S., Sevgur, S., & Cox, B. J. (2001). Health Anxiety: classification and clinical features. In G. J. G. Asmundson, S. Taylor & B. J. Cox (Eds.), *Health Anxiety: Clinical and research perspectives on hypochondriasis and related conditions* (pp. 3-21). Chichester: Wiley.
- Barsky, A. J. (2001). Somatosensory amplification and hypochondriasis. In V. Starcevic & D. R. Lipsitt (Eds.), *Hypochondriasis: Modern perspectives on an ancient malady* (pp. 223-248). Oxford: Oxford University Press.
- Barsky, A. J., & Ahern, D. K. (2004). Cognitive behavior therapy for hypochondriasis - A randomized controlled trial. *Jama-Journal of the American Medical Association, 291*(12), 1464-1470.
- Barsky, A. J., Barnett, M. C., & Cleary, P. D. (1994). Hypochondriasis and panic disorder - boundary and overlap. *Archives of General Psychiatry, 51*, 918-925.

- Barsky, A. J., Brener, J., Coeytaux, R. R., & Cleary, P. D. (1995). Accurate awareness of heartbeat in hypochondriacal and non-hypochondriacal patients. *Journal of Psychosomatic Research, 39*, 489-497.
- Barsky, A. J., Cleary, P. D., & Klerman, G. L. (1992). Determinants of perceived health-status of medical outpatients. *Social Science & Medicine, 34*, 1147-1154.
- Barsky, A. J., Coeytaux, R. R., Sarnie, M. K., & Cleary, P. D. (1993). Hypochondriacal patients beliefs about good health. *American Journal of Psychiatry, 150*, 1085-1089.
- Barsky, A. J., Ettner, S. L., Horsky, J., & Bates, D. W. (2001). Resource utilization of patients with hypochondriacal health anxiety and somatization. *Medical Care, 39*, 705-715.
- Barsky, A. J., Frank, C. B., Cleary, P. D., Wyshak, G., & Klerman, G. L. (1991). The relation between hypochondriasis and age. *American Journal of Psychiatry, 148*, 923-928.
- Barsky, A. J., Wool, C., Barnett, M. C., & Cleary, P. D. (1994). Histories of childhood trauma in adult hypochondriacal patients. *American Journal of Psychiatry, 151*, 397-401.
- Barsky, A. J., Wyshak, G., & Klerman, G. L. (1990). The Somatosensory Amplification Scale and its relationship to hypochondriasis. *Journal of Psychiatry Research, 24*, 323-334.
- Barsky, A. J., Wyshak, G., Latham, K. S., & Klerman, G. L. (1991). The relationship between hypochondriasis and medical illness. *Archives of Internal Medicine, 151*, 84-88.
- Beck, A. T. (1976). *Cognitive therapy and emotional disorders*. New York: International Universities Press.

- Beck, A. T., Emery, G., & Greenberg, R. L. (1985). *Anxiety disorders and phobias: A cognitive perspective*. New York: Basic Books.
- Bellon, J. A., Delgado, A., De Dios Luna, J., & Lardelli, P. (1999). Psychosocial and health belief variables associated with frequent attendance in primary care. *Psychological Medicine, 29*, 1347-1357.
- Belsky, J. K. (1999). *The psychology of aging: Theory, research and interventions*. Pacific Grove CA.: Brooks/Cole.
- Berrios, G. E. (2001). Hypochondriasis: History of the concept. In V. Starcevic & D. R. Lipsitt (Eds.), *Hypochondriasis: Modern perspectives on an ancient malady* (pp. 3-28). Oxford: Oxford University Press.
- Bleichhardt, G., & Hiller, W. (2007). Hypochondriasis and health anxiety in the German population. *British Journal of Health Psychology, 12*, 511-523.
- Conroy, R. M., Smyth, O., Siriwardena, R., & Fernandes, P. (1999). Health anxiety and characteristics of self-initiated general practitioner consultations. *Journal of Psychosomatic Research, 46*, 45-50.
- Costa, P. T., & McCrea, R. R. (1985). Hypochondriasis, neuroticism and aging: When are somatic complaints unfounded? *American Psychologist, 40*(1), 19 -28.
- Craig, T. K., Boardman, A. P., Mills, K., Daly-Jones, O., & Drake, H. (1993). The South London Somatisation Study. I: Longitudinal course and the influence of early life experiences. *The British Journal of Psychiatry, 163*, 579-588.
- Creed, F., & Barsky, A. (2004). A systematic review of the epidemiology of somatisation disorder and hypochondriasis. *Journal of Psychosomatic Research, 56*, 391-408.
- Dancey, C. P., & Reidy, J. (2004). *Statistics without maths for Psychology: Using SPSS for Windows* (3rd ed.). Harlow: Pearson Education.

- de Beurs, E., Beekman, A. T. F., Van Balkhom, A. J. L. M., Deeg, D. J. H., Van Dyck, R. & van Tilburg, W. (1999). Consequences of anxiety in older persons: its effect on disability, well-being and use of health services. *Psychological Medicine*, 29, 583-593.
- Eastin, M. S., & Guinsler, N. M. (2006). Worried and wired: Effects of health anxiety on information-seeking and health care utilization behaviors. *Cyberpsychology & Behavior*, 9, 494-498.
- Faravelli, C., Salvatori, S., Galassi, F., Aiazzi, L., Drei, C., & Cabras, P. (1997). Epidemiology of somatoform disorders: a community survey in Florence. *Social Psychiatry and Psychiatric Epidemiology*, 32, 24-29.
- Fava, G. A., & Mangelli, L. (2001). Hypochondriasis and anxiety disorders. In V. Starcevic & D. R. Lipsitt (Eds.), *Hypochondriasis: Modern perspectives on an ancient malady* (pp. 89-102). Oxford: Oxford University Press.
- Fletcher, P. (2002). *Health of older people in New Zealand: A statistical reference*. Wellington, N.Z.: Ministry of Health.
- Furer, P. (2007). *Treating health anxiety and fear of death: A practitioner's guide*. New York, NY: Springer.
- Ghubash, R., El-Rufaie, O., Zoubeidi, T., Al-Shboul, Q. M., & Sabri, S. M. (2004). Profile of mental disorders among the elderly United Arab Emirates population: Sociodemographic correlates. *International Journal of Geriatric Psychiatry*, 19, 344-351.
- Gureje, O., Ustun, T. B., Simon, G. E., Ozturk, O., Rezaki, M., Stefanis, C., et al. (1997). The syndrome of hypochondriasis: a cross-national study in primary care. *Psychological Medicine*, 27, 1001-1010.

- Hadjistavropoulos, H. D., Craig, K. D., & Hadjistavropoulos, T. (1998). Cognitive and behavioral responses to illness information: the role of health anxiety. *Behaviour Research and Therapy, 36*, 149-164.
- Haenen, M.-A., de Jong, P. J., Schmidt, A. J. M., Stevens, S., & Visser, L. (2000). Hypochondriacs' estimation of negative outcomes: domain-specificity and responsiveness to reassuring and alarming information. *Behaviour Research and Therapy, 38*, 819-833.
- Hart, S. (1990). Psychology and the health of elderly people. In P. Bennett, J. Weinman & P. Spurgeon (Eds.), *Current developments in health psychology*. (pp. 247-275). Amsterdam, Netherlands: Harwood Academic Publishers.
- Harvey, A. G. P. D. (2002). Identifying safety behaviors in insomnia. *Journal of Nervous & Mental Disease, 190*, 16-21.
- Hickey, T. (2002). Biosocial considerations in chronic illness perceptions and decisions. In K. W. Schaie, H. Leventhal & S. L. Willis (Eds.), *Effective health behavior in older adults* (pp. 1-16). New York: Springer.
- Hitchcock, P. B., & Mathews, A. (1992). Interpretation of bodily symptoms in hypochondriasis. *Behaviour Research and Therapy, 30*, 223-234.
- Hlatky, M. A., Haney, T., Barefoot, J. C., Califf, R. M., Mark, D. B., Pryor, D. B., et al. (1986). Medical, psychological and social correlates of work disability among men with coronary artery disease. *The American Journal of Cardiology, 58*, 914-915.
- Hollon, S. D., & Beck, A. T. (2004). Cognitive and cognitive behavior therapies. In M. J. Lambert (Ed.), *Bergin and Garfield's handbook of psychotherapy and behavior change* (5th ed.). New York: Wiley.

- Hunt, S., Wisocki, P., & Yanko, J. (2003). Worry and use of coping strategies among older and younger adults. *Anxiety Disorders, 17*, 547-560.
- Jeon, H. S., Dunkle, R., & Roberts, B. L. (2006). Worries of the oldest-old. *Health & Social Work, 31*, 256-265.
- Kamphuis, J. H., & Telch, M. J. (1998). Assessment of strategies to manage or avoid perceived threat among panic disorder patients: The Texas safety maneuver scale (TSMS). *Clinical Psychology & Psychotherapy, 5*, 177-186.
- Kellner, R. (1987). *Abridged manual of the Illness Attitude Scales*. Unpublished Manual. Department of Psychiatry, School of Medicine, University of New Mexico, Albuquerque.
- Kirmayer, L. J., & Looper, K. J. (2001). Hypochondriasis in primary care. In V. Starcevic & D. R. Lipsitt (Eds.), *Hypochondriasis: Modern perspectives on an ancient malady* (pp. 155-180). Oxford: Oxford University Press.
- Kirmayer, L. J., & Looper, K. J. (2006). Abnormal illness behaviour: physiological, psychological and social dimensions of coping with distress. *Current Opinion in Psychiatry, 19*, 54-60.
- Kirmayer, L. J., & Young, A. (1998). Culture and somatization: Clinical, epidemiological and ethnographic perspectives. *Psychosomatic Medicine, 60*, 420-430.
- Kovar, M. G., & Lawton, M. P. (1994). Functional disability: Activities and instrumental activities of daily living. In M. P. Lawton & J. A. T. Teresi (Eds.), *Annual review of Gerontology and Geriatrics: Focus on assessment techniques* (Vol. 14, pp 57-75). New York: Springer.

- Kowalyk, K. M., & Hadjistavropoulos, H. D. (2007). Measuring health anxiety during pregnancy: Examination of the short version of the health anxiety inventory. *Depression and Anxiety, 24*, 292-293.
- Kubzansky, L. D., Kawachi, I., Spiro, A., III, Weiss, S. T., Vokonas, P. S., & Sparrow, D. (1997). Is Worrying Bad for Your Heart? A prospective study of worry and coronary heart disease in the normative aging study. *Circulation, 95*, 818-824.
- Lawton, M. P., & Lawrence, R. H. (1994). Assessing Health. In M. P. Lawton & J. A. T. Teresi (Eds.), *Annual Review of Gerontology and Geriatrics: Focus on Assessment Techniques* (Vol. 14, pp. 23-56). New York: Springer.
- Lecci, L., & Cohen, D. J. (2002). Perceptual consequences of an illness-concern induction and its relation to hypochondriacal tendencies. *Health Psychology, 21*, 147-156.
- Leventhal, H., Leventhal, E. A., & Schaefer, P. (1992). Vigilant coping and health behavior. In M. G. Ory, R. P. Abeles & P. D. Lipman (Eds.), *Aging, health and behavior* (pp. 109-140). Newbury Park CA: Sage.
- Liang, J., & Whitelaw, N. A. (1990). Assessing the physical and mental health of the elderly. In S. M. Stahl (Ed.), *The Legacy of Longevity* (pp. 35-54). Newbury Park: Cal.: Sage.
- Linden, M., Hargas, A. L., Gliberg, R., & Steinhagen-Thiessen, E. (1997). Predicting health care utilisation in the very old: The role of physical health, mental health, attitudinal and social factors. *Journal of Aging and Health, 9*, 3-27.
- Lindesay, J., Baillon, S., Brugha, T., Dennis, M., Stewart, R., Araya, R., et al. (2006). Worry content across the lifespan: an analysis of 16- to 74-year-old participants in the British National Survey of Psychiatric Morbidity 2000. *Psychological Medicine, 36*, 1625-1633.

- Lipsitt, D. R. (2001). Psychodynamic perspectives on hypochondriasis. In V. Starcevic & D. R. Lipsitt (Eds.), *Hypochondriasis: Modern perspectives on an ancient malady* (pp. 183-201) Oxford: Oxford University Press.
- Lipsitt, D. R., & Starcevic, V. (2001). Epilogue. In V. Starcevic & D. Lipsitt, R. (Eds.), *Hypochondriasis: Modern perspectives on an ancient malady* (pp. 355-368). Oxford: Oxford University Press.
- Longley, S. L., Watson, D., & Noyes, R. (2005). Assessment of the hypochondriasis domain: The Multidimensional Inventory of Hypochondriacal Traits (MIHT). *Psychological Assessment, 17*, 3-14.
- Looper, K. J., & Kirmayer, L. J. (2001). Hypochondriacal concerns in a community population. *Psychological Medicine, 31*, 577-584.
- Luceck, M. P., & Morley, S. (1996). The health anxiety questionnaire. *British Journal of Health Psychology, 1*, 137-150.
- Luceck, M. P., White, C., Peake, M. D., & Morley, S. (1998). Biased perception and recall of reassurance in medical patients. *British Journal of Health Psychology, 3*, 237-243.
- Lyons, A. C., & Chamberlain, K. (2006). *Health Psychology: A critical introduction*. Cambridge: Cambridge University Press.
- Main, M. (1996). Introduction to the special section on attachment and psychopathology: 2. Overview of the field of attachment. *Journal of Consulting and Clinical Psychology, 64*, 237-243.
- Marcus, D. K. (1999). The cognitive-behavioral model of hypochondriasis: Misinformation and triggers. *Journal of Psychosomatic Research, 47*, 79-91.

- Marcus, D. K., & Church, S. E. (2003). Are dysfunctional beliefs about illness unique to hypochondriasis? *Journal of Psychosomatic Research*, *54*, 543-547.
- Marcus, D. K., Gurley, J. R., Marchi, M. M., & Bauer, C. (2007). Cognitive and perceptual variables in hypochondriasis and health anxiety: A systematic review. *Clinical Psychology Review*, *27*, 127-139.
- Martin, A., & Jacobi, F. (2006). Features of hypochondriasis and illness worry in the general population in Germany. *Psychosomatic Medicine*, *68*, 770-777.
- McClure, E. B., & Lilienfeld, S. O. (2001). Personality traits and health anxiety. In G. J. G. Asmundson, S. Taylor & B. J. Cox (Eds.), *Health Anxiety: Clinical and research perspectives on hypochondriasis and related conditions* (pp. 65-94). Chichester: Wiley.
- McDowell, I. (2006). *Measuring health: A guide to rating scales and questionnaires* (3rd ed.). Oxford: Oxford University Press.
- Mechanic, D., & Volkart, E. H. (1961). Stress, illness behavior, and the sick role. *American Sociological Review*, *26*, 51-58.
- Millar, M. A. (1996). *Utilisation of health care services by older adults: A New Zealand study*. Unpublished Masters Thesis, Massey University: Palmerston North, New Zealand.
- Montorio, I., Nuevo, R., Marquez, M., Izal, M., & Losada, A. (2003). Characterization of worry according to severity of anxiety in elderly living in the community. *Aging & Mental Health*, *7*, 334-341.
- Moraitu, D., & Efklides, A. (2007). Affects and emotions. In R. Fernandez-Ballesteros (Ed.), *Geropsychology: European perspectives for an aging world*. Cambridge MA: Hogrefe & Huber.

- Morgan, H., & Raffle, C. (1999). Does reducing safety behaviours improve treatment response in patients with social phobia? *Australian & New Zealand Journal of Psychiatry*, *33*, 503-510.
- Noyes, R. (1999). Relationship of hypochondriasis to anxiety disorders. *General Hospital Psychiatry*, *21*, 8-17.
- Noyes, R. (2001). Epidemiology of hypochondriasis. In V. Starcevic & D. R. Lipsitt (Eds.), *Hypochondriasis: Modern perspectives on an ancient malady* (pp 127-154). Oxford: Oxford University Press.
- Noyes, R. (2004). Hypochondriasis: A review. In M. Maj, H. S. Akiskal, J. E. Mezzich & A. Okasha (Eds.), *Somatoform Disorders* (pp. 129-161). Chichester: Wiley.
- Noyes, R., Carney, C. P., Hillis, S. L., Jones, L. E., & Langbehn, D. R. (2005). Prevalence and correlates of illness worry in the general population. *Psychosomatics* *46*, 529-539.
- Noyes, R., Jr., Stuart, S., Langbehn, D. R., Happel, R. L., Longley, S. L., & Yagla, S. J. (2002). Childhood antecedents of hypochondriasis. *Psychosomatics*, *43*, 282-289.
- Noyes, R., Stuart, S. P., & Watson, D. B. (2008). A reconceptualization of the somatoform disorders. *Psychosomatics*, *49*, 14-22.
- Oakley Browne, M. A., Wells, J. E., & Scott, K. M. (2006). *Te Rau Hinengaro: The New Zealand Mental Health Survey*. Wellington: Ministry of Health.
- Owens, K. M. B., Asmundson, G. J. G., Hadjistavropoulos, T., & Owens, T. J. (2004). Attentional bias toward illness threat in individuals with elevated health anxiety. *Cognitive Therapy and Research*, *28*, 57-66.

- Paul, C. (2007). Old-old people: Major recent findings and European contribution to the state of the art. In R. Fernandez-Ballesteros (Ed.), *Geropsychology: European perspectives for an aging world* (pp. 128-144). Cambridge, Mass. London: Hogrefe & Huber.
- Pilowsky, I. (1967). Dimensions of hypochondriasis. *British Journal of Psychiatry*, *113*, 89-93.
- Pilowsky, I., & Spence, N. D. (1994). *Manual for the Illness Behaviour Questionnaire* (3rd edn.). Unpublished Manual. Department of Psychiatry, University of Adelaide, Adelaide, South Australia.
- Pinquart, M. (2001). Correlates of subjective health in older adults: A meta-analysis. *Psychology and Aging*, *16*, 414-426.
- Powers, M. B., Smits, J. A. J., & Telch, M. J. (2004). Disentangling the effects of safety-behavior utilization and safety-behavior availability during exposure-based treatment: A placebo-controlled trial. *Journal of Consulting and Clinical Psychology*, *72*, 448-454.
- Rachman, S. (2001). Foreword. In G. J. G. Asmundson, S. Taylor & B. J. Cox (Eds.), *Health Anxiety: Clinical and research perspectives on hypochondriasis and related conditions* (pp xvii-xviii). New York: Wiley.
- Rachman, S., Radomsky, A. S., & Shafran, R. (2008). Safety behaviour: A reconsideration. *Behaviour Research and Therapy*, *46*, 163-173.
- Ree, M. J., & Harvey, A. G. (2004). Investigating safety behaviours in insomnia: The development of the sleep-related behaviours questionnaire (SRBQ). *Behaviour Change*, *21*, 26-36.

- Rief, W. P., Hessel, A. M. D., & Braehler, E. P. (2001). Somatization symptoms and hypochondriacal features in the general population. *Psychosomatic Medicine*, *63*, 595-602.
- Rief, W., Heitmuller, A. M., Reisberg, K., & Ruedel, H. (2006). Why reassurance fails in patients with unexplained symptoms - An experimental investigation of remembered probabilities. *Plos Medicine*, *3*, 1266-1272.
- Rimes, K. A., & Salkovskis, P. M. (2002). Prediction of psychological reactions to bone density screening for osteoporosis using a cognitive-behavioral model of health anxiety. *Behaviour Research and Therapy*, *40*, 359-381.
- Rode, S., Salkovskis, P., Dowd, H., & Hanna, M. (2006). Health anxiety levels in chronic pain clinic attenders. *Journal of Psychosomatic Research*, *60*, 155-161.
- Rohrer, J. E., Young, R., Sicola, V., & Houston, M. (2007). Overall self-rated health: a new quality indicator for primary care. *Journal of Evaluation in Clinical Practice*, *13*, 150-153.
- Sadock, B. J., & Sadock, V. A. (2003). *Kaplan & Sadock's synopsis of psychiatry: behavioral sciences, clinical psychiatry* (9th ed.). Philadelphia, PA Lippincott Williams & Wilkins.
- Salkovskis, P. M. (1991). The importance of behaviour in the maintenance of anxiety and panic: a cognitive account. *Behavioural Psychotherapy*, *19*, 16-19.
- Salkovskis, P. M. (1996a). Avoidance behaviour is motivated by threat beliefs: A possible resolution of the cognitive-behaviour debate. In P. M. Salkovskis (Ed.), *Trends in cognitive and behavioural therapies* (pp. 25-42). Chichester; New York: Wiley.

- Salkovskis, P. M. (1996b). The Cognitive Approach to Anxiety: Threat beliefs, safety-seeking behaviour and the special case of health anxiety and obsessions. In P. M. Salkovskis (Ed.), *Frontiers of cognitive therapy* (pp. 26-47). New York: Guilford Press
- Salkovskis, P. M., Clark, D. M., & Gelder, M. G. (1996). Cognition-behaviour links in the persistence of panic. *Behaviour Research and Therapy*, *34*, 453-458.
- Salkovskis, P. M., Clark, D. M., Hackmann, A., Wells, A., & Gelder, M. G. (1999). An experimental investigation of the role of safety-seeking behaviours in the maintenance of panic disorder with agoraphobia. *Behaviour Research and Therapy*, *37*, 559-574.
- Salkovskis, P. M., Rimes, K. A., Warwick, H. M. C., & Clark, D. M. (2002). The Health Anxiety Inventory: development and validation of scales for the measurement of health anxiety and hypochondriasis. *Psychological Medicine*, *32*, 843-853.
- Salkovskis, P. M., & Warwick, H. M. C. (1986). Morbid preoccupations, health anxiety and reassurance: a cognitive-behavioural approach to hypochondriasis. *Behaviour Research and Therapy*, *24*, 597-602.
- Salkovskis, P. M., & Warwick, H. M. C. (2001a). Making sense of hypochondriasis: A cognitive theory of health anxiety. In G. J. G. Asmundson, S. Taylor & B. J. Cox (Eds.), *Health Anxiety: Clinical and research perspectives on hypochondriasis and related conditions* (pp. 46-64). Chichester: Wiley
- Salkovskis, P.M., & Warwick, H. M. C. (2001b). Meaning, misinterpretations and medicine: A cognitive-behavioural approach to understanding health anxiety and hypochondriasis. In V. Starcevic & D. R. Lipsitt (Eds.), *Hypochondriasis: Modern perspectives on an ancient malady* (pp. 202-222). New York: Oxford University Press.

- Saz, P., Copeland, J. R. M., Camara, C., Lobo, A., & Dewey, M. E. (1995). Cross-national comparison of prevalence of symptoms of neurotic disorders in older people in two community samples. *Acta Psychiatrica Scandinavica*, *91*, 18-22.
- Schmidt, A. J. M. (1994). Bottlenecks in the diagnosis of Hypochondriasis. *Comprehensive Psychiatry*, *35*, 306-315.
- Sheehan, B., & Banerjee, S. (1999). Review: Somatization in the elderly. *International Journal of Geriatric Psychiatry*, *14*, 1044-1049.
- Snyder, A. G., & Stanley, M. A. (2001). Hypochondriasis and health anxiety in the elderly. In G. J. G. Asmundson, S. Taylor & B. J. Cox (Eds.), *Health Anxiety: Clinical and research perspectives on hypochondriasis and related conditions* (pp. 246-274). New York: Wiley.
- Starcevic, V. (2001). Reassurance in the treatment of hypochondriasis. In V. Starcevic & D. Lipsitt, R. (Eds.), *Hypochondriasis: Modern perspectives on an ancient malady*. (pp. 291-315). Oxford: Oxford University Press.
- Statistics New Zealand (2006). *Census data: Tables about Auckland Region*. Retrieved 12th October, 2008, from <http://www.stats.govt.nz/census/census-outputs/tables/aboutaplaceables.htm?id=1000002&tab=Agensex&type=region&ParentID=>
- Stein, E. M. (2003). When is hypochondriasis not hypochondriasis? Emotional and behavioral adaptations to aging and illness. *Geriatrics*, *58*, 41-42.
- Stewart, S. H., & Watt, M. C. (2001). Assessment of health anxiety. In G. J. G. Asmundson, S. Taylor & B. J. Cox (Eds.), *Health Anxiety: Clinical and research perspectives on hypochondriasis and related conditions* (pp. 95-131). Chichester: Wiley.

- Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). Boston: Pearson Education.
- Tang, N. K. Y., Salkovskis, P. M., Poplavskaya, E., Wright, K. J., Hanna, M., & Hester, J. (2007). Increased use of safety-seeking behaviors in chronic back pain patients with high health anxiety. *Behaviour Research and Therapy*, *45*, 2821-2835.
- Taylor, S., & Asmundson, G. J. G. (2004). *Treating Health Anxiety: A cognitive-behavioural approach*. New York: The Guilford Press.
- Taylor, S., Thordarson, D. S., Jang, K. L., & Asmundson, G. J. G. (2006). Genetic and environmental origins of health anxiety: a twin study. *World Psychiatry*, *5*, 47-50.
- Thwaites, R., & Freeston, M. H. (2005). Safety-seeking behaviours: Fact or function? How can we clinically differentiate between safety behaviours and adaptive coping strategies across anxiety disorders? *Behavioural and Cognitive Psychotherapy*, *33*, 177-188.
- Waldinger, R. J., Schulz, M. S., Barsky, A. J., & Ahern, D. K. (2006). Mapping the road from childhood trauma to adult somatization: The role of attachment. *Psychosomatic Medicine*, *68*, 129-135.
- Ware, J. E., & Sherbourne, C. D. (1992). The MOS 36-item short-form health survey (SF-36). *Medical Care*, *30*, 473-483.
- Warwick, H. M. C., & Salkovskis, P. M. (1990). Hypochondriasis. *Behaviour Research and Therapy*, *28*, 105-117.
- Wells, A., Clark, D. M., Salkovskis, P., Ludgate, J., Hackmann, A., & Gelder, M. (1995). Social phobia - the role of in-situation safety behaviors in maintaining anxiety and negative beliefs. *Behavior Therapy*, *26*, 153-161.

- Wijeratne, C., & Hickie, I. (2001). Somatic distress syndromes in later life: The need for paradigm change. *Psychological Medicine*, 31, 571.
- Wijeratne, C., Brodaty, H., & Hickie, I. (2003). The neglect of somatoform disorders by old age psychiatry: Some explanations and suggestions for future research. *International Journal of Geriatric Psychiatry*, 18, 812-819.
- Williams, P. G. (2004). The psychopathology of self-assessed health: A cognitive approach to health anxiety and hypochondriasis. *Cognitive Therapy and Research*, 28, 629-644.
- Wolinsky, F. D., Coe, R. M., Miller, D. K., Prendergast, J. M., Creel, M. J., & Chavaz, M. N. (1983). Health services utilisation among the non-institutionalised elderly. *Journal of Health and Social Behavior*, 24, 325-337.
- Wolinsky, F. D., & Johnson, R. J. (1991). The use of health services by older adults. *Journals of Gerontology*, 46, S345-S357.
- Young, J. T. (2004). Illness behaviour: a selective review and synthesis. *Sociology of Health & Illness*, 26, 1-31.
- Zarit, S. H., & Zarit, J. M. (2007). *Mental disorders in older adults: Fundamentals of assessment and treatment*. New York, London: Guilford Press.