The Roberts Anxiety Scale for Elderly:

Development and Psychometric Evaluation

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Abstract

Psychological literature has clearly expressed the need for a greater understanding of the phenomenon of anxiety in older adults. In turn, this has contributed to the validity issues surrounding the measurement of anxiety in older adults using self-report psychological measures. As such, the need for a new measure of anxiety specific to older adults has been identified within the literature. This study aimed to address these issues in two closely related studies. Study one used thematic analysis to determine the characteristics of anxiety in a sample of 131 community dwelling older adults. The results supported previous research by indicating that how older adults experienced worry was of greater importance than the topic of worry. Social desirability effects were observed in the reporting of anxiety experiences. Study two developed the content for the Roberts Anxiety Scale for Elderly (RASE) by combining psychological theory with the results from study one. The RASE was administered to 203 community dwelling older adults alongside two existing self-report measures. Confirmatory factor analysis found that a three factor structure of worry, negative affect, and somatic sensations best accounted for observed scores on the RASE. Good internal consistency and convergent validity was found for the RASE. Future research should be directed at evaluating the performance of the RASE in clinical populations of older adults.

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Introduction

The wellbeing of older adults is being given increasing attention from health and social researchers given that New Zealand has an ageing population. Current census statistics show one in eight New Zealanders are over 65, and by the year 2051 it is predicted to be one in four (Statistics New Zealand, 2007). This growth in the older adult population is driving health providers to plan for future uptake of health services.

International mental health researchers until recent years have devoted attention to disorders such as depression and dementia in the older adults, with anxiety largely neglected. At present there are no specific models of anxiety in this population and very little consensus on the nature of anxiety in older adults (Kogan, Edelstein, & McKee, 2000; Stanley & Beck, 2000; Wolitzky-Taylor, Castriotta, Lenze, Stanley, & Craske, 2010). Because of the lack of agreement on the nature of anxiety in older adults, the psychological measures available for assessment of anxiety have been critiqued for their lack of evidence of construct validity (J. G. Beck & Averill, 2004; Blazer, 1997; Stanley & Beck, 2000; Wolitzky-Taylor et al., 2010). Consequently the lack of valid psychological measures has led to a lack of consensus on the prevalence and presentation of anxiety in older adults (Wolitzky-Taylor et al., 2010).

The underdeveloped theoretical understanding of anxiety in older adults creates problems through all phases of assessment and treatment with these clients. Assessment is difficult when the key markers of a disorder are unclear, and look similar to symptoms of other disorders and medical conditions. Significantly, the majority of older adult patients with generalised anxiety disorder (GAD) in a recent study did not have their anxiety symptoms recorded by their medical doctor (Calleo et al., 2009). This has significant implications for the client as anxiety has been shown to adversely affect quality of life (Oakley Browne, Wells, & Scott, 2006). Furthermore, the literature on anxiety in older adults that is used to guide psychologists' practice is full of methodological limitations and confounds, which further confuse the empirical understanding of this phenomenon (Wolitzky-Taylor

et al., 2010). These issues in turn limit the ability to plan for and evaluate treatment programs and their outcomes.

In light of this, the present research has two primary outcomes: (1) to understand the characteristics of anxiety in older adults, and (2) based on this understanding develop a valid and psychometrically sound measure of anxiety for older adults. Through assessing the everyday experiences of older adults, the relevant content for inclusion on a new measure will be established. This in turn, contributes to the construct validity of the new measure, which is what is fundamentally lacking from existing measures used with older adults.

The following chapters provide an overview of the existing anxiety literature with a focus on the issues unique to older adults. Chapter two begins by introducing the construct of anxiety, and providing an overview of the common symptoms across different anxiety disorders. Next, the major theories of the aetiology of anxiety relevant to the present study will be reviewed, focusing on the cognitive theory of anxiety (A. T Beck, Emery, & Greenberg, 1985; D. A. Clark & Beck, 2010). An overview will be given on the aetiology and maintenance of generalised anxiety disorder (GAD) from different theoretical perspectives. Finally, an overview of the benefits, and problems with, the categorical diagnostic system will be given, including the issue of comorbidity between anxiety and depression. This issue is important to discuss as the present research makes reference to anxiety disorders (e.g. GAD) as set out in the Diagnostic and Statistical Manual of Mental Health Disorders, fourth edition (DSM-IV-TR; American Psychiatric Association, 1994).

Chapter three focuses on anxiety in older adults and discusses why they are a unique group that require special consideration within the anxiety literature. An overview of the prevalence of anxiety disorders in older adults will be given, followed by a discussion how these estimates are affected by the methodological difficulties of researching older adults. The contextual lifespan theory (B. G. Knight & Poon, 2008) will be discussed to show how age cohorts can influence the experience of mental illness in older adults. Finally, an overview of the current literature on how older adults experience anxiety, and why their experiences may differ to younger adults will be provided.

As clinical assessment is a critical part of any psychological intervention, chapter five provides an overview of assessment methods. The use of psychological measures as part of clinical assessment will be focused on, and the importance of having certainty in the accuracy of the clinical measure will be discussed. An overview will be given of how clinicians can evaluate the reliability and validity of interpreting scores on psychological measures, followed by a discussion of the different types of validity evidence that can be gathered through research. The implications of using measures which have inadequate psychometric properties will be discussed.

Chapter six brings the issue of validity in assessment of older adults using self-report measures of anxiety to the forefront. It will be argued that because older adults are a unique group, psychological measures of anxiety developed for younger adults cannot be used with older adults without establishing the validity of doing so. Two groups of anxiety measures in common use with older adults will be reviewed: (1) measures developed for younger adults that have been used with older adults, and (2) measures developed specifically for older adults. The psychometric properties of these measures will be evaluated, and evidence of their validity for measuring anxiety in older adults will be discussed.

Chapters seven to nine contain the method and results from a qualitative study into how older adults experience anxiety in their everyday lives. A discussion on worry topics and the process of anxiety as experienced in cognitive, emotional, behavioural, and physiological terms is provided. The implications of the study for the development of a new psychological measure of anxiety for older adults is discussed.

Chapters ten and eleven are concerned with outlining the method of development of the Roberts Anxiety Scale for Elderly (RASE), and providing an overview of the way in which the measure was refined. The results of the study are provided in chapter 11, and different factor structures are trialled.

Chapter twelve provides a final discussion on the research findings, paying particular attention to the psychometric properties of the RASE. The discussion also examines the implications of the research into work with older adults, and its relationship to cognitive theory and the tripartite model of anxiety.

2

Anxiety Disorders

A theoretical foundation provides the clinician with the key signs and symptoms essential to cover when assessing their psychologically distressed client. Therefore, clinicians can quickly lose their direction if they do not have a solid understanding of the theory behind the disorder that is causing the client psychological distress. However, in the case of anxiety in older adults, there is a limited amount of theory available to clinicians. In this instance, research into the presentation of anxiety in younger adults provides a starting point for researchers who seek to understand anxiety in older adults.

Empirical support has been found for a number of theories that have been developed and tested with adult samples. However research into the applicability of these theories in older adult groups has been limited (Stanley & Beck, 2000; P. Wisocki, 1988). The present chapter provides an overview of the common features of anxiety disorders from different theoretical orientations. This will be followed by a discussion of the specific DSM-IV diagnostic category of GAD and its aetiology. The most attention will be given to the cognitive theories of anxiety (A. T Beck et al., 1985; D. A. Clark & Beck, 2010) as these provide the theoretical foundation for the present research.

What is Anxiety?

It is important to first consider what is meant by the term anxiety in the clinical psychology context prior to moving further into discussing the theories of anxiety. A number of words are used colloquially to describe the experience of anxiety, such as "fear", "nervous", "worry", "terror", and "panic" (Barlow, 2002a). Although often used interchangeably, fear, worry, and anxiety are distinct constructs within the clinical psychology literature and require theoretical differentiation. Barlow (2002) views fear as an autonomic nervous system reaction that occurs in response to perceived present danger, and is an adaptive response to protect the person from harm. However, Beck, Emery, and Greenberg (1985) assert that there is a cognitive process involved in the fear response, namely an appraisal that the situation contains actual threat. Clark and Beck

(2010) state that fear is the underlying automatic appraisal of danger that is the core process implicit within the anxiety disorders.

Because fear is an immediate and somewhat intense physiological reaction, the symptoms cannot be sustained over long periods of time. However, the concern that a similar fear causing situation would return is the emotion of anxiety. Clark and Beck (2010) define anxiety as an enduring state of "anxious apprehension" that includes other cognitive factors as well as fear. These include the perceived aversiveness of the situation arising, the perception of having little control over the situation, uncertainty about the future, and feeling vulnerable or helpless to deal with the event. Both anxiety and fear are future-orientated mood states, and in the cognitive model of anxiety an individual's thought content will be dominated with questions that begin with asking "what if?" (D. A. Clark & Beck, 2010).

People with anxiety will often talk about their experiences of worry, and although it is part of anxiety, worry is a separate construct within the literature. Worry generally refers to the cognitive component of anxiety, such as the anxious apprehension about future events (Purdon & Harrington, 2006). Therefore worry can be experienced by people without the physiological sensations that are associated with anxiety.

Although anxious states are experienced by most people at some point, it is essential for a clinician to be able to recognise when the client's anxiety is abnormal and requiring a therapeutic intervention. Clark and Beck (2010) suggested five criteria that can be used to differentiate between normal and abnormal anxiety, which may not all be present in each case: (1) dysfunctional cognition: that the person becomes excessively anxious from an erroneous appraisal of a situation as dangerous in the absence of a readily observable threat; (2) impaired functioning: the anxiety itself interferes with adaptive coping in a situation of perceived threat, and the individual has impaired social or occupational functioning[1]; (3) persistence: the duration of the anxiety is longer than what would otherwise be expected in normal conditions, and the person

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[1] This is aligned with one of the key diagnostic criteria for anxiety disorders in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR; American Psychiatric Association [APA], 2000) is the presence of "marked distress or "significant interference with the person's normal routine, occupational (or academic) functioning, or social activities or relationships (p. 449).

experiences apprehension about potential future threat regardless of whether their concerns are actualised; (4) false alarms: a fear response that occurs in the absence of a life-threatening stimulus e.g. a panic attack; (5) stimulus hypersensitivity: whereby fear is elicited by a broader range of situations or stimuli that would be perceived as mildly anxiety provoking to most, however in a clinically anxious individual a disproportionate level of anxiety is produced.

Common Features of Anxiety

Many types of anxiety and fear are captured within the DSM-IV classification system of anxiety disorders. Each has a unique symptom profile, and is viewed as distinct from the other by the DSM-IV diagnostic system. However, there is marked heterogeneity within the anxiety disorders within the DSM-IV (American Psychiatric Association, 1994). For example, post traumatic stress disorder (PTSD) is category of anxiety that is triggered by witnessing or experiencing trauma that leads the individual to believe their life is threatened. It is characterised by re-experiencing the traumatic event accompanied by physiological arousal, which leads to avoidance of stimuli associated with the trauma. In contrast, panic disorder is a sudden onset of anxiety that is characterised by predominantly physiological symptoms such as shortness of breath, chest pains, and palpitations, accompanied by anxious cognitions and avoidance behaviours. Specific phobia is also in the same category of anxiety disorders, and is characterised by an irrational fear of an object or situation that often leads to avoidance behaviour. Obsessive compulsive disorder is also an anxiety disorder that is characterised by intrusive thoughts that cause distress, and/or compulsive behaviour which serves to neutralise the distressing thoughts. Also belonging to anxiety disorders, social phobia is characterised by anxiety triggered by social or performance situations, and often leads to avoidance behaviour (American Psychiatric Association, 1994). GAD is the anxiety disorder which corresponds to the everyday experience of anxiety, and is characterised by excessive anxiety and uncontrollable worry. The theoretical understanding of GAD will be discussed in more detail in chapter three, as it provides the context for the present research.

Despite the heterogeneity of anxiety disorders, Beck et al., (1985) identified their common physiological, cognitive, behavioural, and emotional components

(see Table 1). Physiological responses that occur when an individual perceives threat are considered automatic and occur in response to autonomic nervous system arousal. These physiological responses are adaptive in a situation where real danger exists as they prepare the body to confront the danger (fight) or flee the situation to safety (flight). Beck considers that the cognitive component of anxiety is the interpretation of the physiological symptoms of anxiety. The affective symptoms are the subjective experience of anxiety and are also a response to the cognitive and physiological symptoms. The behavioural component is the individual's action in response to threat, and can be adaptive or pathological depending on the function it serves.

Table 1

Common Features of Anxiety

Physiological symptoms   (1) Increased heart rate, palpitations; (2) shortness of breath; (3) chest pain or pressure; (4) choking sensation; (5) dizzy, lightheaded; (6) sweaty, hot flashes, chills; (7) nausea, upset stomach, diarrhoea; (8) trembling, shaking; (9) tingling or numbness in arms, legs; (10) weakness, unsteady, faintness; (11) tense muscles, rigidity; (12) dry mouth.
Cognitive symptoms   (1) Fear of losing control, being unable to cope; (2) fear of physical injury or death; (3) fear of "going crazy"; (4) fear of negative evaluation by others; (5) frightening thoughts, images, or memories; (6) perceptions of unreality or detachment; (7) poor concentration, confusion, distractible; (8) narrowing of attention, hyper-vigilance for threat; (9) poor memory; (10) difficulty in reasoning, loss of objectivity.
Behavioural symptoms   (1) Avoidance of threat cues or situations; (2) escape, flight; (3) pursuit of safety, reassurance; (4) restlessness, agitation, pacing; (5) hyperventilation; (6) freezing, motionless; (7) difficulty speaking
Affective symptoms   (1) Nervous, tense, wound-up; (2) frightened, fearful, terrified; (3) edgy, jumpy, jittery; (4) impatient, frustrated

Note. Adapted from *Cognitive therapy of anxiety disorders: Science and practice*, by D. A. Clark and A. T. Beck, 2010, p. 16. New York: Guilford Press.

Comorbidity of Anxiety Disorders

Anxiety disorders are commonly comorbid with other disorders, and symptoms of anxiety are frequently observed in patients that do not meet the criteria for a DSM-IV anxiety disorder (Wilk et al., 2006). This issue also has been documented within older adults (Cole, 1991; G. J. Diefenbach et al., 2003; Palmer, Jeste, & Sheikh, 1997). Much of the research surrounding diagnostic comorbidity within anxiety disorders has focused on the relationship between anxiety and depression. Approximately 55% of individuals with a diagnosis of anxiety or depression will have a comorbid anxiety or depressive disorder. However this rate increases to 76% when accounting for lifetime diagnoses (Brown & Barlow, 2002).

Comorbidity of anxiety and depression is associated with greater functional impairment, higher symptom severity, and a more pervasive course of the disorder (C. Hunt, Slade, & Andrews, 2004). Furthermore, these individuals with comorbid depression and anxiety show poorer treatment response, a higher rate of relapse, and require more mental health services than people with anxiety and no comorbid disorders (D. A. Clark & Beck, 2010). It is therefore critical that assessments are comprehensive and focus on presence of symptoms, rather than attempting to constrain people within a diagnostic category. In services where a diagnosis is required, it is essential that assessments cover disorders which are commonly comorbid.

Summary

Anxiety is a subjective emotional experience involving physiological sensations from the activation of the autonomic nervous system, cognitive symptoms such as a cognitive appraisal of the presence of threat, and affective symptoms including the feeling of fear. These experiences have associated behaviours, particularly avoidance of the feared stimulus. When anxiety is pervasive and interferes with everyday functioning it may meet the criteria for an anxiety disorder within the DSM-IV (American Psychiatric Association, 1994). Anxiety disorders are usually comorbid with other anxiety or mood disorders, despite each being distinct diagnostic categories.

Hypothesised Tripartite Structure of Anxiety and Depression

The commonly observed overlap between anxiety and depression led some authors to argue that these disorders have a common structural element rather

than being entirely unique constructs. The tripartite theory (L. A. Clark & Watson, 1991) asserts that anxiety and depression share a common feature of negative affect, but also have unique features specific to each disorder. Although the tripartite theory does not address the aetiology and maintenance of anxiety, it contributes towards the overall conceptualisation of anxiety and its relationship to mood disorders. The benefit of the tripartite theory is that it directly acknowledges the consistent finding of an overlap between anxiety and depression.

To generate the tripartite theory, Clark and Watson (1991) reviewed over 400 articles, books, and book chapters to assess patterns in the research and discover the nature of the overlap between anxiety and depression. A significant amount of evidence was found to support a mixed anxiety and depression presentation, and Clark and Watson theorised that a tripartite structure would explain the frequently found correlation between anxiety and depression.

Clark and Watson (1991) proposed that a general distress factor called *negative affectivity* (NA) accounted for a large proportion of the shared variance between anxiety and depression. NA is characterised by distress, worry, anxiety, being self-critical and having a negative attributional style. The model also suggests that *positive affectivity* (PA) reflects the level of pleasurable engagement an individual has with the environment, and includes well-being, energy, social dominance, and adventurousness. Low levels of PA such as behavioural withdrawal, apathy, and psychomotor retardation are considered within the tripartite model to be characteristic of depression. In contrast, the presence of physiological hyperarousal in anxiety (e.g. racing heart, shortness of breath, dry mouth) is considered to be the distinguishing factor (L. A. Clark & Watson, 1991).

The tripartite model has found support in a number of studies. Clark, Steer, and Beck (1994) examined the factor structure of the Beck Anxiety Inventory (BAI) and Beck Depression Inventory (BDI) in a sample of 844 psychiatric outpatients. They found a single second order factor accounted for more than 40% of the variance of the combined BAI and BDI, which they attributed to NA. After controlling for NA, a first order dimension emerged accounting for cognitive, affective, and motivational symptoms of depression consistent with the low PA

component of the tripartite model. The first order anxiety factor was represented by the physiological hyperarousal symptoms on the BAI.

Watson et al., (1995) found support for the tripartite model in a mixed sample of psychology students (*n* =1415), healthy adults (*n* = 329) and psychiatric outpatients (*n* = 470). However, the method of analysis could have been problematic as the data was reanalysed in a later study and found poor fit for the tripartite structure (Burns & Eidelson, 1998). The authors also found poor fit for the tripartite model in their own sample of 453 substance abuse patients. A competing model of anhedonia, nonspecific anxiety, nonspecific depression, and somatic arousal also failed to find support.

Mixed support has also been found for the tripartite model in older adults. Meeks, Woodruff-Borden, and Depp (2003) examined the structural relationship between depression and anxiety in a large sample of older adults (probability sample *n* = 1429 and a convenience sample *n* = 210). The authors found that of the models trialled, a tripartite model of anxiety, depression, and negative affect showed the best fit, followed closely by a one-factor model that incorporated anxiety and depression. However the factors on the tripartite model were highly correlated, leading the authors to suggest that the psychological measures used measure a common distress factor rather than separate constructs.

One of the criticisms levelled at the tripartite model is its failure to account for the heterogeneity within the anxiety disorders. For example, the low PA dimension of the tripartite model has also been linked to social phobia (Brown, Chorpita, & Barlow, 1998). Furthermore, Brown et al. (1998) reported that the specific component of panic disorder accounted for the anxious arousal dimension of the tripartite model. This anxious arousal has also been linked to PTSD (Brown, Campbell, Lehman, Grisham, & Mancill, 2001). Therefore it appears that whilst the tripartite model promises to explain the overlap between anxiety and depression, it is not a panacea for the lack of diagnostic clarity within the mood disorders.

In summary, although the tripartite model is not specifically a theory of the aetiology and maintenance of anxiety disorders, it makes an important contribution towards the empirical understanding of the structural relationship between anxiety and depression. Although the DSM-IV conceptualisation of anxiety disorders is that they are separate entities from depression, the

acknowledgement of shared and specific features of anxiety and depression helps to direct researchers towards a better conceptualisation of the client's distress.

Theories on the Aetiology and Maintenance of Anxiety Disorders

The conceptualisation of anxiety within clinical practice is firmly grounded in psychological theories of the aetiology and maintenance of anxiety disorders. The way psychologists understand anxiety has changed over the last century, from conceptualising anxiety as a conditioned physiological and behavioural response (e.g. Mowrer, 1939, 1953, 1960; as cited in Barlow, 2002a); a personality trait and physiological state (C. D. Spielberger, 1966); a conflict within an individual's conscious and sub-conscious mind (Freud, 1923; as cited in Levitt, 1968); and a cycle of thoughts, emotions, behaviour, and physiological sensations within a context (A. T Beck et al., 1985). Each approach has made important contributions to psychologists' understanding of anxiety. The current conceptualisation of anxiety within the cognitive framework has evolved from critiques of early theories, with some concepts remaining and being expanded, and others falling out of favour.

The present research takes place within the framework of the cognitive theoretical orientation (A. T Beck et al., 1985; D. A. Clark & Beck, 2010; Salkovskis, 1996). To contextualise this point of view, an overview of the different anxiety theories will be given beginning with the early psychoanalytic and behavioural models. The cognitive model provides the theoretical foundation for cognitive behaviour therapy (CBT), which is a well established and empirically supported therapy mode. Butler, Chapman, Forman, & Beck (2006) reviewed 15 methodologically rigorous meta-analyses of treatment outcome studies of CBT that covered 9138 participants and 332 studies from 1967 to 2003. The review found large effect sizes (grand mean =0.90) for several disorders including unipolar depression, GAD, panic disorder, and social phobia. The second key reason is that CBT is generating empirical support for use with older adults (Ayers, Sorrell, Thorp, & Wetherell, 2007; Hendriks, Oude Voshaar, Keijsers, Hoogduin, & van Balkom, 2008), which are the focus of the present study.

Psychoanalytic theory

Psychoanalysis encompasses a number of different theoretical orientations that can be linked back to early Freudian theory. Freud (1923, as cited in Levitt,

1968) believed that psychological distress could be traced back to unresolved conflicts at critical developmental stages in childhood and adolescence. Essentially, the premise of Freud's theory on anxiety is that when unconscious desires conflict with what is socially or morally acceptable, the client experiences 'neurosis' (Endler & Kocovski, 2001).

Freud distinguished between three types of anxiety: (1) reality anxiety, which has a clearly identifiable and justified external source and is considered proportionate to the actual threat posed by the situation or object. Reality anxiety is considered adaptive and non-pathological; (2) Neurotic anxiety, which refers to a conflict between the primitive biological drives which are subconscious (id), and the ego which controls voluntary behaviour and responds rationally to the world; and (3) moral anxiety, which refers to conflict between the id and the superego, which is roughly equivalent to the conscience (Levitt, 1968).

Although psychoanalysis is not the focus of the present study, it provides some context to the current conceptualisations of anxiety. Similar to current understanding of anxiety, Freud made a distinction between pathological anxiety and everyday anxiety that has an adaptive basis. However, the core difference between psychoanalytic theory and later conceptualisations of anxiety is that Freud believed that anxiety originates from conflict between different levels of consciousness.

Behavioural theory

Behavioural theories of anxiety are essential when understanding the behaviours that feature within the cognitive model of anxiety. The behavioural theories of anxiety can be traced back to experimental studies on learning theory, and evolved into studying the physiological and behavioural responses that are characteristic of anxiety (D. A. Clark & Beck, 2010). Behavioural theories of anxiety focus on the antecedents to anxiety, and the behaviours that occur in response to maintain the anxiety. These principles underlie a core component of treatment within CBT.

Mowrer (1939, 1953, 1960; as cited in Clark & Beck, 2010) introduced a two-factor conditioning theory of the aetiology and maintenance of anxiety, which was the most widely accepted behavioural account through the 1960's and 1970's (Barlow, 2002a). The mechanism of the two-part model will be illustrated in the

context of a client "Maverick" with a fear of flying. The first element is the acquisition of fear through the classical conditioning theory. For example, a neutral stimulus e.g. an aeroplane (unconditioned stimulus) when paired with an aversive experience (e.g. sudden loss of cabin pressure) leads to the unconditioned response of anxiety. This creates a learned fear response so that anxiety is elicited the next time Maverick boards an aeroplane.

Stage two is concerned with the persistence of fear, with avoidance behaviour being the core underlying mechanism. Maverick's previous experience in the aeroplane causes him to avoid flying (the conditioned stimulus), which consequently prevents him from experiencing anxiety, thus negatively reinforcing the avoidance behaviour. Because of this negative reinforcement, Maverick continues to avoid flying and does not learn that the sudden loss of cabin pressure is a rare and unlikely event. Therefore he does not experience repeat exposure of non-threatening flying that would lead to an extinction of his fear response.

Stage One – Acquisition of Fear

Conditioned Stimulus (aeroplane) → Unconditioned Stimulus (loss of cabin pressure) → Unconditioned Response (fear) → Conditioned Response (learned fear response)

Stage Two – Persistence of Fear

Avoidance (active avoidance of aeroplanes) → Reinforcement (fear reduction is reinforcing) → Phobia (fear persists)
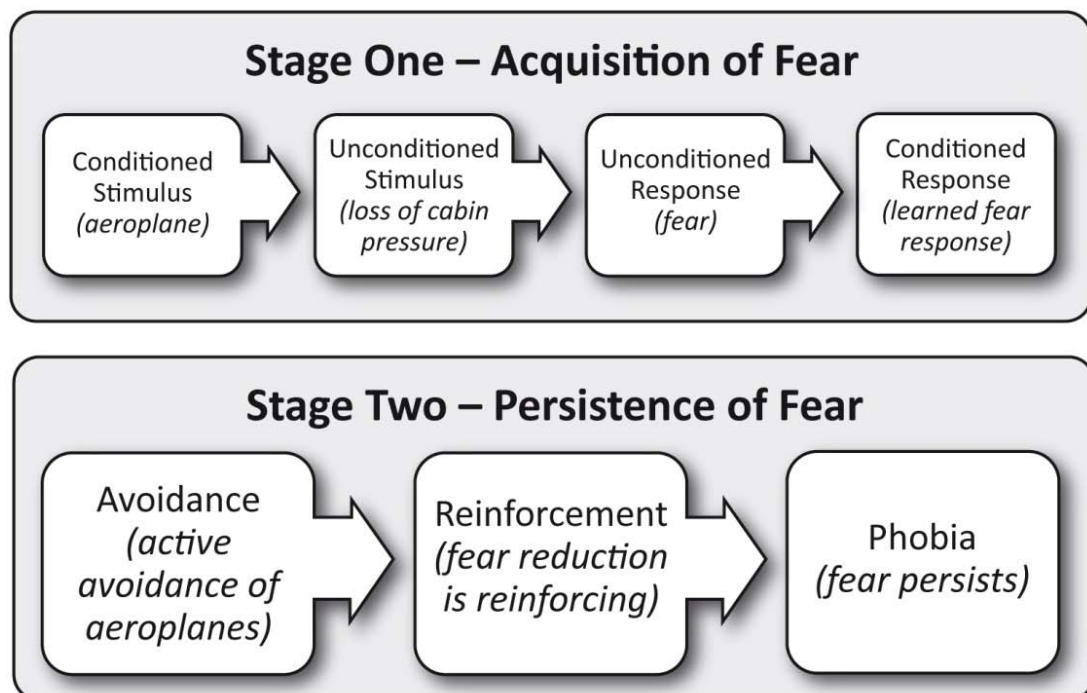
Figure 1. A two factor of fear acquisition explanation of Maverick's flying phobia, adapted from *Cognitive therapy of anxiety disorders: Science and practice* (p. 24), by D. A. Clark & A. T. Beck, (2010) New York: Guilford Press.

One of the key criticisms of the two factor model was its incomplete explanation of the acquisition of phobias, and therefore is not used as a stand-alone theory of anxiety (Barlow, 2002b). However it is important to mention here as behavioural principles are visible in the physiological and behavioural elements of CBT for anxiety disorders. Furthermore, it highlights the critical role of avoidance in maintaining a client's anxiety. Finally, the criticisms of this model directed towards the lack of acknowledgement of the cognitive processes involved provided the context from which cognitive models of anxiety were conceptualised (D. A. Clark & Beck, 2010).

Cognitive Theories

The importance of acknowledging the thought processes which occur in anxious states was highlighted by cognitive theorists in response to some of the limitations of the behavioural theories. Cognitive theorists believe that anxiety is based on appraisals of situations and attributions of threat (Barlow, 2002b). As such, therapy is directed at identifying these cognitions and challenging their basis when anxiety occurs inappropriately. The following section begins by outlining the state-trait model (C. D. Spielberger, 1966), and discussing its contribution to the present understanding of anxiety. Then, the diathesis-stress theory will be discussed in the context of anxiety. Finally, a detailed discussion of the cognitive model (A. T Beck et al., 1985; D. A. Clark & Beck, 2010; Salkovskis, 1996) will be given.

State and Trait Theories

Spielberger (1966, 1972, 1979, 1985; as cited in Barlow, 2002b) was an early cognitive theorist who conceptualised anxiety as a personality trait. Spielberger suggested that two types of anxiety were important in the aetiology and maintenance of anxiety disorders: (1) state anxiety, which was considered transient in nature and the response to a specific situation, and (2) trait anxiety, which was conceptualised as the vulnerability to experience anxiety and static in nature. Spielberger considered that people with high levels of trait anxiety were more likely to experience anxiety than those with low levels of trait anxiety. Within Spielberger's model, cognitive appraisal of internal stimuli (e.g. thoughts) and external stimuli (e.g. stressors) determines whether or not an individual

experiences anxiety, and the magnitude of their anxiety. The cognitive appraisal is a function of the individual's level of trait anxiety.

The state-trait model is no-longer in common usage within clinical psychology, however it has contributed some important concepts to the current understanding of anxiety. For example, it brings the notion of vulnerability (trait anxiety) to anxiety into the forefront of assessment. Furthermore, the State-Trait Anxiety Inventory (Spielberger, 1970) that accompanies this theory is still considered a reliable and valid assessment method for anxiety. This measure will be discussed in greater detail in the upcoming chapters. Tenets of state and trait theory are visible within the newer cognitive theories of anxiety, such as the diathesis-stress model (Barlow, 2002) and the cognitive model (Beck et al., 1985). Both theories acknowledge the influence of personality characteristics in the experience of anxiety and will be discussed further in the following sections.

Diathesis Stress Theory

The concept of vulnerability to anxiety that Spielberger (1970) called trait anxiety also features strongly within the diathesis-stress model. This perspective proposes that people who experience mental illness have an underlying vulnerability to develop a disorder in their lifetime (Barlow, 2002b). Certainly there is evidence of a genetic vulnerability for anxious apprehension, which has been measured to account for 30-50% of the variance in anxiety disorders (Barlow, 2002b). However, the neurobiological processes that underpin anxiety and have a genetic basis, may also be influenced by early psychological experiences.

The diathesis-stress model proposes that early experiences with perceived controllability and predictability of the environment influence the way people view the world. For example, a child who is raised in an environment where they have little control over an environment which is unpredictable, may develop beliefs that the world is uncontrollable and dangerous (A. T Beck et al., 1985). Therefore, within the diathesis stress model the combination of biological factors (genes) and psychological vulnerabilities from early experiences, lead to the development of anxiety disorders in the context of a stressful life event (Barlow, 2002b).

The diathesis-stress concept is implicit within a number of other models of anxiety. For example, Clark and Beck (2010) highlighted the importance of

stressful situations which cause anxiety symptoms, naming them *activating events.* The type of activating event that will lead to the expression of an anxiety disorder will differ according to the type of anxiety disorder. For example a person with a genetic predisposition to social anxiety may develop social phobia when faced with a social situation which they perceive as highly important. The cognitive model will be discussed in more detail in the following sections.

Cognitive Model of Anxiety

The core tenet of the cognitive perspective of anxiety is a sense of personal vulnerability, which is heightened by dysfunctional cognitive processes (A. T Beck et al., 1985). Beck et al., (1985) asserts that people with anxiety have developed beliefs (cognitive schemas) in the early stages of their lives which cause them to systematically over interpret the presence of threat in a specific situation. Although these beliefs may have originally been adaptive, their generalisation to other contexts may be inappropriate. This in turn reduces their ability to cope with everyday life and adapt to new situations (A. T Beck, 2005). Similar to the diathesis stress model, within the cognitive model stressful life events activate these underlying cognitive schema. This activation starts an unhelpful chain of cognitive, physiological and behavioural responses.

The cognitive specificity hypothesis proposes that each psychological disorder has a distinct cognitive profile that is at the heart of their distress. In anxiety, people see themselves as vulnerable and the world as dangerous or unpredictable. Because of these underlying cognitive schemas, people with anxiety systematically evaluate the presence of threat and underestimate their ability to cope.

Salkovskis (1996) illustrated the threat appraisal at the heart of anxiety disorders with the following equation:

$$\text{Anxiety} = \frac{\text{Perceived probability of threat } \mathbf{x} \text{ Perceived cost/awfulness of danger}}{\text{Perceived ability to cope with danger} + \text{Perceived "rescue factors"}}$$

This equation illustrates that an increased perception of threat would elevate anxiety. For people who have underlying cognitive schemas that cause them to readily interpret threat, their anxiety is primed to be activated in particular circumstances. If the threat is one which may make them appear foolish- for

example fainting whilst public speaking, the anxiety is amplified. The numerator also shows that anxiety will be heightened even if a person realises that their worry is very unlikely to eventuate, because should it do so the outcome would be catastrophic. The denominator of the equation is concerned with protective factors for anxiety, how well the person perceives themselves as able to cope with the perceived danger. For example, if they have cognitive schemas which see themselves as helpless, they are likely to experience heightened anxiety.

Salkovskis (1996) asserts that the threat appraisal at the heart of anxiety disorders perpetuates anxious cognitions through the vicious cycles of (1) selective attention: people who believe themselves to be in danger either consciously or unconsciously notice all signals that support their appraisal that danger is imminent; (2) physiological arousal: in perceived dangerous situations people with anxiety experience physiological changes due to sympathetic nervous system activation, which are interpreted as an increase in threat; and (3) changes in behaviour: perceived danger increases avoidance behaviour and safety seeking behaviour, which in turn removes the perceived immediate threat and reduces anxiety.

The processes that occur within the cognitive model are essential in understanding the factors which cause and maintain the client's distress. However, the complexity of the cognitive model means that it is difficult to use in its present state with the client. The following section provides an overview of the 'five part model' (Greenberger & Padesky, 1995), which can be used to identify the core processes at the heart of the cognitive model.

The Cognitive Behavioural Five Part Model

An essential component of CBT is the collaboration between client and clinician to understand the elements of the client's distress (Greenberger & Padesky, 1995). However, the cognitive model can be complex and explaining the concepts to the client in terms of their own experience can be problematic due to this complexity. This process of collaboration has been made more accessible through the use of a diagrammatic representation of the interaction between thoughts, behaviour, emotions, and physiological responses that occur in a given situation (see Figure 2).
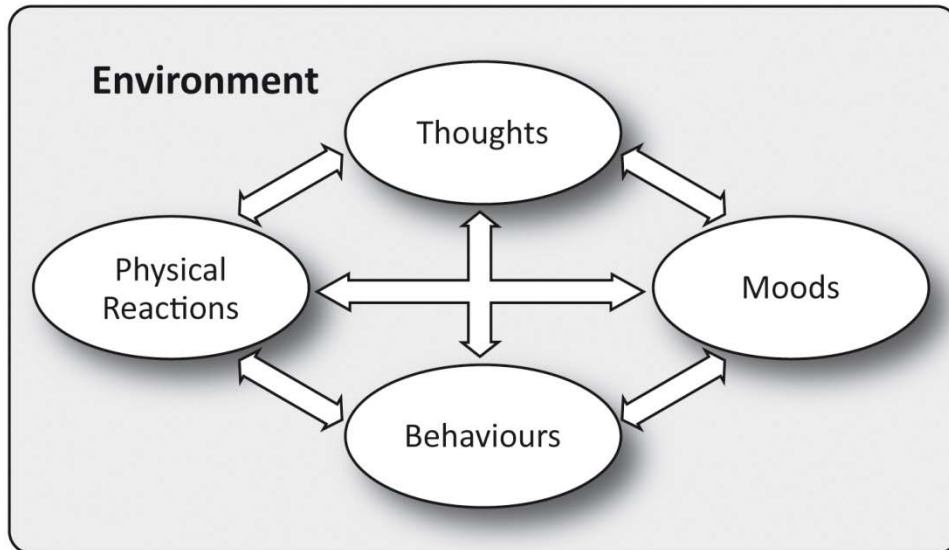
Figure 2. Five part model of emotional experiences. Adapted from *Mind over mood* (p. 4), by D. Greenberger & C. A. Padesky (1995). New York: Guilford. Copyright 1986 by Center for Cognitive Therapy, Newport Beach, CA.

This "five part model" serves a number of purposes within the CBT model. Firstly, it provides the clinician with relevant diagnostic information through examining the processes that occur in response to a situation. This provides the clinician with a functional analysis, which refers to a break-down of the antecedents to a thought or behaviour, the consequences and maintaining factors. Second, it is specific to the unique context of the client and therefore acknowledges the heterogeneity of responses that occur in a given situation and enables the clinician to gain a comprehensive understanding of these. These elements are crucial as the clinician can generate an individualised conceptualisation of the clients distress, which then becomes the foundation for treatment (Greenberger & Padesky, 1995).

Although the five part model is not a theory of anxiety, it is of interest due to its flexibility that enables it to be used with a number of disorders, and simplicity. It can be used easily in collaboration with clients to explore the unique features of their distress. However the five part model was not designed to be used as a standalone method of assessment as it does not have clinical norms, and anxiety is not quantified on this model. The current discussion will focus on how it can be used to explore anxiety.

The five part model shows that cognitions, emotions, behaviour, and physical reactions are interconnected and occur in the context of the environment. During clinical practice with an anxious client, the clinician guides the client to think of a situation when they recently experienced anxiety. The client then begins to identify their thoughts, feelings, behaviour, and emotions which are written into their respective circle on the five part model. The clinician highlights the relationships between these components and discusses how they influence each other and serve to intensify their distress. For example, the physical sensations of increased heart rate may be accompanied by thoughts of "I might be having a heart attack", and in turn these thoughts intensify the physical sensations, add to their distress, and lead to behaviours such as checking their pulse and resting (Padesky & Greenberger, 1995).

In summary, the cognitive model draws on a number of empirically supported concepts and theories of anxiety, including the behavioural, state-trait, and diathesis stress models. The cognitive model emphasises the personal vulnerability of an individual to perceive situations as more threatening than they are, and underestimate their ability to cope. The role of thoughts, behaviour, physiological sensations, and emotions in the context of a stressful situation are highlighted as serving to heighten anxiety and maintain the client's distress.

Summary

The conceptualisation of anxiety within the literature has evolved to respond to new theoretical models. Although the processes which cause and maintain anxiety within each theory differ, the sense of personal vulnerability and appraisal of the presence of threat appear constant throughout. Empirical support has been generated for the notion that genetic and environmental factors influence a person's vulnerability to experience anxiety, and that this vulnerability may be activated in the presence of stressful life events.

The present understanding of anxiety is moving away from conceptualising it as a discrete disorder, and taking into account the common comorbidity of depression. As such, empirical support is emerging for a tripartite model of anxiety and depression that emphasises a shared distress factor of negative affect. Although there are numerous diagnostic criteria for anxiety disorders within the DSM-IV, it may be more helpful for clinicians and researchers to conceptualise

anxiety within the tenets of the cognitive model (A. T Beck et al., 1985; D. A. Clark & Beck, 2010). Clinicians would therefore view anxiety as having common cognitive, affective, behavioural, and physiological symptoms that are triggered in response to a situation.

3

Generalised Anxiety Disorder

The previous chapter was concerned with providing a general overview of the common features of anxiety that transcend specific anxiety disorders within the DSM-IV (American Psychiatric Association, 1994). The DSM-IV strongly influences the current conceptualisation of anxiety disorders within the literature and clinical practice. Although the DSM-IV has high clinical utility, it is still undergoing revisions and as such, has some limitations that will be discussed in the present chapter. In light of these issues, it is essential when conducting research and in clinical practice to understand how our view of anxiety disorders is influenced by the current diagnostic system.

Part of the clinician's role when a client presents for assessment and treatment for anxiety is to determine whether their symptoms are severe enough to meet the criteria for an anxiety disorder within the DSM-IV. This includes canvassing the range of symptoms they experience, and comparing them with known diagnostic criteria within the DSM-IV. Although not all clinicians explicitly use DSM-IV diagnostic criteria, they reflect an empirical understanding of what constitutes a psychological disorder. As the present research takes place within this context, the present chapter begins by exploring the ways anxiety disorders are conceptualised within the DSM-IV, the issues with using a categorical diagnostic system, and the proposed alternative dimensional view of psychological disorders. This discussion will provide the background to some of the issues raised in the upcoming chapters on anxiety in older adults, and contextualise the choice of methods used in the present study. Next, an overview of the DSM-IV diagnostic category of GAD will be given, followed by the major cognitive models understanding the processes within GAD (D. A. Clark & Beck, 2010; Wells, 2004, 2005).

Categorical Versus Dimensional Views of DSM-IV Disorders

The DSM-IV classification system is consistent with the categorical view of psychiatric disorders as it assumes that each disorder is a distinct entity with unique signs and symptoms, and clear boundaries that enable the differentiation of

one disorder from another (Kendell & Jablensky, 2003). In this sense, anxiety disorders are viewed as being qualitatively different to non-pathological levels of anxiety (Endler & Kocovski, 2001). The view that disorders are separate entities marked by specific signs and symptoms is based on the medical model and can be traced back to Krapelin (1913; as cited in, Rogler, 1997). There is a large history of debate within the literature between authors who endorse a categorical diagnostic system, and those who assert that a dimensional view is more appropriate.

A number of authors have identified issues with the DSM-IV categorical diagnostic system. The primary issue is that of diagnostic unreliability arising from disagreements on whether an individual's condition meets the criteria for a DSM-IV disorder based on whether their features are sufficient in number, duration, or severity (Brown, Di Nardo, Lehman, & Campbell, 2004). Secondly, it is difficult to identify appropriate boundaries between disorders. For example, there has been a consistent research finding of a high degree of comorbidity between disorders, particularly anxiety and depression (Brown & Barlow, 2002; D. A. Clark & Beck, 2010; Krueger, Watson, & Barlow, 2005). Within the DSM-IV these disorders are distinct entities, however their frequent comorbidity suggests shared variance (Widiger & Samuel, 2005). Third, the diagnosis of a disorder may divert clinicians' attention from issues such as severity and associated symptoms that may be unique to the client (Brown & Barlow, 2002).

Information regarding the severity and associated features of a client's distress are lost when constraining an individual to either meet a diagnosis or not (Brown & Barlow, 2002), and there becomes a general acceptance that the diagnosis explains the client's presentation (Kendell & Jablensky, 2003). Kendell and Jablensky (2003) assert that assuming a diagnosis fits the client is problematic as it overlooks questioning the validity of the diagnostic criteria itself. In light of this, diagnostic criteria can only be established once a clear understanding of the phenomenology of a disorder has been identified. This is critical in the case of anxiety in older adults, as there is a lack of consensus within the literature on the presentation of anxiety in this population (Stanley & Beck, 1998).

The opposing theoretical stance to the current categorical diagnostic system is that psychiatric disorders are dimensional in nature. This approach suggests that individuals can be evaluated in specific areas of thought, affect, and

behaviour. Comorbidity can be explained by a pattern of elevation across specific dimensions, and heterogeneity would be addressed by identifying specific dimensions that account for the variance of other dimensions (Krueger et al., 2005). The dimensional view conceptualises anxiety as lying on a continuum, with a low anxiety at one end, and a severe level at the other. Low levels of anxiety are considered adaptive, and are warning signals for danger or harm. However, the higher end of the spectrum represents a level of anxiety that interferes with daily life and would constitute an anxiety disorder (Endler & Kocovski, 2001).

The dimensional approach has been used with some success in the literature. Through using a dimensional approach to diagnosis in 3000 psychiatric patients, researchers found a more complex and comprehensive picture of the client's clinical presentation compared to when a categorical diagnostic approach was taken (Wilk et al., 2006). Wilk et al., also found that 62% of clients with major depression had comorbid anxiety symptoms, but only 29% met the criteria to be diagnosed with an anxiety disorder. In light of research such as this, the DSM-V is considering taking account of different levels of severity, and including dimensional approaches to diagnosis (American Psychiatric Association, 2009).

Perhaps the strongest challenge to the categorical view is mounting evidence from epidemiological, diagnostic, and symptom based research that anxiety and depression are dimensional in nature (American Psychiatric Association, 2009; D. A. Clark & Beck, 2010; L. A. Clark et al., 1994; Ruscio et al., 2005). Adding further substance to this is the much replicated finding of high rates of comorbidity between anxiety and depression, and that people rarely are diagnosed with only anxiety or depression in their lifetime (D. A. Clark & Beck, 2010). Numerous clinical studies have reported a high rate of diagnostic comorbidity in individuals with an anxiety disorder. For example, two thirds of psychiatric outpatients in a large sample (n = 1,127) had a comorbid axis one disorder, and three quarters had a lifetime comorbid diagnosis (Brown et al., 2001).

The overlap between anxiety and depression led Watson (2005) to suggest the structure of mood and anxiety disorders be revised in the DSM-V. Watson suggested that the current categorical diagnostic system be replaced with a quantitative hierarchical organisation that forms two groups: (a) distress

disorders: which include post traumatic stress disorder (PTSD), generalised anxiety disorder (GAD), major depression, and dysthymia; and (b) fear disorders such as panic, agoraphobia, social phobia, and specific phobia. Certainly with the current understanding of an overlap between anxiety and depression the move to DSM-V may see this change in classification.

Summary

The debate within the literature between theorists who support a categorical view and those who support a dimensional view is ongoing. An overhaul of the diagnostic system to move toward a dimensional view is supported within the research, however problematic logistically, politically, and financially. In light of this, as we move towards DSM-V the conceptualisation of anxiety disorders is in flux, and focusing on assigning research participants into groups of either having a disorder or not, is problematic. As Kendell and Jablensky (2003) illustrate, by confining our view of patients to either having a disorder or not, we are limiting the potential to identify other clinically significant symptoms, and gain a more comprehensive understanding of their disorder (Wilk et al., 2006). In the meantime, the current classification of anxiety disorders within the DSM-IV provides a useful starting point in understanding the client's distress. The caveat to this is that we do not become overly rigid in the application of diagnostic criteria to clients and overlook other critical aspects of their distress.

Evolution of the GAD Diagnostic Category within the DSM

GAD is a subtype of anxiety disorder within the DSM-IV and takes its place alongside phobias, post traumatic stress disorder, obsessive compulsive disorder, and panic disorders. The current conceptualisation of GAD is that it is a disorder where uncontrollable and excessive worry is the central defining feature (American Psychiatric Association, 1994) see Table 2. However this is a relatively recent inclusion, as the diagnostic criteria for GAD have undergone frequent revision over different editions of the DSM. Originally anyone who experienced excessive anxiety without phobic avoidance was diagnosed with "anxiety neurosis", a catch-all category that was later divided into GAD and panic disorder (Roemer, Orsillo, & Barlow, 2002). However, in DSM-III GAD was considered a residual diagnostic category, and as such individuals could only be diagnosed with GAD if they did not meet the criteria for any other anxiety disorder. Researchers

identified issues with this system as they were unable to classify individuals that had pervasive and difficult to control worry that persisted despite successful treatment of other comorbid anxiety disorders. Furthermore, inter-rater reliability of GAD was low across studies (Roemer et al., 2002).

In light of these issues DSM-III-R made major revisions to the category of GAD. These included classifying GAD as a standalone category centrally defined by unrealistic and excessive worry and anxiety about two or more life circumstances. GAD had 18 associated primarily somatic symptoms, and the duration of worry required for a diagnosis of GAD was increased to six months. The diagnosis of GAD could not be made in the presence of another axis I disorder if the focus of worry was related to that disorder (Roemer et al., 2002).

Table 2

DSM-IV Criteria for GAD (American Psychiatric Association, 1994)

At least six months of chronic, excessive anxiety and worry concerning a broad range of topics or activities that the individual finds difficult to control.
The worry is associated with three or more of the following symptoms of anxiety: (1) restlessness or feeling keyed up or on edge; (2) being easily fatigued; (3) difficulty concentrating or mind going blank; (4) irritability; (5) muscle tension; (6) sleep disturbance.
These symptoms must be present for more days than not during the past six months and cause clinically significant distress or impairment.
GAD may not be diagnosed if it is considered to be the direct result of a general medical condition or substance, or if it occurs exclusively during a mood disorder.

Significantly, the present DSM-IV criteria for GAD is considerably different to the criteria required for a GAD diagnosis in each previous edition of the DSM (Clark & Beck, 2010). The present criteria includes the criterion of uncontrollable worry, and replaces the requirement of two or more worry spheres with the less specific criteria of worry across a number of domains. Furthermore, the associated

symptoms of GAD were revised to remove a large number of autonomic symptoms, reducing the available symptoms from 18 to six (Brown & Barlow, 2002). In light of the ever changing diagnostic criteria, what is and isn't considered to be GAD in past research varies according to whatever was the current edition of the DSM. This led to issues such as difficulty isolating base rates of GAD, and problems making comparisons across studies taken at different time points (Roemer et al., 2002).

Notably, GAD shares a number of symptoms with mood disorders. Of the six specific symptoms listed for GAD; sleep disturbance, fatigue, and difficulty concentrating are shared with depression. Restlessness is described as a subjective symptom in GAD, however psychomotor agitation in depression appears to be a similar symptom (L. A. Clark et al., 1994). Therefore there is a natural confound in the differential diagnosis of anxiety and depression, which may be explained in part by the tripartite model. As none of the features of GAD are exclusive or specific to the disorder, some authors have questioned whether it is a valid distinct diagnosis (C. Hunt, Issakidis, & Andrews, 2002). Researchers are presently debating whether or not GAD is an anxiety disorder, or if it fits with the affective disorders such as major depression.

These issues with GAD as a diagnostic criteria are of importance for the present research. Whilst the criteria is undergoing frequent revision and debate, the underlying disorder that the diagnostic criteria for GAD is said to represent should be consistent. However, the markers for the disorder are still being identified and refined, as evidenced by the revisions to GAD with each edition of the DSM. In light of this, it is important that there are still studies that focus on the symptom profile of people with anxiety that is similar to what is known as GAD, rather than trying to categorise people into discrete diagnostic categories.

Summary

GAD is considered a disorder characterised by excessive and difficult to control worry about a range of topics. There is currently debate within the literature about the nature of GAD and where it should be located within the DSM. The overlap between symptoms of GAD and depression create a natural confound for researchers and clinicians, and increase the difficulty of differential diagnosis. Despite the ongoing discussions surrounding GAD, the underlying issue of difficult

to control and disabling worry is a significant phenomenon. Therefore, the changing diagnostic criteria are merely a reflection of the developing understanding of how to classify this experience. The following section examines the phenomenon of GAD that is independent of the diagnostic criteria, and discusses the aetiology of GAD symptoms.

Cognitive Theories of GAD

The cognitive understanding of GAD incorporates elements of the common characteristics of anxiety described in chapter two, however takes into account the specific features that serve to perpetuate the client's distress. The following section outlines the cognitive model of GAD and discusses the processes that serve to trigger and maintain anxiety. The specific cognitions, behaviours, physiological reactions, and affective experiences of GAD will be discussed.

Clark and Beck Cognitive Model of GAD

In their recent publication on anxiety disorders Clark and Beck (2010) refined the cognitive model of GAD (see Figure 3). In the evocative phase of the model, Clark and Beck assert that worry in GAD can be triggered by an interaction between the personal concerns of the individual, life events, and psychological vulnerability. For example, an older adult who places a high value on their independence but had a fall may begin to worry excessively about being placed into a rest home. The authors drew from the diathesis stress theory and proposed that if this individual had a genetic predisposition for anxiety, they would be more likely to develop worry in the cognitive model. Likewise, an individual who had developed schemas of vulnerability would also be likely to develop worry.
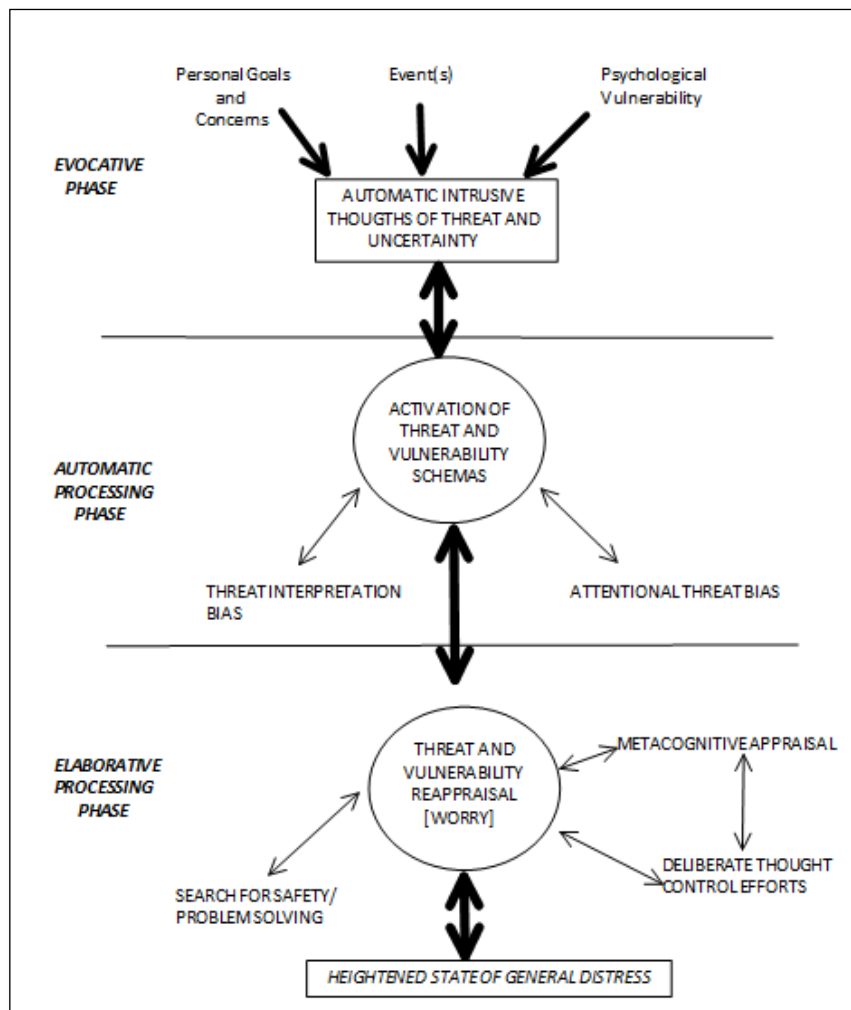
Figure 3. Cognitive model of generalised anxiety disorder. Adapted from *Cognitive therapy of anxiety disorders: Science and practice* (p. 400), by D. A. Clark & A. T. Beck, (2010) New York: Guilford Press.

Within the evocative phase of the cognitive model of GAD, the interaction of personality factors, cognitive schemas, and life events can trigger *intrusive thoughts.* These intrusive thoughts are unwanted and are associated with negative affect. In the context of anxiety, intrusive thoughts involve uncertainty about the individual's future, such as the attainment of their life goals. These intrusive thoughts can then activate the individual's schema, for example: (1) personal vulnerability: beliefs that they are inadequate, helpless, and unable to cope; (2) overestimation of the presence of threat: overestimating the consequences should their concern materialise, or overestimating the probability of threat; (3) intolerance of uncertainty: beliefs about the unacceptability of uncertain or

ambiguous negative events; and (4) metacognitions about worry: beliefs about positive or negative effects of worry and its controllability (Clark & Beck, 2010).

Once these schema are activated, the *automatic processing phase* begins. During this phase, individuals with GAD selectively attend to threatening stimuli and make biased interpretations of ambiguous stimuli to support their worrying thoughts. These biases have received empirical support and are considered to be processes that contribute to the maintenance of GAD (Clark & Beck, 2010).

Clark and Beck (2010) believe that worry serves to re-appraise negative possibilities to reduce the associated threat through positively evaluating one's ability to cope. In people with GAD, Clark and Beck propose that their faulty cognitive processes cause them to evaluate the worry as uncontrollable, self-damaging, and distressing. In turn, this leads to worry about worry itself (metaworry or type two worry, see the following section on Wells metacognitive model), and ineffective attempts to suppress their worry. Clark and Beck called these processes the *elaborative processing phase,* and suggest that it is at the heart of the cognitive basis of GAD. This phase also manifests as general distress in the client, therefore therapeutic interventions are directed at this phase.

The cognitive model highlights the interaction between an individual's vulnerability to anxiety and situational factors. The individuals responses to the situation depends on their unique personality characteristics combined with genetic diathesis. The model is useful as it provides different areas for intervention in treatment, and highlights specific areas for assessment. Therapy may be directed at modifying some of the thought processes which occur during worry, and assist the client to modify their unhelpful cognitive schema.

In light of this, the cognitive model of GAD provides clinicians with a point of reference to guide assessment and treatment. Although elements of the cognitive model come from strong empirical research, the model in its entirety has not yet been tested. Furthermore, it has not yet been applied to older adults and evaluated in this population.

Metacognitive model

Another prominent theory within the cognitive theoretical orientation is the metacognitive model proposed by Wells (1995). The metacognitive model features as a component of elaborative processing phase in the Clark and Beck

(2010) model previously discussed (see Figure 4). Wells (1997) proposed that the worry process in people with GAD serves to help them anticipate and cope with future problems. However worry becomes pathological depending on the form and significance of worry. The following section provides an outline of the metacognitive model.

Wells (1995, 1997) distinguishes between two types of worry: (1) type one, which are concerns about external daily events such as health of family members; (2) type two, which are concerns about the negative implications of worry, effectively "worry about worry" or "metaworry" (Wells, 1997, p. 202). These worry types are the core components of the metacognitive model (see Figure X) which illustrates the processes involved in the aetiology and maintenance of the clients distress.

Wells (1997) suggests that within the metacognitive model, type one worries are triggered through the exposure to a stimulus such as bad news, or a situation that may cause worry. Worry is preceded within the model due to a tacit assumption that worry is coping strategy, and the individual may hold an implicit belief that worry helps them to problem solve. Once type one worry has been activated within the metacognive model, Wells suggests that GAD develops when an individual transitions to have negative beliefs about the role of worry. These negative metacognitions can relate to worry being uncontrollable, or that worry has harmful or dangerous consequences. In turn, the activation of these beliefs lead to type two worry, the individual worries about their level of worry. This in turn leads to emotions such as increased anxiety and concerns about being unable to cope.
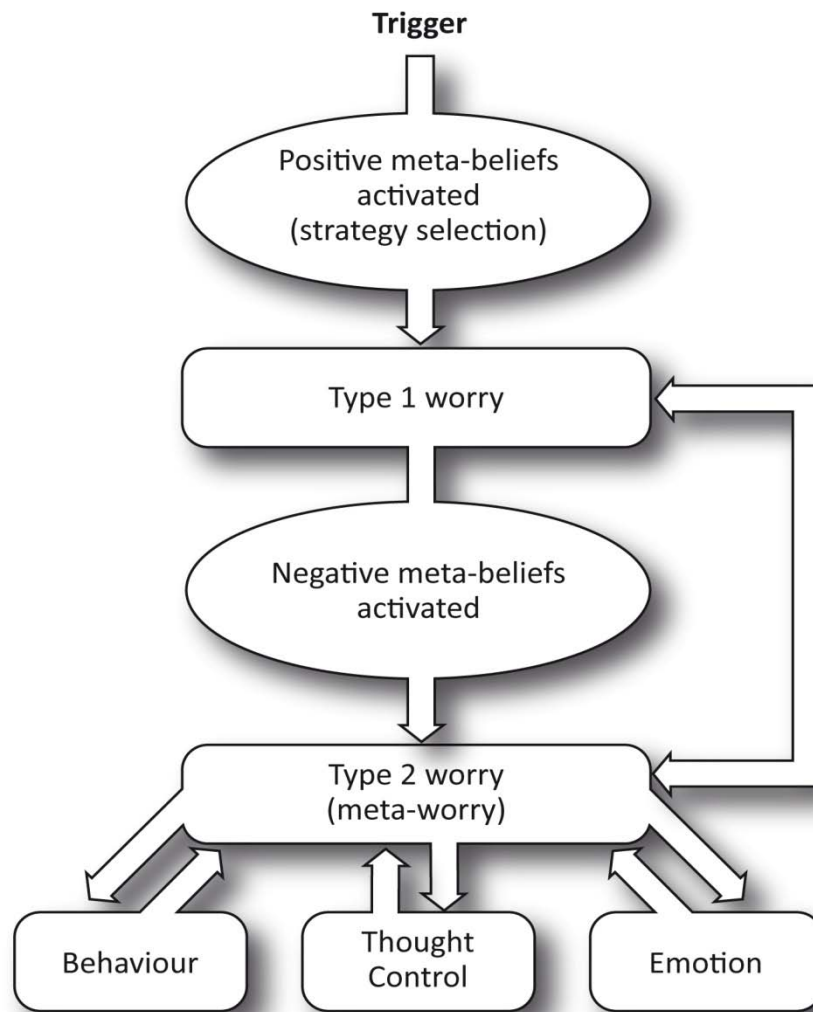
Figure 4. The Metacognitive Model of GAD. Adapted from *Cognitive therapy of anxiety disorders: a practice manual and conceptual guide* (p. 204), by A. Wells, 1997, New York: John Wiley & Sons

An individual with GAD's distress is also maintained through *behavioural responses* and *thought control strategies.* Behavioural responses can include reassurance seeking, avoidance, searching for information related to their worry, and distraction. These prevent the individual from discovering that if worry continues the consequences are not catastrophic, and instead perpetuate their distress as their behaviour increases. Thought control strategies include attempts to suppress thoughts that trigger worry. However, the individual's failure to effectively suppress worrying thoughts can reinforce their perceived importance and perpetuate the individuals feeling of loss of control (Wells, 1997, 2004, 2005).

Preliminary research has been supportive of the application of the metacognitive model in community dwelling older adults. For example, type two worry was predictive of trait worry, in contrast to type one worry (Nuevo, Montorio, & Borkovec, 2004). However, the research was limited by the use of psychological measures with inadequate validity for use with older adults.

Overall, the metacognitive model has some similarities to the Clark and Beck (2010) model. For example, both emphasise the role of behaviours such as avoidance, emotions, and beliefs about worry as serving to maintain the client's distress. Furthermore, the activation of worry is triggered by a situation or event. Both the Clark and Beck (2010) and the metacognitive model (Wells, 1997) highlight the importance of understanding the cognitive, behavioural, and emotional elements of the client's distress. In turn, this information provides the foundation for treatment.

Summary

The anxiety theories outlined above provide complementary views on the aetiology of anxiety disorders. These models have in common activating events that trigger a cascade of cognitive, behavioural, physical, and emotional processes. Wells (1995, 1997) focused on the appraisal of worry and its consequences as causing the distress within GAD. Individuals who perceive worry as being catastrophic are likely to experience higher anxiety and general distress. On the other hand, the Clark and Beck (2010) model of GAD is useful as it integrates the most empirically supported theories of anxiety to form a model that appears to have clinical utility. It highlights the importance of personal circumstances, and psychological and genetic vulnerability in the activation of the worry process. In turn, the individuals' schemas are activated and threat is systematically overestimated and worry eventuates as a consequence. Although it has not yet been empirically tested, it is promising because the components are based on relatively well supported empirical findings.

This chapter also highlighted some of the issues researchers have when studying GAD, as the category is a relatively new addition to the DSM and has evolve with each new edition. Although the DSM-IV uses the concept of GAD as having difficult to control worry as a central feature, this is a relatively new conceptualisation. Therefore our understanding of GAD is still being refined, and it

is essential to use a broad approach to assessment to canvass all the areas of a client's distress. Assessment tools such as the five-part model assist with this process, as it provides clinicians with a number of domains to assess and focuses on symptoms rather than diagnosis.

Although the anxiety models presented in this chapter have empirical support, they were primarily generated from research with younger adults. Therefore, they are a reflection of the experiences of anxiety within the population studied, and may not generalise to older adult populations. In light of this, it is important to explore the experiences of anxiety in older adults and evaluate the validity of transferring these theories across cohorts. The following chapter examines some of the evidence surrounding the experiences of anxiety in older adults, and discusses the applicability of these models in this population.

4

Anxiety in Older Adults

Older adults are a unique group who require special consideration within the literature and in clinical practice. Advancing age brings an accrual of life experiences, hopefully a greater understanding of oneself and the world compared to in their youth, and physiological changes within the body (B. G. Knight & Poon, 2008). These phenomena occur within a context of more prevalent and debilitating medical conditions, and witnessing those within the same age cohorts pass away or become ill. Aging also brings changes such retirement, resulting in positive changes for some such as more recreation time to enjoy friends, family, and hobbies. However, for others the move to retirement can mean changes in sources of self-efficacy, and changes in their relationships with their partner.

In light of these developmental changes, the experience of anxiety for younger and older adults may be considerably different. Therefore, the anxiety theories discussed in the previous chapter that were developed from research with young to middle aged adult samples, may not generalise to older adults. These issues led Kogan et al. (2000) to proclaim that clinicians and researchers should be mindful of an "age-related uniformity myth" in the experiences of anxiety p. 112.

The present chapter begins by discussing epidemiological research to determine the extent of anxiety in older adults, followed by an appraisal of the difficulties in gaining accurate prevalence estimates in this population. The reasons why older adults may experience anxiety differently to younger adults will be discussed, and the literature surrounding the experiences of anxiety in older adults will be reviewed. Finally, the unique issues present in researching anxiety in older adults will be discussed.

Epidemiology of Anxiety in Older Adults

The unique nature of older adults is evident in the prevalence of anxiety disorders in this population. Epidemiological research into base rates of anxiety disorders provides important information that helps mental health organisations plan for future service uptake. By clarifying the magnitude of anxiety issues in older adult groups, they allocate appropriate funding for older adult mental health

services. However, the reported prevalence of anxiety in older adults varies between studies, and there is no epidemiological information about the prevalence in special populations such as elderly in rest homes and hospitals (Stanley & Beck, 2000). These discrepancies are symptomatic of the underlying methodological challenges unique to older adults, which will be discussed in more detail later in the chapter.

Wolitzky-Taylor et al., (2010) reviewed epidemiological studies on anxiety in the elderly and found that prevalence estimates ranged between 3.2 to 14.2%. The National Comorbidity Survey-Replication (Gum, King-Kallimanis, & Kohn, 2009) found that 7% of older adults aged 65 and over met the criteria for an anxiety disorder in the last 12 months. This study may provide an accurate estimate of the current epidemiological status as it was a nationally representative sample, and used the DSM-IV. Wolitzky-Taylor found that prevalence estimates for GAD in older adults ranged from 1.2 to 7.3%, however they suggested that the different diagnostic criteria between DSM-III and DSM-IV significantly limited the ability to gain an accurate estimate.

The New Zealand Mental Health Survey (Oakley Browne et al., 2006) gives an indication of the prevalence of anxiety disorders in older adult New Zealanders. Probability sampling was used, and Maori and Pacific Islanders were oversampled to improve estimates. 12,992 participants responded, and of the 65 and over group 937 men and 1,307 women responded. Unfortunately people in rest-homes and hospitals were excluded from the study and screening was not undertaken for cognitive impairment. The Composite International Diagnostic Interview was administered to make lifetime, 12 month, and one month DSM-IV diagnoses. The study reported that the over 65 group had a 1% 12 month prevalence for GAD, and 6% prevalence for any DSM-IV anxiety disorder, compared to 2% and 14.8% for younger adults respectively. Males reported less anxiety than females in the sample (10.7% and 18.6% respectively). Similar findings were reported in the Australian National Mental Health and Well Being Survey (Trollor, Anderson, Sachdev, Brodaty, & Andrews, 2007).

The New Zealand Mental Health Survey is limited by the same issues faced by previous epidemiological studies with older adults. The DSM-IV diagnostic criteria are not favourable to older adults, and therefore a number may have been

excluded that have significant anxiety issues. In addition, the study did not use clinical staff to administer the questionnaire, and inter-rater reliability statistics were not reported. The difficulty obtaining accurate estimate of the prevalence of anxiety in older adults has implications for mental health service providers as they may receive inadequate funding to meet the demands of the community.   Issues complicating research with older adults that may have contributed to some of the discrepancies in epidemiological figures will be discussed later in this chapter.

Summary

Gaining accurate estimates of the prevalence of anxiety in older adults is difficult in part due to the differences in criteria used across studies and the differences in methods of assessment. New Zealand prevalence estimates for GAD in older adults are similar to those obtained in international research, and the gender difference in reporting of anxiety holds in New Zealand. A consistent finding across epidemiological studies is that anxiety disorders are common in older adults, but they are less common than in younger adults (Wolitzky-Taylor et al., 2010). However this may reflect the differences in experiences of anxiety between younger and older adults.

Why Anxiety may be Experienced Differently in Older Adults

There are significant differences in the social and political climates between generations that influence the characteristics and identities of cohorts (Schuman & Scott, 1989). However, advancing age also brings physiological changes that influence the way in which emotions are experienced and processed. In light of this, clinicians are becoming aware that the behaviour and beliefs of older adults are influenced by the changes that accompany the developmental processes of aging, and by their unique life history and context (B. G. Knight & Poon, 2008).

In addition to differences from younger adults, Schuman and Scott (1989) found that different age cohorts are likely to be unique based on their experiences in the formative years of their late teens and early 20's. The cohorts they discussed that are now in the older adult age group were significantly different to one another. For example, the cohort who are presently in their 80's and 90's have lived through the unpredictable world climate of world war two, and witnessed friends, family members go to war, or even were involved themselves.

Their parents experienced economic uncertainty and hardship from the great depression, and potentially passed on some of the feelings of uncertainty. In contrast, the 'baby boomers' who are now entering retirement lived through more localised wars such as Vietnam, and experienced cultural and political revolutions. In turn, the baby boomers viewed themselves as more socially and politically aware than their parents (Owram, 1997), and had greater affluence than their parents generation (Schuman & Scott, 1989).

Critically, differences have been observed between cohorts of elderly in the factor structure of anxiety and depression. Gale, Allerhand, Sayer, et al., (2010) evaluated the factor structure of the Hospital Anxiety and Depression Scale (HADS) in four cohorts of older adults (n=5153) and found support for factorial invariance between men and women within cohorts, however not between cohorts. This supports the notion that it is critical to account for cohort effects when conducting research with older adults, and that findings from one cohort may not generalise to another.

Because of these contextual and developmental differences between older and younger adults, anxiety may be experienced differently and hence theories such as the cognitive model of anxiety may not accurately capture the phenomenon of anxiety in the older age groups. Although there is strong empirical support for cognitive theories of anxiety in younger adults, there has been limited research evaluating these models in older adults. The following section begins by introducing a model outlining the contextual and individual factors that should be taken into account when working with older adults. This will be followed by a discussion of research investigating differences between older and younger adults, and then reviews research pertaining to the differing experiences of anxiety in these cohorts.

Contextual Adult Lifespan Theory

Knight and Poon (2008) assert that clinicians must consider their client within their unique context, including their developmental stage and the physiological changes which accompany it, differences between cohorts, cultural and social environments where the client lives. These factors influence the client's experience of mental illness, and affect their thoughts and behaviours within and outside of therapy. In light of these factors, Knight and Poon argue that therapy

must be adapted to accommodate these contextual factors, and implicitly, so does the assessment process. Knight and Poon developed a model called the Contextual Adult Life Span Theory for Adapting Psychotherapy (CALTAP) as shown in figure 5.
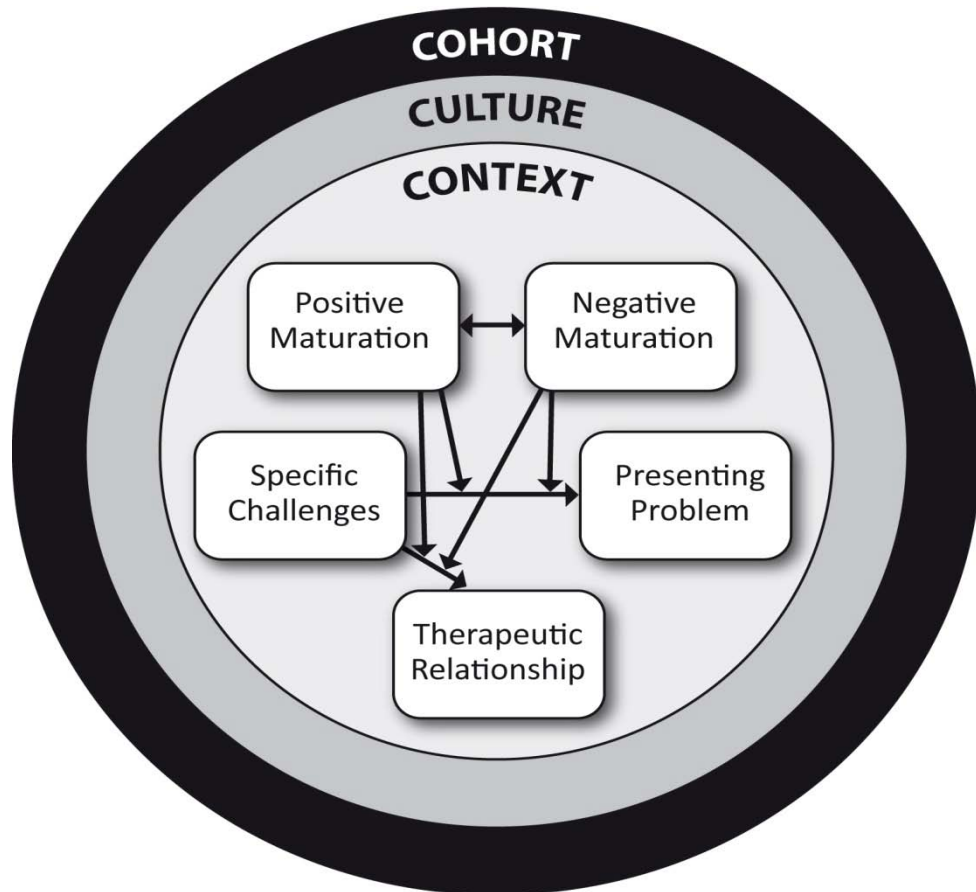
Figure 5. Components of the Contextual Adult Life Span Theory for Adapting Psychotherapy (CALTAP). Adapted from "The socio-cultural context in understanding older adults: contextual adult lifespan theory for adapting psychotherapy," by B. G. Knight and C. Y. M. Poon, 2008, *Handbook of the clinical psychology of aging (2nd edition),* p. 440.

Individual factors

Within the CALTAP model, individual and contextual factors influence the individual's presentation. Individual factors include positive and negative aspects of maturation, and age related specific challenges. Positive aspects of maturation include taking into account cognitive and emotional complexity. For example,

aging brings an accumulation of general knowledge and life experience. Furthermore, the emotional development of older adults brings more positive emotions, a better emotional regulation ability, lower intensity of emotions, and greater emotional complexity (B. G. Knight & Poon, 2008). These changes in emotional processing and expression will be discussed in greater detail later in the chapter.

Although there are a number of positive aspects of aging, inevitably there are negative aspects of aging which are incorporated within the CALTAP model. Knight and Poon (2008) suggest that negative aspects of maturation include physical and cognitive decline. Although there are individual differences in physical frailty, older adults tend to recover slower than younger adults from injury and illness (B. G. Knight & Poon, 2008). Cognitive changes include reduced cognitive processing speed, specific areas of memory such as working memory decline (Light, 2000), as does the ability to selectively attend to tasks and screen out irrelevant information or stimuli (Kemper, Herman, & Lian, 2003).

Alongside the changes that come with maturation, there are age related specific challenges that produce emotional distress. These include the high prevalence of chronic illness and disabilities, regular experiences of bereavement, and the experience of caregiving for family members with age-related disability or cognitive impairment. These in turn can increase emotional stressors on the individual, and potentially lead to social isolation (B. G. Knight & Poon, 2008). Certainly there is evidence that the stressor of a partner developing a major illness predicts anxiety in older adults (De Beurs et al., 2001).

Within the CALTAP model, the factors of positive and negative aspects of maturation, and the specific challenges that come with age, interact to influence the presenting problem and affect the therapeutic relationship (B. G. Knight & Poon, 2008). This is of particular relevance to the current study, as the presenting problem of anxiety may be influenced by these other factors. This adds complexity to the assessment and treatment process that may not be as salient in work with younger adults.

Contextual factors

These individual factors within the CALTAP model are occurring within the unique contextual, cultural, and cohort elements that accompany aging (B. G.

Knight & Poon, 2008). *Cohort effects* refer to the unique socio-historical context in which the older adult is located, which results in different beliefs, attitudes, and personality differences. As a result, Knight and Poon suggest that services for older adults should be responsive to the changing nature of the older adult population as new cohorts enter old age. Critically, the methods of assessment also need to reflect these differences between generations. There is also variability within older adults experiences based on cultural diversity, including ethnicity, socio-economic status, and educational levels. These cultural factors can influence help seeking behaviour and the way mental illness is conceptualised.

Finally, within the CALTAP model the older adult's immediate context also influences their experience of mental illness. Older adults may reside in a number of different contexts, such as in rest homes or hospitals, independently in the community, with their families, or in retirement communities. These different living arrangements may influence the challenges they face and be accompanied by a unique social context. Older adults now may be caring for younger generations, such as grandchildren, which may bring unique challenges not faced by as many older people from previous generations. Finally, older adults are also located within a context whereby society's attitudes towards aging may influence their experiences. For example, aging is associated with negative stereotypes within the media such as memory loss, incompetence, and unattractiveness (Kite et al., 2005, as cited in Knight & Poon, 2008).

Summary

Older adults are located within a specific social, cultural, and historical context that makes them a unique group that requires special consideration. The CALTAP model highlights areas of uniqueness of older adults that should be incorporated into the conceptualisation of the client's distress (B. G. Knight & Poon, 2008). In the case of anxiety in older adults, there are differences at every element of the model that make this population different to younger adults, and could influence their experiences of anxiety. Clearly, age related changes bring unique contextual and individual factors that are of less salience to younger adults. Therefore, the generalisation of models of anxiety and anxiety assessment measures from younger adults on to older adults is imprudent, and may miss critical aspects of the older adult's experience. The following sections discuss

some of the known differences between younger and older adults in the experiences of anxiety, and the physiological changes within the systems that affect emotional expression.

Experiences of Anxiety in Older Adults

Somatic experiences

A number of authors have suggested that in contrast to younger adults, older adults experience worry somatically (Flint, 2005; Lenze et al., 2005; Palmer et al., 1997; Sheehan & Banerjee, 1999; Sinoff, Ore, Zlotorgorsky, & Tamir, 1999; Turnbull, 1989). However not all studies support the somatisation hypothesis (Brenes, 2006; Hilliard & Iwamasa, 2001). Other authors have suggested that older adults may not recognise somatic anxiety experiences and instead attribute somatic symptoms to medical conditions (Stanley & Beck, 2000).

The empirical evidence to support somatisation is lacking and it appears to be predominantly anecdotal reports that have inappropriately been taken up within the literature as empirically supported. Some research has however found that older adults with anxiety visit the doctor more frequently than older adults with sub-clinical and normal levels of anxiety, although the reasons for this have not been studied (Cohen, Magai, Yaffee, & Walcott-Brown, 2006). However, some research has found that older adults experienced less pathological health anxiety when compared to younger adults, and that measures are not sensitive to real changes due to physical frailty (Boston & Merrick, 2010; Bourgault-Fagnou & Hadjistravropoulos, 2009). These studies suggest that more research is needed on the physiological experiences of anxiety in older adults.

Age related changes have been identified in the underlying physiological systems related to emotional expression (Neiss, Leigland, Carlson, & Janowsky, 2003). A consistent finding amongst medical literature is that the levels of norepinephrine within the nervous system differ in older adults. Furthermore, older adults have different levels of other neurotransmitters to younger adults, and their sensitivity to these neurotransmitters changes with age (Kogan et al., 2000). Similarly, Levenson, Carstensen, Friesen, and Ekman (1991) found that emotion specific autonomic nervous system arousal was smaller in older adults.

These differences in the physiological systems between younger and older adults have implications for the cognitive model of anxiety (Clark & Beck, 2010).

The known physiological reactions to anxiety may be different in older adults, which may further complicate the assessment of symptoms. For example, the older adult may not be able to identify some of the physical sensations which would be typical of younger adults. This issue could suggest the generalisation of physical aspects of the cognitive model to older adults may not be appropriate.

Cognitive experiences

There is some evidence to suggest that cognitive components of anxiety differ between older and younger adults. Advancing age brings developmentally appropriate changes in worry topics. As older adults experience life transitions such as retirement, the onset of physical health problems, reduced financial resources, and bereavement, their worry topics also change. It is unsurprising in this case that older adults worry more frequently about health and disability compared to younger adults who are more concerned with work, family and finances (G. J. Diefenbach, Stanley, & Beck, 2001; Kogan et al., 2000; Lindesay et al., 2006; Person & Borkovec). In a New Zealand study, participants were most often worried about health, family matters, and money, all of which were congruent with their life circumstances (Cotton, 2007). Interestingly, older adults do not worry about death more than younger adults (Shamoian, 1991), but aspects of social anxiety may be important in differentiating older adults with GAD from those without (J. G. Beck, Stanley, & Zebb, 1996).

Diefenbach, Stanley, and Beck (2001) found that pathological worry was not defined by worry content, despite older adults with GAD reporting a broader range of worries compared to the control group. This is consistent with the current theoretical understanding of GAD that process factors are more important than the topics of worry (American Psychiatric Association, 1994). In a later study Diefenbach et al., (2003) found that difficulty controlling worry differentiated between subsyndromal GAD patients from those with GAD. Therefore measures that do not include specific worry topics and instead focus on the degree of uncontrollability of worry may have greater clinical utility for older adults.

Hilliard and Iwamasa (2001) studied a group of 132 Japanese American older adults to understand their conceptualisation of anxiety. Iwamasa found that cognitive symptoms of anxiety were the most commonly endorsed symptoms on a checklist of anxiety and depressive symptoms. The top three symptoms reported

by participants were: (1) easily fatigued; (2) difficulty concentrating; and (3) difficulty controlling their worries.

Cotton (2007) conducted interpretative phenomenological analysis on semi-structured interviews with nine older adults who were caring for partners that had experienced a stroke. The majority of participants reported a dominance of cognitive symptoms of anxiety and were less able to recount the emotional, physical, and behavioural responses. The author suggested that the dominance of cognitive experiences of anxiety in older adults may be a significant difference between older and younger age groups.

Cotton (2007) found that views of the self as inadequate, a worrier, and unable to cope, and the future as uncontrollable contributed to anxiety severity. In contrast, anxiety was limited by feelings of self efficacy and beliefs of having a strong coping ability. These findings lend support to the applicability of the cognitive model of anxiety in older adults.

Behavioural Aspects of Anxiety

The behavioural manifestation of anxiety in older adults may be an important feature of anxiety in this population however it has received little empirical attention outside of single case research (Hersen & van Hasselt, 1993). As behaviour is a core component of the cognitive model, it is important that the behaviour which occurs in response to anxiety or as a means of avoiding anxiety is assessed. Behavioural observations may be also useful for assessing older adults who have aphasia following a stroke, or have cognitive impairments. However little is known about anxiety behaviours in older adults as the bulk of research has been undertaken using psychological measures which do not adequately cover the behavioural component of anxiety. Novy et al., 1997, as cited in Kogan et al., 2000, attempted to develop a purely observational measure of anxiety, however the heterogeneity of behaviours observed caused difficulties for the authors and trembling lips and sighing were the most stable behaviours.

Sleep behaviour may be important in determining the level of anxiety severity. Pallesen et al., (2002) found that older adults with insomnia reported higher levels of worry than those who slept normally and normal controls. Furthermore, Wetherell, Le Rouz et al (2003) found that sleep disturbance was one of the best discriminators between people with GAD from those without or with

subsyndromal GAD. Therefore, even though sleep disturbance is not part of the diagnostic criteria for GAD, it may be a critical area to assess for older adults.

Coping Behaviour

Older adults may employ behaviours or cognitive strategies to reduce anxiety or cope with anxious feelings. Some older adults may limit their activities to avoid situations that may cause worry (Gurian & Miner, 1991). Other older adults may use strategies to cope with worry, which may differ to those used by younger adults. For example, Hunt, Wisocki, and Yanko (2003) found that older adults preferred to use cognitive strategies to cope with worry such as thinking positively and "young". In contrast, younger adults used a combination of behavioural and cognitive strategies such as sleeping, writing down worries, smoking, talking to self, and reasoning. In another study, older adults used behavioural and cognitive strategies to immediately reduce experiences of anxiety. These included reappraising the presence of threat to reduce anxiety, distracting self from anxious feelings, taking time to problem solve, seeking support from others, and taking practical action (Cotton, 2007).

Emotional Processes and Expression

Emotional processing research has suggested that older adults experience emotions differently to younger adults, and this is one component of the CALTAP model previously discussed. Lawton et al. (1993) found a different factor structure for anxiety between young, middle aged and older adults. Significant differences were observed in the experience of positive and negative affect between older and younger adults, which were suggested to reflect cohort effects in the cognitive component of emotion. Older adults reported less negative affect than younger adults, however no difference was found between age groups on positive affect. In a related study, Shapiro, Roberts, and Beck (1999) evaluated cognitive and affective aspects of anxiety and depression using the Cognitive Checklist. They reported that the cognitive and affective dimensions that can differentiate between anxiety and depression in younger adults are not as helpful in older adults. Furthermore, cognitive components of affect were not specific to anxious or depressive symptoms in older adults.

Studies have also found that older adults also experience more complex emotions than younger adults (Ong & Bergeman, 2004; Ready, Carvalho, &

Weinberger, 2008), especially those related to negative affect (Levenson et al., 1991; Ready et al., 2008). Meeks et al., (2003) suggested that this emotional complexity may be responsible for the lack of differentiation between structures of anxiety, depression, and negative affect observed in older adult samples that have used confirmatory factor analysis. For example, several studies have found overlap between anxiety, depression, and negative affect in older adults, in contrast to the differentiation seen in younger adult samples (Christensen et al., 1999; Gale et al., 2010; Meeks et al., 2003; Shapiro et al., 1999).

There is limited evidence of increased hostility in older adults with GAD when compared to other types of anxiety in older adults. Molhman et al., (2004) found that older adults with GAD expressed more anger and frustration when compared to other anxious states. However as this is an isolated finding, emotions accompanying GAD in older adults should be explored in further studies. However, increased frustration in anxious states has been acknowledged in work with younger adults (A. T Beck et al., 1985).

The overlap between symptoms of anxiety and depression that has been observed in younger adult populations is also evident in research with older adults (J. G. Beck, Stanley et al., 1996; Heun, Papassotiropoulos, & Ptok, 2000; Meeks et al., 2003; Mohlman et al., 2004; Shapiro et al., 1999). It appears that older adults also conceptualise anxiety and depression to overlap. For example, in the previously mentioned study by Iwamasa (2001), participants identified several symptoms of depression as being important features of anxiety. Furthermore, these were endorsed more often than anxiety symptoms when participants were asked to identify the symptoms of an anxious elderly person. Overall, participants identified significantly more cognitive than somatic symptoms of anxiety. These findings suggest that it is important in older adult groups to understand the subjective experience of the client's distress and focus on symptoms that may overlap between anxiety and depression.

Summary

Although there is some evidence of differences between older and younger adults in their experiences of anxiety, the overall theoretical understanding of how older adults experience anxiety is inadequate. Certainly there is some evidence to suggest there may be differences in the physiological and emotional experiences of

anxiety in older adults when compared to younger adults. Furthermore, there is initial evidence that cognitive components of anxiety in older adults may be more salient when compared to behavioural or physical elements.   Taken together, this provides some support for the applicability of the cognitive model of anxiety in older adults. However, more work is needed in this field as clearly there is evidence for differences between older and younger adults in their experiences of anxiety.

In summary, there is evidence to support the notion that older adults are a unique group and as such, require special attention within the research. Therefore researchers must be aware of assumptions that are part of the "age related uniformity myth" (Kogan et al., 2000, p. 112) and consider that their older adult client may have experiences of anxiety that are unique to their life stage.

Difficulties in Researching Anxiety in Older Adults

The problems with using theories of anxiety developed in younger adults and transferring them to older adults has been outlined above. However, a number of methodological issues unique to older adults hinder researcher's ability to gain an accurate estimate of prevalence and understanding of the phenomenology of anxiety in this population.

Wolitzky-Taylor and colleagues (2010) summarised the methodological limitations in the literature which have contributed to the variance in base rates. These include (1) different methods of participant recruitment, with some studies using convenience sampling, whereas others use nationally representative samples; (2) differences in the diagnostic criteria used, with different nosologies used across studies (DSM vs. ICD), different assessment tools being used (some of which have questionable validity), and some studies including anxiety NOS and others not; (4) the use of exclusionary criteria if the participant meets the criteria for a general medical condition; (5) the exclusion of some anxiety disorders (e.g. PTSD) in some epidemiological studies; (6) the use of clinical judgement for diagnosis in some studies and not others; (7) differences in the definition of older adults, with some studies beginning at age 55 and over, and others beginning at a number of older cut-offs. These issues highlighted in epidemiological research also are problematic in general research into the phenomenology of anxiety in older

adults. The most pertinent issues to this study will be discussed in more detail in the following sections.

Cohort effects

The influence of contextual factors on the older adult is evident from the CALTAP model (B. G. Knight & Poon, 2008). Although this model highlights the importance of accounting for cohort effects, these factors are often overlooked in research. It is common to see older adults grouped together, rather than considering bands of cohorts. Therefore, although the oldest old (aged 80+) may be considerably different to the baby boomers, these groups are frequently combined in research. However because of cohort effects, generalisations should not be made from research with one cohort of older adults to another without testing the validity of this assumption. Furthermore, the characteristics of older adults constantly change because as time passes, new cohorts enter the elderly category and the oldest old die. In turn, the rejuvenation of the older adult population may influence the findings from research in this group. In light of these cohort effects, the different characteristics of each cohort of elderly may negatively impact the ability to gain an understanding of anxiety in this group.

DSM-IV

The general issues surrounding the diagnostic criteria for GAD within the DSM-IV have been discussed in the previous chapter outlining anxiety disorders. However, there are issues with the DSM-IV that are specific to older adults and influence research findings with this group, and therefore deserve more detailed attention in the present discussion. As with younger adults, many older clients may experience anxiety symptoms that do not fit neatly within a specific DSM-IV category of anxiety, but still result in significant functional impairment (Cole, 1991; Heun et al., 2000). This phenomenon is relatively common in older adults and has implications for treatment of older adults as a number may go undetected (Huen, Papassotiropoulos, & Ptok, 2000).

However the more salient issue is the exclusion of GAD as a diagnosis if anxiety is considered due to the effects of a medical condition (Palmer et al., 1997). Up to 86% of older adults have at least one chronic medical condition and may be on multiple medications (Wolitzky-Taylor et al., 2010). As a result, a significant

proportion of older adults may not receive an appropriate diagnosis of anxiety (Palmer et al., 1997).

Medical Conditions

Accurate assessment of anxiety disorders in older adults is complicated by the high proportion of this population who have medical conditions and comorbidities. Medical conditions are problematic when identifying issues with anxiety as some can mimic symptoms of anxiety, and some health problems are associated with anxiety symptoms. For example, cardiovascular and respiratory conditions can lead to shortness of breath, feelings of increased heart rate, which are also symptoms of panic. However, the anxious apprehension of these symptoms could be considered pathological levels of anxiety. A recent study of people with chronic obstructive pulmonary disease (COPD) found a high comorbidity of psychiatric disorders (55%) compared to people without COPD (30%). The COPD patients with psychiatric comorbidities all had one or more anxiety disorder, in particular panic disorder with agoraphobia (Vogele & von Leupoldt, 2008).

Unfortunately within the DSM-IV, a diagnosis of GAD cannot be given if the condition is considered to be the direct effect of a general medical condition (American Psychiatric Association, 1994). But it is difficult for researchers to identify which symptoms are features of anxiety, and which are as a direct result from medical conditions. Identifying which is the primary disorder is important for differential diagnosis, gaining accurate estimates of base rates, and for understanding the presentation of anxiety in older adults. The difficulties accurately identifying anxiety in older adults with medical conditions is problematic as the client may miss out on vital treatment for anxiety, and experience undue negative impact on their quality of life.

Poly-Pharmacy

Poly-pharmacy is a common consequence of medical comorbidities, and further complicates the identification of anxiety symptoms in older adults. Taking multiple medications is common in older adults, which in turn could either mimic or mask anxiety symptoms. This is particularly problematic when anxiolytic medications are frequently prescribed in older adults for medical symptom management (Cole, 1991). In this case, the cognitive aspects of anxiety may be

more salient for the older adult as physiological symptoms may be masked by medications.

Communication about Anxiety

The identification of anxiety symptoms in older adults, in particular the cognitive components, requires an ability to communicate openly about psychological experiences. However communicating with older adults about their psychological symptoms and anxiety experiences may be difficult for a number of reasons. Lenze et al [in press, as cited in Wolizky-Taylor, 2010] suggest that older adults may (a) minimize symptoms; (b) use different language when compared to younger adults, such as complaining of concerns rather than worries; (c) attribute their symptoms to physical illness or medical conditions which lead to exclusion from diagnosis; (d) have difficulty recalling or identifying symptoms.

Certainly there is evidence that older adults are less likely to report anxiety symptoms in themselves, or identify them in family members who were under treatment for anxiety disorders (Levy, Conway, Brommelhoff, & Merikengas, 2003). But there is likely to be differences across cohorts of older adults that have not been accounted for in these studies.

Identification of Anxiety Symptoms

Potentially the issues with medical comorbidities and communication may have contributed towards the under-reporting of anxiety symptoms in medical notes of patients with GAD. For example, a recent study that reviewed the medical notes of older adult patients found that only 34% of patients with GAD had their anxiety symptoms recorded, and 1.5% received a diagnosis of GAD (Calleo et al., 2009). Furthermore, these issues may reduce the reporting of anxiety symptoms in epidemiological research.

Psychological Measures

Psychological measures of anxiety are commonly used in research with older adults, as they are a means to quantify anxiety and make comparisons against a standardised set of criteria. However, the appropriate use of psychological measures is dependent on the validity of interpreting the test score within that particular group at that time (Cicchetti, 1994). As will be evident from the detailed discussions in the following chapters, there is limited evidence of validity for measures of anxiety in older adults. For example, the majority of

anxiety measures are not normed for older adults, have been developed for younger adults from theories conceptualised in younger populations, and have a high amount of error variance in measurement. Therefore, the accuracy of research conducted with older adults using psychological measures of anxiety is questionable as the construct validity of the tests used has not been established.

Secondly, confirmatory bias is a critical issue negatively impacting research through using psychological measures with questionable validity for anxiety in older populations. Confirmatory bias means that the older adult completing the measure has a limited range of experiences to endorse, and cannot identify possibly critical aspects of their experiences if they are not available as items on the measure. Therefore the researcher reports the limited picture of the anxiety experience of older adults and is not aware of what experiences were not available to the participant. This is a huge issue as we do not have a clear understanding of how older adults experience anxiety. We will not get closer to understanding the phenomenology of anxiety in older adults through the sole use of psychological measures.

Future Directions in Researching Anxiety in Older Adults

Qualitative and archival research offers a way to clarify anxiety symptoms and get a clearer picture of the experiences of older adults with anxiety. This method minimises the confirmatory bias of psychological measures and enables the researcher to gain a more comprehensive and deeper view of the client's experience. In turn this can help establish how older adults experience anxiety, and whether it is different from younger adults in meaningful ways enough to challenge the existing theories. It also means that by focusing on the unique experience of the client, rather than trying to classify them into a DSM category, some of the difficulties created from the changing diagnostic criteria can be avoided. Unfortunately to date there has been minimal qualitative research conducted in anxiety with older adults.

Summary of Issues in Researching Anxiety in Older Adults

There are a number of methodological issues that are unique to older adults and negatively impact our ability to study the phenomenology of anxiety in older adults, and gain accurate estimates of the prevalence of anxiety disorders. Although there is a consistent finding of lower levels of anxiety in older adults

compared to younger adults, this may in part be due to methodological issues. These issues include the high numbers of medical comorbidities within the population, differences in the way psychological distress and anxiety are communicated when compared to younger adults, and the issue of DSM-IV not fully capturing the issue of anxiety in this group. This problem is compounded by the confirmatory bias that occurs through the prevailing practice of research using psychological measures of anxiety that are not validated for older adults.

Although research with older adults is complicated due to these issues, they can be overcome through the use of alternative methodologies such as qualitative research. It is crucial that our methodology adapts to the population we wish to study, as we cannot change the characteristics of older adults. Instead, we must first take a new direction and understand the phenomenon of anxiety in older adults. Then we can ascertain whether are psychological instruments used in research are valid, rather than perpetuate the problem by using psychological measures with limited validity evidence.

Chapter Summary

Although research into the phenomenology of anxiety in older adults is in the early stages, there is sufficient evidence to suggest some differences in their experiences compared to younger adults. For example, differences are evident in their emotional processing, worry topics, physiological expression of anxiety, and contextual factors. However, some similarities exist in the cognitive aspects of anxiety. Taken together, the research suggests that the cognitive model of anxiety (A. T Beck et al., 1985; D. A. Clark & Beck, 2010) is applicable to older adults, although the experiences at each level may differ from younger adults.

The overall body of literature in anxiety in older adults is minimal, and research is confounded by methodological limitations of previous research. These include the constraints of using DSM-IV diagnostic criteria, and in particular the presence of multiple medical comorbidities in older adults and the associated polypharmacy. Furthermore, the grouping of the entire age range of older adults and overlooking cohort effects may contribute further variance to the study of anxiety in older adults. For example, there may be differences between cohorts of older adults that influence their experiences of anxiety, as hypothesised by the CALTAP model (B. G. Knight & Poon, 2008).

One of the most critical issues holding back the literature is the predominance of research using psychological measures of anxiety in older adults that have questionable construct validity (Stanley & Beck, 2000). However, this issue cannot be resolved until the phenomenology of anxiety in older adults is understood. This is because psychological theory that underpins psychological measures of anxiety is lacking. However, the summary of research presented in this chapter provides preliminary evidence of the validity of elements of the cognitive model of anxiety in older adults. As such, research should focus on exploring how older adults experience anxiety and discovering how the cognitive model fits this population. This information can then be used to guide the development of a new psychological measure to aid in the assessment of anxiety in older adults.

5

Evaluating the Validity of Assessment Using Psychological Measures

Assessment forms a critical part of the overall management of a psychologically distressed client as it enables the clinician to identify the processes that are contributing to the client's distress. Psychological theory provides the clinician with knowledge of what areas to assess and the symptoms that are salient to conceptualise and prioritise the client's problems. This information is then used to prioritise areas for treatment and develop an appropriate treatment plan. The present chapter provides an overview of the assessment process, and then focuses on the use of psychological measures as a key part of assessment. The importance of selecting an empirically supported measure will be discussed, and sources of validity evidence for supporting the interpretation of scores on anxiety measures will be outlined.

The Role of Assessment in Clinical Practice

The first priority for a clinician when a psychologically distressed client presents for treatment is to undertake a comprehensive assessment to determine what is causing their distress. Assessment includes the differential diagnosis between similar disorders, and identification of the components that are causing and maintaining the client's distress. Psychological theory provides the clinician with a guideline for how to assess the client and which symptoms are essential to look for. Assessment based on the cognitive model involves determining the cognitive, behavioural, physical, emotional, and situational factors which maintain the client's distress. Information gained during assessment is then used to direct treatment, and forms the baseline to evaluate recovery. While these specific components are well understood in younger adults, the potential differences in older adults are not well understood. Therefore the inadequate theoretical understanding of anxiety in older adults may cause the clinician to overlook key aspects of the client's distress, thereby attenuating the assessment and treatment efficacy.

There are a number of assessment methods available to clinicians, including a clinical interview, behavioural observation, and the selected use of psychological measures. The advantage of using psychological measures is the availability of norms to enable the clinician to quantify the severity of the client's distress and compare it to percentiles within the population. The ability to measure the client's symptoms enables the clinician or researcher to take a baseline measurement to evaluate treatment progress. Psychological measures also assist in the differential diagnosis between similar disorders, and can assist in clarifying the nature of the client's symptoms (Groth-Marnet, 2003). These advantages mean that the use of psychological measures is commonplace within psychological assessment.

The advantage of assessment using psychological measures is reliant upon the instrument having sound psychometric properties. If the psychometric properties of the psychological measure are poor, the clinician cannot be certain that their clients score on the measure reflects their psychological state or is an artefact of measurement variance. Therefore, an essential component of ethical practice is ensuring that the assessment measure used is evidence based (Code of Ethics Review Group, 2002). This means that the clinician must evaluate the validity of the interpretation of the clients test score prior to using it to inform clinical judgement. Furthermore, evidence based assessment also means that the results from clinical measures are interpreted in the context of information from multiple sources (Hunsley & Mash, 2007).

Validity

The ethical use of psychological measures means that the psychometric properties of the measure should be known, and evidence of the validity of a test score should be evaluated before action is taken on the basis of the outcome of the test. Messick (1989) stated that "validity is an overall evaluative judgement of the degree to which empirical evidence and theoretical rationales support the adequacy and appropriateness of interpretations and actions on the basis of test scores or other modes of assessment" p. 5. This means that individual components of validity evidence must be evaluated within the client's unique contextual elements to determine whether or not the individual's score is valid, or reflects measurement error (Messick, 1989). In the case of anxiety in older adults, the clinician must evaluate the factors which contributed towards them obtaining that

particular score at that time, and whether or not they are due to factors irrelevant to the client's level of anxiety.

Validation of a measure is an ongoing process and validity evidence found in one population may not generalise to others. In the case of older adults, the differences previously discussed between the experiences of anxiety in older and younger adults may influence measurement. For example, the different characteristics of each group meant that even if good psychometric properties are found in younger adults, it is imprudent to assume these properties hold in older adult samples.

There are a number of ways in which evidence of the validity of test score interpretation can be evaluated. The majority of information comes from previous research undertaken with the measure in a sample with similar characteristics to the client of interest. The APA in conjunction with several other regulatory bodies agreed upon key sources of validity evidence to evaluate for each measure, which may be assessed over several studies (American Educational Research Association, 1999). As validity evidence is cumulative, if one component of validity is found to be lacking, the interpretation of test scores may be considered imprudent (Buckendahl & Plake, 2006). The following section discusses the ways in which psychological measures may be evaluated which when combined can contribute towards validity evidence, and discusses the implications for assessing anxiety in older adults.

Evaluating Sources of Validity

Content validity

Content validity refers to the evaluation of the relationship between the test's content and the construct it is purported to measure. Test content includes the wording, format, content, and themes of items. A critical element of assessing validity is to first determine what the core components of test content should be. The essential content domains to include on a measure may be based on empirical research and expert opinion (Buckendahl & Plake, 2006). It is essential that enough items relating to the construct of interest are included to ensure that the construct is adequately represented. Likewise the test should not include elements that are irrelevant to the construct at hand and add variance to the

observed test score. Messick (1995) refers to these issues as construct underrepresentation and construct irrelevant variance.

The appropriateness of content relates to the inferences that are intended to be made on the basis of the observed score (American Educational Research Association, 1999). In the case of anxiety in older adults, if a measure is being used to support diagnosis, it is essential that the theoretical foundation of anxiety in this age group is adequately represented within the test. However as the literature surrounding anxiety in older adults is limited, test developers do not know what the essential elements are necessary to include in a test of anxiety in older adults. Likewise, this limits our ability to evaluate the adequacy of the content of existing measures. Therefore, the poor understanding of critical content to include attenuates the content validity of all measures of anxiety in older adults.

Aside from evaluating the content validity of a measure, it is equally important that the clinician understands the response processes of the client (American Educational Research Association, 1999). For example, the client's interpretation of the item is important. It may not always be the case that the meaning to the client is equivalent to the interpretation of the clinician. Within older adult populations it is also essential that the clinician evaluates the suitability of the test within a population with a high level of sensory and cognitive difficulties that could affect their responses. Therefore, content validity goes beyond specific item content to the overall way in which the content of the measure affects client performance (Schwarz, 1999).

Internal Test Structure

The internal structure of the test comprises another component of validity evidence. The relationships between test items and subscales of the measure, and test items to the overall score, should be evaluated to assess whether they are sufficiently related. In the case of a multidimensional test, the individual items that contribute to a subscale score should be sufficiently related to each other, but distinct from those items that make up another subscale. On a test measuring a unidimensional construct, the items should be sufficiently homogeneous and relate to the overall total score (American Educational Research Association, 1999).

The internal test structure may be evaluated using traditional reliability analyses such as Cronbach's α or item-total correlations, correlating items or

subscales with each other, and through factor analytic methods. Cronbach's α is a statistic that reflects the intercorrelation between items, and reflects the internal consistency of the subscale or test depending on how it is applied. Therefore a high Cronbach's α is desirable as it reflects high internal consistency of the test. However, Cronbach's α can be artificially inflated by a long test length, and by homogenously worded items (Nunnally & Bernstein, 1994). It is therefore essential this statistic is not viewed in isolation and the test content is evaluated for the validity of the statistic.

Convergent and Discriminant Validity

Convergent and discriminant validity estimates are regularly reported in the evaluation of psychological measures. Convergent validity refers to the degree to which different indicators of theoretically similar constructs are interrelated (Brown, 2006). A common method of evaluating convergent validity in measurement is by correlating an individual's test score on one measure with their score on another measure of a similar construct. The correlational method of assessing convergent validity is the dominant method in assessing the validity of anxiety measures in older adults. For example, a client's score on the anxiety test under evaluation should be closely correlated to their score on another measure of anxiety if both tests are measuring the same construct.

Discriminant validity evaluates whether the test is measuring a distinct construct and is not overlapping into domains it should not cover (Messick, 1995). This is commonly evaluated by correlating the clients test score on the measure of interest with their test score on a measure that should theoretically be unrelated (American Educational Research Association, 1999). For example, a client's score on a measure of anxiety should not correlate highly with their score on a measure of something unrelated such as schizophrenia. A high correlation would suggest a large proportion of extraneous variance, or that they were both measuring a similar construct. Commonly, measures of anxiety are compared to measures of depression as divergent validity evidence, however this practice is considered questionable given the diagnostic overlap of depression and anxiety emerging within the literature.

There are a number of issues with the correlational methods of convergent and discriminant validity. Firstly, the strength of this method rests on having a

valid 'gold standard' measure against which to compare test scores of the measure of interest (American Educational Research Association, 1999). If a measure is being correlated with an existing measure that has a large proportion of measurement error, the clinician cannot be certain that the observed relationship is due to the common factor of the construct of interest or measurement error. Secondly, a proportion of the covariation between observed measures can be due to method effects (Brown, 2006). For example, questionnaires which contain positively and negatively worded items can contain a method effect due to a correlation between responses on each. These method effects can produce artefacts of measurement that cause misleading results, such as producing additional factors in EFA that are not substantively meaningful.

Factorial Validity

Factorial validity is a critical component of construct validity evidence that enables clinicians to evaluate the meaning of test scores, and determine the degree to which construct irrelevant variance has clouded the observed score (American Educational Research Association, 1999). Confirmatory factor analysis (CFA) is a type of structural equation modelling that deals specifically with measurement models, and is one of the main methods of determining factorial validity of tests. It is a useful method for evaluating the internal test structure and evaluate the relationships between constructs on the test. Furthermore, the CFA method overcomes some of the issues of Cronbachs α that were previously discussed. Unlike traditional reliability analysis, CFA methods enable the researcher to test hypothesised relationships between observed indicators (e.g., test items) and latent variables or factors such as anxiety (Brown, 2006).

CFA methods can be used in the development of a measure - or to test an existing measure-, to verify the number of underlying factors of the measure and which items load onto which factors. This method can therefore establish whether the items load appropriately onto their intended domains, as is required for the interpretation of a subscale score. Therefore the findings from CFA can be used to support the viability of the use of a total score, or subscale scores, or both. For example, if one higher order factor accounts for all subscale scores, the use of a total score may be considered valid. However, the use of a single test score could

not be justified if subscale scores are not represented by a higher order factor (Brown, 2006).

CFA may also be used for construct validation, and provide evidence of convergent and discriminant validity of theoretical constructs. Researchers can evaluate the strength of the relationship between test items and the factors that they should measure, and assess the relationship between factors. In contrast to the previously mentioned correlational methods of convergent and discriminant validity, CFA methods adjust for measurement error such as those caused by method effects (Brown, 2006). Researchers can determine the amount of method variance within each test item, and thus examine the true relationships between items and factors.

Criterion Validity

The final important area of validity to assess is whether the assessment instrument is useful in determining the presence or absence of the disorder that it purports to measure. In other words, can the measure correctly differentiate between people with anxiety from those who are healthy or have different type of disorder? This ability is referred to as criterion validity, and can be evaluated through comparing test scores obtained on the measure of interest with the diagnosis of a clinician (Cicchetti, 1994).

Sensitivity and specificity of assessment instruments are essential components of criterion validity. Sensitivity refers to the degree to which positive cases confirmed by clinician diagnosis are identified as positive by the test (true positives). A sensitivity estimate is derived from the number of true positives/number of true positives + number of false negatives. Specificity refers to the degree to which cases confirmed as negative by the test are also confirmed as negative by the clinician (true negatives). The sensitivity statistic is generated from the number of true negatives/ the number of true negatives + number of false positives (Cicchetti, 1994). Ideally, sensitivity and specificity should be as close to 100% as possible.

Standardization

Test standardisation is an essential component of validity as it enables the development of a series of scores that reflect different levels of performance on a criterion within the population. These can then be used to determine the level of

functioning of an individual in comparison to the standardisation sample (American Educational Research Association, 1999). In the case of anxiety in older adults, the use of norms enables the clinician to compare their client's score with that of the standardisation sample with similar characteristics (Cicchetti, 1994). Ideally, the age related norms would be available to enable comparison with other older adults. These norms would enable the clinician to identify based on a cut-off whether a client is significantly more anxious than other older adults.

Consequences of Test Use

The aspects of validity previously discussed are all fundamental to ethical test use, however Messick (1995) encourages test users to consider the broader reaching consequences of score interpretation when assessing individual differences. Frequently we evaluate test consequences in terms of the client we are face to face with. Indeed assessment impacts the client at the coal face through the choice of care they receive and what needs are prioritised. However if we critically think about the broader client of our assessment, we can consider that the implications reach beyond the individual to the broader community level. Base rates of illness are established through epidemiological studies, and archival research on hospital files. These base rates in turn may be used by public health providers at local and governmental level to determine allocation of funding, which impacts the community as a whole. While it may seem challenging to imagine the day to day assessment of clients impacting future funding, this critical evaluation of potential consequences of assessment is at the heart of Messick's argument. Clinicians must consider the validity of all aspects of their assessment, and test use is one facet of this.

Chapter Summary

Assessment is a critical theory driven component of clinical practice and provides a direction for treatment. Evaluating the validity of a measure prior to interpreting a test score is a critical part of ethical assessment. This includes determining the degree to which the test content reflects the construct of interest, and the level of construct irrelevant variance that has clouded the true score. Sources of validity evidence include evaluating the internal test structure through methods such as CFA and internal consistency coefficients, and evaluating the

relationship between the test and its related constructs. The availability of clinical norms and sensitivity and specificity information is essential for a clinical measure.

Because older adults have unique characteristics which differentiate them from younger adults, it is essential that validity studies are undertaken with this population prior to interpreting a test score obtained on a measure validated in younger adult groups. However, the ability to validate measures of anxiety in older adults is hindered by the lack of theoretical understanding of how anxiety presents in this group. With this caveat in mind, there are still a number of means to evaluate the validity of measures for anxiety in older adults, including evaluating the structure of the test through CFA methods, and comparing how it converges and diverges with other constructs. The following chapter reviews the validity evidence for existing clinical measures of anxiety in older adults.

6

Validity Evidence of Psychological Measures Currently in Use with Older Adults

In order to determine the validity of assessing anxiety in older adults using existing clinical measures, it is important to survey the current status of research into their validity. Older adults require special consideration as they are a unique cultural group with different experiences to younger adults, a high number of medical comorbidities, a high proportion have sensory impairments, different physiological and affective responses when compared to younger adults. In light of this, it is imprudent to assume that measures developed for anxiety in younger adults will be valid in older adults. In other words, will an observed score that is purported to represent a level of anxiety be an accurate reflection of anxiety in an older adult, or will the validity of such an interpretation be attenuated by construct irrelevant variance? Also, given the lack of theoretical understanding of anxiety in older adults, can any measure be valid when the essential components required to accurately represent the construct of anxiety in older adults are unclear or unknown? With these questions in mind, the following chapter reviews the validity evidence for existing psychological measures for anxiety that have been researched using older adult samples.

Description of Anxiety Measures in Current Use with Older Adults

Two groups of measures have been researched for use with older adults, those that were developed in younger adults and then researched with older adults, and those that were developed specifically for older adults. The present review will focus on the most relevant measures of anxiety for older adults, such as the ones in frequent use in clinical practice and research. A third group of measures will be described that have been used for comparative purposes in convergent and discriminant validity research with anxiety measures in older adults. The following section provides a brief overview of these measures to familiarise the reader with the measures that may be referred to when discussing convergent and discriminant validity statistics. This section will then be followed

by a more detailed overview of the psychometric properties of measures that are in common use with older adults, including convergent and discriminant validity statistics.

Description of Measures Developed with Younger Adults

The first group of measures were developed with younger adults and due to their popularity and good psychometric properties in this population were subject to the most prolific research in older adult samples. The Penn State Worry Questionnaire (PSWQ) is a 16-item self-report measure of pathological worry corresponding to the GAD criteria, as it assesses whether an individual is experiencing difficult to control, excessive, and frequent worry (Meyer, Miller, Metzger, & Borkovec, 1990). The State-Trait Anxiety Inventory (STAI) is comprised of two complementary 20-item self-report measures of anxiety: (1) the state version, that assesses the client's current anxiety level; and (2) the trait version that assesses the underlying predisposition to anxious states (Spielberger, 1970). The Beck Anxiety Inventory (BAI) is a 21-item self-report measure of physiological and cognitive anxiety experiences over the previous week (A. T Beck, Steer, & Garbin, 1988). The Hospital Anxiety and Depression Scale (HADS) is a 14-item self-report measure of anxiety and depression, predominantly assessing anhedonic depression and somatic experiences of anxiety (Zigmond & Snaith, 1983). The Hamilton Anxiety Rating Scale (HARS) is a 16-item clinician administered measure of somatic anxiety and "psychic" anxiety (mental agitation and psychological distress). The HARS was developed well before GAD was conceptualised in the DSM-III, and reflected the broad concept of anxiety neurosis that has fallen out of current use.

Description of Measures Developed Specifically for Older Adults

The second group of measures were developed specifically to measure anxiety in older adults, and have been subject to varying levels of research. The Worry Scale (WS) is a 35-item self-report measure of worry topics, and is comprised of three subscales: finances, health, and social conditions. Scores on the worry scale pertain to the frequency and range of worry, and was developed as a research tool rather than a clinical measure (P. A. Wisocki, Handen, & Morse, 1986). The Geriatric Anxiety Inventory (GAI) is a 20 item self report measure of anxiety that was developed from selecting items from existing anxiety measures

that performed well in an older adult sample, and changing them to a dichotomous format (Pachana et al., 2007). The Adult Manifest Anxiety Scale Elderly Version (AMAS-E) is a 44-item measure that assesses anxiety using three scales: physiological, worry/oversensitivity, and somatic. A fourth social desirability "lie" scale was included to assess the validity of scores (Reynolds, Richmond, & Lowe, 2003). The Short Anxiety Screening Test (SAST) is a ten item self-report screening measure of anxiety designed for older adults, and scores provide an indication or the presence of anxiety symptoms or disorder (Sinoff, Ore, Zlotogorsky, & Tamir, 1999). Finally, the Geriatric Worry Scale (GWS) is a five item measure of anxiety of the cognitive experience of worry. A more detailed overview of these measures and their psychometric properties will be provided in the present chapter.

Measures Referred to in the Validation of Anxiety Measures in Older Adults

The final group of measures are in less frequent use, but have been referred to in convergent and discriminant validation studies of the other measures. Convergent validity studies have commonly compared the measure of interest to those mentioned previously, and in some instances the following measures. The Intolerance of Uncertainty Scale (IUS) is a 27-item self-report measure assessing the affective consequences (e.g. stress, anxiety, and frustration) of uncertainty of the future (Freeston, Rheaume, Letarte, Dugas, & Ladoucer, 1994). The Goldberg Anxiety and Depression Scale (GADS) is an 18-item self-report measure of anxiety and depression that offers respondents a dichotomous response (Goldberg, Bridges, Duncan-Jones, & Grayson, 1988). The Worry Domains Questionnaire (WDQ) assesses worry using 25 items across four scales (relationships, lack of confidence, aimless future, work incompetence, and finances) using a five-point likert scale (Tallis, Eysenck, & Mathews, 1992).

Discriminant validity studies have generally been undertaken using the following measures of depression. The Geriatric Depression Scale (GDS) is a reliable and valid self-report measure of depression in developed for older adults (Sheikh & Yesavage, 1986). The Beck Depression Inventory 2nd Edition (BDI) is a 21-item self-report measure of somatic and affective depression symptoms developed for younger adults. It is the companion measure to the BAI (A.T Beck, Steer, & Brown, 1996).

Overview of the Validity of Measures in Use with Older Adults

The following sections first evaluate the validity of anxiety measures that were developed and normed using younger adults, and then those developed for older adults. The available construct validity evidence is evaluated, and measures are critiqued to determine whether the observed score purported to represent anxiety is clinically meaningful or whether it is instead an artefact of measurement error.

Measures Developed for and Normed on Younger Adults

The validity of using measures developed for younger adults is problematic from the outset as the measures were designed for use with a group that has different characteristics to older adults. There is ample evidence to suggest age related differences in the experiences of anxiety, which attenuate the content validity of the test. However as the theoretical foundation for anxiety in older adults is weak, it is difficult to make an assertion regarding the presence of construct underrepresentation or construct irrelevant variance. Therefore although the following measures have found validity in younger adult samples, these characteristics may not generalise to older adult groups. With these underlying issues in mind, the following section outlines the current status of research into the validity of measures developed for younger adults when used in an older adult population.

Penn State Worry Questionnaire (PSWQ).

The PSWQ (Meyer et al., 1990) is a 16 item measure for assessing worry in adult populations, which was developed and tested using university students. The PSWQ followed a robust method of development whereby diary entries of GAD patients, clinical and research experience, items from an existing measure of GAD, and theoretical views of worry were used to generate 161 items. These items were tested on psychology students and reduced to 58 well performing items, which were then tested and refined over several more studies before publishing the final version. The resulting 16 item measure predominantly assesses the cognitive and personality factors associated with anxiety by asking clients to rate how typical or characteristic each statement is of them using a likert scale. Five items are reverse scored.

The PSWQ has been extensively researched in young to middle aged adults, and good psychometric properties have been reported from these samples. More recently research has extended to evaluating the PSWQ's psychometric properties in older adults. Furthermore, an abbreviated version (PSWQ-A) has been created by removing redundant or poorly performing items. The PSWQ-A will be discussed in the following section.

Internal Consistency

The internal consistency of the PSWQ in anxious and non-anxious older adults is acceptable when assessed using Cronbach's α (.80 to .94). Table 3 presents the psychometric properties measured for the PSWQ in a variety of older adult samples. The test-retest reliabilities measured range from .54 to .79, however the varied length of time between testing across different studies makes it difficult to accurately assess the stability of the PSWQ.

Table 3.

Internal Consistency and Test-Retest Reliability of the PSWQ in Older Adults

Study	Sample Characteristics	Cronbach's α	Test-retest *r*
Beck, Stanley & Zebb, (1995)	American GAD patients (N= 47, aged 55-81, *M* =67)	.89	X
	Normal Control (*n* = 94, aged, 55-82, *M* = 67.5)	.80	X
Stanley, Novy, Bourland, Beck, and Averill, (2001)	American GAD patients (*n* = 57, aged 60-80)	.83	.54
J. G. Beck et al., (2003)	American GAD patients (*n* = 83, aged 60-80)	.87	X
S. Hunt et al (2003)	Healthy Community Dwelling American (*n* = 84, aged 64+)	.88	X
Crittendon and Hopko (2006)	Community dwelling older adults (*n*=115)	.84	X
Nuevo, Mackintosh, Gatz, et al., (2007)	Healthy American (*n* = 206) and Spanish (*n* = 137; aged 55-94 years)	.92 Male .90 Female	X
Knight, McMahon, Skeaff, Green (2008)	255 Healthy New Zealand Adults (N = 255, aged 65-90)	.89	X
G. Diefenbach, Tolin, Meunier, & Gilliam (2009)	Home care recipients (*n* = 66 , aged 65+)	.79	.79

PSWQ-A

Hopko et al. (2003) refined the PSWQ to enhance its performance with older adults by removing items which performed poorly in an older adult sample. Five of the removed items were reversed scored which the authors suggested reflected a method effect. The retained eight item measure (PSWQ-A) has shown comparable psychometric properties to the full length version, and improved model fit in CFA (Crittendon & Hopko, 2006; R. G. Knight, McMahon, Skeaff, & Green, 2008; Nuevo, Mackintosh, Gatz, Montorio, & Wetherell, 2007; Webb et al., 2008).

Table 4

Internal Consistency and Test-Retest Reliability of the PSWQ-A in Older Adult Samples

Study	Sample characteristics	Cronbach's α	*Test Retest r*
Hopko, Stanley, Reas, Wetherell, Beck, Novy, Averill (2003)	Predominantly American female GAD patients undergoing CBT (*n* = 160, aged 55-88)	.87	.63[!]
Crittendon and Hopko (2006)	Community dwelling healthy older adults (*n* = 115, *M* = 71.6)	.89	.92[#] .95[##]
Knight et al (2008)	New Zealanders (*n* = 255, aged 65+)	.92	x
G. Diefenbach et al. (2009)	Home care recipients (*n* = 66 , aged 65+)	.89	.76 (.42-.91)[95% CI]

[#] 2 week test-retest interval; [##] 6 week test-retest interval; [!] Interval not reported

Factor Analysis of the PSWQ in Older Adults

Beck, Stanley, and Zebb (1995) found a two-factor structure for the PSWQ, the first factor reflected a tendency to worry, and the second an absence of worry.

However, the absence of worry factor was suggested to reflect a method effect rather than a meaningful clinical construct since the reverse scored items clustered together (Brown, 2003; Hopko et al., 2003; R. G. Knight et al., 2008). Authors dealt with this method effect in CFA by correlating residuals of the positively and negatively worded items respectively and found the fit improved (Brown, 2003; R. G. Knight et al., 2008).

Convergent and Discriminant Validity for the PSWQ

The majority of convergent and discriminant validity studies have used the STAI, BAI, and WS to evaluate the measure's performance in older adults. Correlations between the PSWQ and PSWQ-A with other self report anxiety measures have shown weak to moderate relationships (see Table 5).

Discriminant validity studies have almost always used the BDI as the comparative measure. These studies have found correlations ranging from .15 to .57 between the BDI and PSWQ. Interestingly some of the higher correlations were comparable in strength to those found when assessing convergent validity with both versions of the STAI and the WS, and were better than those found with the BAI. In a sample of older adults with GAD, Hopko et al., (2000) found that the BDI had a closer relationship (.39, $p < .01$) with clinician rated GAD severity when compared to the PSWQ (.31, $p < .05$). However when controlling for comorbid disorders, the PSWQ only accounted for 7% of the observed variance in GAD severity, whereas the BDI accounted for 15% of the variance. In another study, Hopko et al. (2003) found no difference between the discriminant validity of the PSWQ-A and the original version.

Table 5

Convergent and Discriminant Validity Correlations for the PSWQ and PSWQ-A in Older Adult Samples

Study	Sample characteristics	Measures of Depression		Measures of Anxiety			
		BDI	GDS	STAI-S	STAI-T	BAI	WS
PSWQ							
Beck, Stanley & Zebb (1995)	GAD patients (*n* = 47, aged 55-81)	.41		.40	.58		.43
" "	Control group (*n* = 94, aged 55-82)	.45		.56	.38		.41
Hopko et al., (2000)	Predominantly female GAD patients (*n* = 64) 52% with comorbid disorders	.15			.48		.56
Stanley, Novy, Bourland, Beck, Averill (2001)	American GAD patients (*n* = 57, aged 60-80)	.16	.24	.36	.45		
Hopko et al., (2003)	Predominantly female GAD Patients (*n* = 160, *M* = 66.1)	.16			.45	.32	.54
Crittendon and Hopko (2006)	Community dwelling (*n* = 115, *M* = 71.6)	.59			.55	.51	
Diefenbach et al., 2009	Home care recipients (*n* = 66, aged 65+)					.29	
PSWQ-A							
Crittendon and Hopko (2006)	Community dwelling older adults (*n* = 115, *M* = 71.6)	.56					
G. Diefenbach et al. (2009)	Home care recipients (*n* = 66, aged 65+)					.32	

Sensitivity and Specificity of the PSWQ and PSWQ-A in Older Adult Samples

Mohlman et al., (2004) evaluated the performance of the PSWQ when compared to the Structured Clinical Interview for DSM-IV Axis I (SCID), which is a robust assessment for axis I disorders. The authors found no significant difference on the PSWQ between older adults with GAD and those with Panic Disorder. Furthermore, they suggested that either uncontrollable worry is a shared feature of both disorders, or that the PSWQ was not sensitive to features of worry in GAD patients. They suggested that other measures should be used to assess worry in GAD patients. Webb et al. (2008) evaluated the sensitivity and specificity of the PSWQ and PSWQ-A. They found 78% and 79% sensitivity and 70% and 63% specificity for the PSWQ and PSWQ-A respectively.

Summary of Psychometric Properties for the PSWQ and PSWQ-A in Older Adults

The presence of negatively worded items on the PSWQ was clearly problematic in earlier studies. Furthermore, although the internal consistency was high, the test-retest reliability varied in the limited studies that reported it. The revisions undertaken to produce the PSWQ-A appear to have improved its psychometric properties, with moderate test-retest correlations. However, the PSWQ and PSWQ-A both have shown variable convergent and discriminant validity statistics, and in some instances correlations with the BDI that are in a similar range to those observed with anxiety measures. However, the clinical utility of the PSWQ may be limited by difficulties in administration to older adults. Diefenbach et al., (2009) found that 28% of their older adult participants were observed to have significant confusion when completing the PSWQ. In light of these issues, there is still insufficient validity evidence to support the use of the PSWQ and PSWQ-A in older adult populations.

State-Trait Anxiety Inventory (STAI)

The STAI (Speilberger et al., 1970) is a self-report measure of anxiety which consists of two complementary 20 item versions which can be used together or as separate tests. The STAI-State (STAI-S) version is a measure of the client's current level of anxiety, whereas the STAI-Trait (STAI-T) version measures their personality traits of anxiety. The STAI has undergone the most extensive testing of all anxiety measures in older adult populations.

Internal consistency of the STAI in older adults

Internal consistency for the state and trait versions of the STAI have been good (see Table 6), with Cronbach's α ranging from .87 to .90 for the STAI-T and from .90 to .94 for the STAI-S. Test-retest reliability has rarely been reported in older adult samples, however the trait version appears to have marginally better stability compared to the state version (Stanley, Beck, & Zebb, 1996; Stanley et al., 2001). Given the transient nature of state anxiety when compared to trait, the higher test-retest correlation for the STAI-T is expected.

Table 6

Internal Consistency and Test-Retest Reliability for the STAI in Older Adults

Study	Sample characteristics	Cronbach's α		Test-Retest *r*	
		Trait	State	Trait	State
Stanley, Beck, and Zebb (1996)	GAD Patients (*n* = 50, aged 55- 81)	.88	.94		
	Healthy Control Group (*n* = 94, aged 55- 81)	.85	.70	.84	.62
Shapiro, Roberts, and Beck (1999)	Community dwelling adults aged (*n* = 283, aged 63-93, 75% female)		.90		
Fuentes and Cox (2000)	Community dwelling (*n* = 84, *M* = 75.3)	.87			
Stanley et al., (2001)	American GAD patients (*n* = 57, aged 60-80)	.88	.94	.58	.51
Beck et al., (2003)	American GAD patients (*n* = 83, aged 60-80)	.88			
Crittendon and Hopko (2006)	Community dwelling (*n* = 115, *M* = 71.6)	.84			
Lowe & Reynolds (2006)	Community dwelling or in assisted living (*n* = 863)				

Convergent and discriminant validity of the STAI in older adults

Moderate correlations have been found for both the STAI-S and STAI-T versions with measures of anxiety and depression. More research has been undertaken using the STAI-T version, and moderate correlations have been observed between scores on the STAI-T and other measures of anxiety. However,

similar strength correlations have been observed between measures of depression and scores on the STAI-T.

Evidence for poor discriminant validity for the STAI can be found in the significant correlations between observed scores on the STAI with measures of general health perception, physical problems, and energy and vitality (Dennis, Boddington, & Funnell, 2007).   Poor discriminant validity was also found in a study by Mohlman et al., (2004) whereby scores on the STAI were compared with findings on the SCID. The authors found no significant difference between scores of people with Panic Disorder, and those with GAD. The researchers attributed this to measurement error in the STAI or shared variance between the disorders, and suggested other measures should be used to assess GAD in older adults.

Table 7

Convergent and Discriminant Validity Statistics for the STAI in Older Adult Samples

Study	Sample Characteristics	STAI-T								STAI-S	
		BDI	GDS	PSWQ	WS	IUS	WDQ	GADQ	BAI	PSWQ	WS
Stanley et al., 1996	Older adults (aged 55-81) with GAD (*n* = 50)				.40						.22
Hopko et al., (2000)	64 Older adults with GAD, 52% had comorbid disorders, 75% female	.58		.48	.55						
Fuentes and Cox (2000)	39 female and 45 male adults aged >65 Randomly selected	.42$_m$ .70$_f$									
Stanley et al., (2001)	57 GAD patients			.45	.55					.36	.33
Crittendon and Hopko (2006)	115 older adults	.54	.70	.55		.51	.55	.45	.59		
	183 younger adults	.84		.62		.81	.83	.80	.72		

Factor analysis of the STAI in older adult samples

Kvaal, Laake, and Engendal (2001) undertook confirmatory factor analysis on the STAI, and found two factors termed 'wellbeing' and 'nervousness'. Kvaal et al. found that high scores on the STAI were related to a lack of well being, rather than nervousness. The authors suggested that the bias from the wellbeing factor could mean that the STAI may not be a valid measure of anxiety in older adults.

Sensitivity, Specificity and Clinical Utility of the STAI

Hopko et al., (2000) found that the STAI-T was not predictive of GAD severity when comorbid diagnosis was controlled. In another study, Kvaal, Ulstein, Nordhus, and Engedal (2005) evaluated the sensitivity and specificity of the STAI-S in sample of 70 adults over 60. The cut-off of 54/55 showed a sensitivity of .82 and specificity of .88. However, the study was limited by the small sample and only one patient received a diagnosis of GAD. Therefore it was considered that other mental disorders could have been responsible.

Dennis, Boddington, and Funnell (2007) evaluated the clinical utility of the STAI in terms of practicality with older adult patients. They found that the STAI required the most explanation to clients, and some could not complete it even with the clinician's guidance. Problems unique to the STAI were visual errors, motor-coordination, and incorrectly marking items when scoring reversed.

Summary of the psychometric properties of the STAI in older adults

Overall validity evidence for use of the STAI in older adult populations is mixed. Some studies have found good internal consistency, however the STAI has shown poor discriminant validity in a number of studies, and similar relationships between measures of anxiety and depression. Factorial validity has also not been established for the STAI, as it appears to have variance added by the participant's state of wellbeing. Furthermore, the inclusion of negatively worded items appears to add variance to the scores. Potentially this is due to the added cognitive load of having to manipulate the item before responding (Dennis, Boddington, & Funnell, 2007; Kabacoff, Segal, Hersen, & Van Hasselt, 1997). The present state of psychometric evidence for the STAI does not support its use with older adult populations.

Beck Anxiety Inventory

The Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988) is a 21 item self-report measure of anxiety, which predominantly assesses physiological and cognitive symptoms of anxiety. Clients are asked to rate how much they have been bothered by each symptom in the past week.

Internal consistency of the BAI in older adults

The reliability of the BAI in older adults ranges from .89 to .92 (see Table 8). Test-retest reliability studies have not been undertaken with the BAI in older adults, however have been reported as acceptable in younger adults (r = .85-.92, A. T Beck et al., 1988; de Beurs, Wilson, Chambless, Goldstien, & Feske, 1997).

Table 8

Internal Consistency Statistics for the BAI in Older Adults

Study	Sample characteristics	α
Kabacoff et al., (1997)	Psychiatric outpatients (n = 217, M = 65.7)	.90
Wetherell and Arean (1997)	Medical outpatients (n = 197, age 55-92)	.92
Morin et al., (1999)	Community dwelling and residential care (n = 281)	.89
Shapiro et al., (1999)	Community dwelling (n = 283, aged 63-93)	.90
Wetherell and Gatz (2005)	75 GAD patients (n = 75) and Normal control (n = 32)	.90
Crittendon and Hopko (2006)	Community dwelling (n = 115)	.90

Factor analysis of the BAI in older adults

Three factor analytic studies have been undertaken with the BAI in older adults, with differing factor structures identified. Kabacoff et al. (1997) found the BAI had two factors, somatic and subjective. Wetherell and Arean (1997) identified four factors, cognitive, autonomic, neuromotor, and panic. Finally, Morin et al. (1999) found a six factor model was appropriate, with somatic items accounting for the most variance. Overall these studies suggest the factor structure of the BAI in older adults is unstable.

Convergent and discriminant validity of the BAI in older adults

The BAI has shown low to moderate convergence with measures of anxiety, suggesting that considerable extraneous factors may be adding variance to the measurement of anxiety in older adults (see Table 9). Furthermore, the BAI's relationship with GAD severity in people with GAD is low (Wetherell & Gatz, 2005). Similar to other measures, the BAI showed a moderate relationship with measures of depression. In contrast to other measures of anxiety, the BAI has a large proportion of somatic items which could add variance from symptoms of medical conditions in older adult samples.

Table 9

Convergent and Discriminant Validity of the BAI in Older Adult Samples

Study	Sample characteristics	Measures of Depression			Measures of Anxiety							
		GDS	BDI	HRS-D	STAI-S	STAI-T	PSWQ	WDQ	IUS	GADQ-IV	HRS-A	GAD sev.
Kabacoff, Segal, Hersen, Van Hasselt (1997)	Psychiatric outpatients (n = 217, M = 65.7, 71% female)				.52	.44						
Wetherell & Arean (1997)	197 medical outpatients age 55-92, low income	.65	.56									
Morin, Landreville, Colecchi, McDonald, Stone, Ling (1999)	Community and residential care elderly, minimal anx (n = 281)		.44	.48							.47	
Wetherell & Gatz (2005)	Older Adults with GAD (n = 75)		.61	.41			.32				.57	.21
" "	Normal Control		.57	.47			.70				.73	.58
Crittendon and Hopko (2006)	(n = 115) older adults		.65			.59	.51	.59	.60	.63		
	Younger adults (n = 183)		.71			.72	.63	.70	.73	.78		
Diefenbach et al., (2009)	Older Home Care Recipients (n = 66)						.29					

Clinical utility of the BAI in older adults

No adequate norms have been established for older adults (Owens, Hadjistaropoulos, & Asmundson, 2000), nor have cut-offs produced high sensitivity or specificity in older adult outpatients (Dennis et al., 2007; Kabacoff, Segal, Hersen, & Van Hasselt, 1997).

The BAI has been criticised for use with older adults primarily because of the high number of somatic items which correspond to numerous common medical conditions that affect older adults. For example, item 6 "dizzy or lightheaded", 7 "heart pounding or racing", 15 "difficulty breathing", 19 "faint" and 21 "sweating not due to heat", all are known symptoms of cardiovascular disease (Stanley & Beck, 2000). The BAI significantly correlated with measures of health conditions and disability (Dennis et al., 2007).

A number of items on the BAI reflect panic symptoms, which led Cox et al., (1996) to question whether the BAI had clinical utility for measuring anything other than panic. The authors found that the BAI was largely confounded by panic attack symptoms, which could attenuate its utility in clients with non-somatic anxiety symptoms.

Wetherell and Gatz (2005) failed to find a correlation between GAD severity and the cognitive or somatic symptoms measured on the BAI, and suggested that important features that contribute to GAD severity may not be captured on the BAI. The authors also found that scores on the somatic items of the BAI in the normal control group of older adults were significantly associated with measures of health. This was considered to artificially inflate scores of anxiety on the BAI.

Summary of the validity evidence for use of the BAI in older adults

As yet, the content validity of the BAI has not been established for use with older adults, there is conflicting evidence of factorial validity, modest convergent validity, and significant overlap with measures of depression. The high number of somatic items on the BAI that are associated with measures of health (Wetherell & Gatz, 2005) are considered to add construct irrelevant variance to observed scores. As such, the BAI cannot be recommended for use in older adult populations.

Hospital Anxiety and Depression Scale (HADS)

The HADS (Zigmond & Snaith, 1983) is a 14 item self-report measure designed to assess both anxiety and depression in non-psychiatric medical outpatients. Clients are asked to underline the reply which is closest to the way they are feeling. Each item has a different range of responses, some of which are specifically worded to reflect the item stem. Because the HADS was developed specifically to assess symptoms of anxiety and depression in medically ill populations, it has few somatic symptoms. These factors mean that it could be suitable for use with older adults who as a group have a high number of high medical comorbidities.

A review of research conducted using the HADS in adult populations found that it had good internal consistency, good concurrent validity, however variable sensitivity and specificity which were considered to reflect changes in diagnostic criteria. The authors of the review also found support for a two factor structure of the HADS using EFA and CFA methods, however moderate to strong correlations between the anxiety and depression subscales (Bjelland, Dahl, Haug, & Neckelmann, 2002). The authors attributed the consistent finding of high correlations between the anxiety and depression subscales to a shared causal factor of these disorders.

Internal consistency of the HADS in older adults

The reliability of the HADS anxiety and depression subscales has been mixed (see Table 10). Spinhoven et al. (1997) examined the psychometric properties of the HADS across age groups, and found Cronbach's α of .85 in older adults aged older than 66, and .88 for adults under 65. Test-retest reliability has not been undertaken with older adults.

Table 10

Internal Consistency of the HADS in Older Adult Samples

Study	Sample characteristics	α
Spinhoven et al. (1997)	1) Random sample (*n=199)* of adults aged 18-65	.88
	2) Random sample (*n* = 1901) of adults aged 57-65	.85
	3) Random sample (*n* = 3293) of adults 66 years and older	.84
Desmond and MacLachlan (2005)	Veterans with amputations (*n* = 680) aged 66-92, predominantly males (96.9%)	Not reported
Wetherell, Birchler, Ramsdell, and Unutzer (2007)	Psychotherapy patients (*n* = 68, M = 71.9) undergoing treatment for anxiety (70% female)	.73
Bryant, Jackson, and Ames (2009)	98 Hospitalised older adults sampled on two occasions	.78, .80
Gale et al., (2010)	Four cohorts of community dwelling healthy older adults	Not reported

Convergent and discriminant validity of the HADS

Limited convergent and discriminant validity studies have been undertaken using the HADS. High correlations have been observed between the anxiety and depression components of the scale (Spinhoven et al., 1997; Wetherell et al., 2007).

Factor Analysis of the HADS

One of the strengths of the research undertaken using the HADS is the implementation of factor analytic methods to evaluate its psychometric properties in older adults. The original two factor structure reported by Zigmond and Snaith (1983) has been supported in several studies using older adults (Bjelland et al., 2002; Desmond & MacLachlan, 2005; Spinhoven et al., 1997). However, other studies have found support for a three factor solution of the HADS based on the Clark and Watson (1991) tripartite theory of anxiety and depression (Dunbar, Ford, Hunt, & Der, 2000).

Desmond and MacLachlan (2005) replicated the study by Dunbar et al., (2000) and conducted CFA with data from the HADS obtained in an older adult sample. The authors found that the three factor model of Dunbar et al., (2000) had

fit statistics comparable to the original two factor structure. However, they reported a high correlation between the anxiety and depression subscales. This suggests that both the tripartite and two factor models may have support in older adult groups.

Recently, Gale et al., (2010) evaluated the factor structure of the HADS using both EFA and CFA methods in four cohorts of healthy community dwelling older adults (n = 5153). The authors evaluated a three factor structure of the HADS based on the tripartite structure reported by Dunbar, and a two factor model based on the breakdown between anxiety and depression items on the HADS. The high correlation between the negative affect and anxiety factors on the tripartite model led the authors to favour the two-factor model in all four cohorts.

Importantly, Gale et al., (2010) conducted invariance testing between male and females of the same cohort, and between cohorts. They found that factorial equivalence was greatest between males and females of the same cohort, when compared to between cohorts. The authors also considered that the variation between cohorts may also have been due to geographic and administration differences between the studies which were evaluated to compare cohorts.

Overall, a two factor structure for the HADS appears to have the most empirical support, however investigations in to three factor solutions are worthy due to the modest support for the Dunbar et al., (2000) tripartite model which has been replicated in older adults (Desmond & MacLachlan, 2005). The key criticism of the tripartite structure found in past CFA work has been the high correlations between the anxiety and negative affect factors (Bjelland et al., 2002; Desmond & MacLachlan, 2005; Dunbar et al., 2000; Gale et al., 2010).

Clinical utility of the HADS in older adults

In a predominantly older-adult sample the HADS showed high sensitivity (80%) but poor specificity (46%) resulting in a high rate of misclassification (Johnson et al., 1995). However in a larger sample, Spinhoven et al. (1997) found similar psychometric properties of the HADS across different age groups. The authors also reported slightly higher scores of the depression subscale in older adults, which they considered could be due to a higher prevalence of sub-clinical depression in this group. Wetherell et al. (2007) also reported high sensitivity, specificity, and convergent validity of the HADS in older adults receiving outpatient

treatment for DSM-IV diagnosed anxiety disorders compared to the Brief Symptom Inventory. However Byrant et al. (2009) reported poor sensitivity and specificity of the HADS compared to the AGECAT computer generated diagnoses.

As the HADS was originally developed for medically ill hospital patients, it follows that it may have utility in older adult populations due to their high incidence of medical comorbidities. The HADS has shown initial evidence of clinical utility in older adult patients following stroke or myocardial infarction (Johntson, Pollard, & Hennessey, 2000), and limb amputations (Desmond & MacLachlan, 2005).

Summary of the HADS psychometric properties in older adults

Although convergent and discriminant validity evidence for the HADS is lacking, it has been supported for use in medically ill populations, and found to measure anxiety rather than medical illness in these groups(Wetherell et al., 2007). Although the sensitivity of the HADS to specific anxiety disorders is poor, it could have clinical utility as a screen for anxiety rather than a diagnostic aid. As such, it shows promise for use with older adult groups.

Hamilton Anxiety Rating Scale (HARS)

The Hamilton Anxiety Rating Scale (Hamilton, 1959) is a 13 item clinician rated measure of anxiety, which has recently been revised to 16 items to improve the content and provide better differentiation between anxiety and depression. Despite this revision, Beck, Stanley, and Zebb (1999) found that a high level of shared variance between anxiety and depression on the HARS (41%), despite being tested in a non-depressed sample. The authors also found that the HARS was able to correctly classify 90% of participants into diagnostic groups. The HARS has been critiqued for use with older adults due to the lack of norms, emphasis on somatic symptoms, and lack of psychometric evidence (Kogan et al., 2000). Overall the empirical evidence to support use of the HARS in older adult populations is insufficient.

Summary of Findings of Measures Developed in Younger Adults

Overall, the validity evidence for the PSWQ, PSWQ-A, STAI, and BAI in older adult samples has been mixed. High overlap between measures of anxiety and depression has been consistently observed, and convergent validity evidence is mixed. Furthermore, the few studies which have evaluated the factorial validity of

these measures in older adults have suggested a large proportion of construct irrelevant variance. Of these measures developed for younger adults, the HADS has the strongest empirical support in older adults as has been evaluated in methodologically sound studies. Furthermore, it has been subjected to CFA in an older adult sample, and found to be acceptable in medically ill older adults (Wetherell et al., 2007).

The fundamental issue of content validity has not been addressed in any of the previously mentioned studies. All have used the methodological approaches of evaluating the measure against other types of measures that have been developed and normed for younger adults. The convergent validity method that involves correlating the measure of interest against an existing measure is only valid when there is a robust measure to compare it against (Buckendahl & Plake, 2006). Therefore, as all the existing measures of anxiety have not been validated for use with older adults, they are not appropriate to use for the purpose of validating another measure. In light of this, whilst the theoretical understanding of anxiety in older adults is unclear, the higher level issues of construct validity will remain unresolved.

Measures of Anxiety Specifically Developed for use with Older Adults

In order to combat some of the issues with using measures developed in younger adults, a number of authors developed new clinical scales specifically for use with older adults. Even though the fundamental issue of the lack of theoretical understanding of anxiety in older adults had not been adequately addressed, the urgency of requiring a new measure led researchers to overlook the critical step of determining the essential content to include on the new measure. Thus the cycle of endlessly correlating measures with each other, assessing their reliability, and repeatedly undertaking EFA on the same measure was reborn. The addition of new measures to the mix added to the confusion within the literature surrounding the assessment of anxiety in older adults. Researchers were distracted by the excitement of having new measures to evaluate, and attention was diverted from the fundamental issue of content validity. Bearing this in mind, the following section introduces measures which were developed specifically for older adults and evaluates the current status of their validity evidence.

The Worry Scale (WS)

The WS (Wikosi, Handen, & Morse, 1986) is a 35 item self-report measure which has been developed specifically for use with older adults to research worry topics. The WS includes subscales of Finances (5 items), Health (14 items), and Social Conditions (12 items). Items appear to cover worry topics, rather than symptoms of worry. Clients are asked to rate how frequently they worry about each item on a 5 point scale, ranging from 'never' to 'much of the time- more than twice a day'. Scores pertain to the range and frequency of worry.

Internal consistency of the WS

Studies using the Worry Scale in older adult populations have generally found good internal consistency for all the subscales (Hopko et al., 2000; Hunt, Wisocki, & Yanko, 2003; Stanley, Beck, & Glassco, 1996; Stanley, Novy, Bourland, Beck, & Averill, 2001). Two studies have undertaken test-retest reliability analysis, however correlation coefficients have been moderate at best (Stanley, Beck, & Zebb, 1996; Stanley et al., 2001).

Table 11

Internal Consistency, Test-Retest Reliability, Convergent and Discriminant Validity of the Worry Scale in Older Adult Samples

Study	Sample characteristics	Total α	Test retest	STAI-S	STAI-T	PSWQ	GDS	BDI
Stanley et al., (1996)	50 adults with GAD (55-81)	.93	Not assessed	.22	.40			
	Control 94 without	.94	.69	.41	.57			
Hopko et al., (2000)	64 Older adults with GAD, 52% had comorbid disorders, 75% female				.55	.56		.52
Stanley et al., (2001)	57 GAD patients	.93	.70	.33	.55	.54	.41	.54
S. Hunt et al., (2003)	OA's	.97						

Convergent and discriminant validity of the WS

Low correlations have been found with the STAI-S, and moderate correlations have been observed with the STAI-T and PSWQ. However, moderate correlations have also been found with the BDI and GDS suggesting poor discriminant validity (see Table 11). No factor analytic studies have been undertaken for this measure. Hopko et al., (2000) found the WS was not significantly related to clinician rated GAD severity once comorbid disorders were controlled for.

Summary of the validity evidence for the WS

The WS was not developed for use as a clinical measure of anxiety, but as a research tool (P. Wisocki, 1988). As such, the theoretical foundation does not support the use as a clinical measure of anxiety in the elderly. The convergent and discriminant validity evidence for the WS shows similar correlations between measures of anxiety and measures of depression. In summary, the WS provides clinicians with evidence of worry topics, but this information is not likely to add enough to justify its clinical use as a diagnostic aid.

Geriatric Anxiety Inventory (GAI)

The GAI (Pachana et al., 2007) is a 20 item self-report measure of anxiety developed using the best performing items from existing anxiety measures, and presenting them in a dichotomous format that the authors believed to be more appropriate for older adults when compared to a likert scale. Good internal consistency has been reported in clinical and non-clinical samples (see Table 12).

Unfortunately, despite the short length of the GAI there are a number of redundant items which have similar wording which attenuate its content validity. For example: I worry a lot of the time; I often cannot enjoy things because of my worries; I think of myself as a worrier; I can't help worrying about even trivial things; I think that my worries interfere with my life; My worries often overwhelm me; I miss out on things because I worry too much. This homogeneity in nine out of twenty items is likely to over inflate the internal consistency. Although the test-retest reliability appears high, the short interval between testing could over-inflate scores.

Table 12

Summary of Psychometric Properties for the GAI

Study	Participants	α	Test-Retest *r*	PSWQ	PSWQ-A	BAI	GADQ-IV	STAI	GADS
Pachana et al., (2007)	Psychogeriatric patients (*n* = 46)	.93	.91 (1 week)	.70		.63		-.44	.57
	Healthy older adults (*n* = 452)	.91							
Cheung (2006)	New Zealand older adults with a history of depression (*n* = 32)							.69	
Diefenbach et al., (2009)	Older adult home care recipients (*n* = 35)	.93	.95 (1-2 week)	.79	.79	.61	.65		.84

Convergent and discriminant validity of the GAI

Cheung (2006) conducted a concurrent validity study of the GAI in New Zealand with 32 older adults with a history of depression. Cheung found an overlap between anxiety and depressive symptoms, and reported that the GAI had good concurrent validity with the STAI and the Goldberg Anxiety Scale (see Table 12). The choice of convergent validity measures is problematic because as previously discussed the STAI is not suitable for use in older adults and the psychometric properties of the Goldberg anxiety scale have not been established in older adults. Furthermore, the moderate negative correlation reported by Pachana et al., (2007) is concerning as suggests that it is negatively related to anxiety, however it could also reflect a methodological issue such as not correcting for reversed likert scales.

Sensitivity and specificity of the GAI

Two studies have evaluated the sensitivity and specificity of the GAI. Pachana et al., (2007) reported sensitivity of 73% and specificity of 80%. Diefenbach et al., (2009) reported 74% sensitivity and 84% specificity. Encouragingly, participants reported the least amount of confusion when completing the GAI compared to the other measures in the study by Diefenbach et al.

Summary of validity evidence for the GAI

Although the GAI has promising clinical utility in terms of ease of use, the psychometric properties have been mixed, and only evaluated in small clinical samples. The homogeneity of items on the GAI means that it is likely to have over-inflated internal consistency statistics. Furthermore, the factor structure of the GAI is as yet unknown.

Adult Manifest Anxiety Scale- Elderly (AMAS-E)

The AMAS-E (Reynolds, Richmond, & Lowe, 2003) is a 44 item scale which uses a yes-no dichotomous format of responding to assess chronic manifest anxiety in older adults. Questions include specific items reflecting common concerns of older adults, such as "I worry about losing my memory". Items include cognitive, physiological and behavioural components that were found to perform well on the original Adult Manifest Anxiety Scale.

Exploratory factor analytic studies have found three factors of anxiety, fear of aging, worry/oversensitivity, and physiological. A fourth lie factor has been built into the scale. The four factors of the AMAS-E all contribute to a higher order factor of general anxiety/total anxiety (Lowe & Reynolds, 2000, 2006). Unfortunately, EFA has been undertaken repeatedly rather than using CFA methods to evaluate the hypothesised factor structure in older adult populations.

Table 13

Psychometric Properties of the AMAS-E in Older Adult Samples

Study	Sample characteristics		Test-retest	Worry/ stress	Fear of aging	Physio-logical	Lie	Total anxiety
Lowe, Reynolds (2000)	458 adults aged 60-100	Male		.89	.85	.69	.78	.91
		Female		.91	78	.71	.79	.92
Reynolds et al. (2003; as cited in Reynolds, 2006)								.71-.92 overall
	20 Older adults		Total .89 (1 week) Others .73-.90					
(Lowe & Reynolds, 2006)	226 older adults (116female, *M* = 76)		2 week .91 total, .78-.89 others	.88	.79	.71	.73	90 (CI.88-.92)
	863 non-referred older adults (555F, 308 M) Mean age 76M and 75 F			.89	.80	.71	.77	.91

Convergent validity analysis has been undertaken using the STAI, (see Table 13) which has been found to have poor psychometric properties in older adults and therefore is not appropriate to be used as a comparative measure . However, Lowe and Reynolds (2006) report correlations between the anxiety subscales of the AMAS-E and the STAI-S of between .24 and .39. Correlations between the AMAS-E and STAI-T were slightly higher, between .31 and .65. Because the STAI has a large amount of variance when measuring anxiety in older adults, it is unclear whether the correlation observed between these measures is due to shared variance unrelated to the construct of anxiety.

Summary of the AMAS-E

The internal consistency of the AMAS-E has shown promising results, however the convergent and discriminant validity needs further evaluation. Furthermore, the factor structure is yet to be confirmed in older adult samples. As this is a new scale, psychometric evaluation is in the early stage and further studies are needed to assess the AMAS-E with clinical populations, and to evaluate the diagnostic utility of the AMAS-E.

Short Anxiety Screening Test (SAST)

The SAST (Sinoff, Ore, Zlotorgorsky, & Tamir, 1999) is a ten item self-report measure of anxiety which is designed to screen for anxiety in older adult populations. It was developed in response to the lack of psychological measures of anxiety in this population. Clients are asked to rate their responses to items on a scale of one to four, and results are then totalled to either indicate the presence of anxiety or a subthreshold anxiety disorder.

Psychometric evaluation of the SAST is limited. The SAST developers report adequate internal consistency (.70), test-retest reliability (.73; unreported time interval), 83% sensitivity and 78% specificity (Sinoff et al., 1999). Critically, there are no follow-up validity studies, and content validity has not been established.

The SAST has been critiqued for use with older adults due to the numerous somatic items, such as 'do you suffer from back pain, neck pain, and headache' which have an overlap with other conditions and may not be specific to anxiety (Stephanie Allison, personal communication). The SAST has not undergone validation studies, and lacks behavioural and some cognitive components of anxiety.

Geriatric Worry Scale (GWS)

The GWS (G. Diefenbach et al., 2009) is a five item measure of worry. Items are highly homogenous: "Do you feel worried much of the time?" "Are you a worrier?", "Do other people say you worry too much? "Are you worried about the future? "Do you feel relaxed most of the time?", "Do you have a problem with nerves?". This homogeneity is likely to lead to construct underrepresentation, as four of the five items are highly similar, and in turn this is likely to overinflate the alpha statistic. Unsurprisingly, the authors reported good internal consistency (α.

79). Convergent validity statistics were reported for the BAI (.50), PSWQ-A (.67), PSWQ (.67), GAI (.86). The authors reported sensitivity of .88 and specificity of .74.

The homogeneity of the GWS and methodological limitations of the previously mentioned study suggest that the GWS is not appropriate for use in older adults. Furthermore, the measure lacks behavioural and physiological symptoms of anxiety.

Summary of Validity Evidence for Measures Developed for Older Adults

The haste in which many of these measures for older adults were developed meant that the fundamental first step of resolving the underlying issues of content validity was not taken. Furthermore, methodological limitations in the studies which have evaluated these new measures psychometric properties limit the ability to determine their validity in measuring anxiety in older adults. The practice of correlating measures with dubious psychometric properties to evaluate validity is improper as a standalone method of gathering validity evidence. Furthermore, the majority of studies have had small samples which limit the ability to establish the psychometric properties of the measures (Stanley & Beck, 2000).

CFA is a useful method of test validation as it enables the researcher to determine factorial validity and to assess the performance of the measure in older adult groups. However before undertaking advanced stages of test validation, the primary issue of content validity must be resolved. In light of this, none of the previously mentioned measures for older adults can be recommended.

Summary and Conclusions

On the basis of the review provided in the present chapter it is reasonable to conclude that relying on psychological measures to assess anxiety in older adults is problematic ethically and psychometrically using existing measures. Several key issues contribute to this conclusion. Although some appear to have initial evidence of good convergent and discriminant validity, none have been consistent across studies, and few have been evaluated using factor analysis. Also, older adults have had different life experiences which make them a unique cultural group, and as such their experience of anxiety may not be the same as that of younger adults. Therefore, content that is appropriate for measures developed in younger adults may not generalise to older adults.

Secondly, it has been demonstrated that older adults perform differently to younger adults on measures of anxiety. For example, the inclusion of reverse scored items has been demonstrated in older adults to add variance to observed scores. Furthermore, the inclusion of somatic items that overlap with medical conditions are particularly problematic in older adults. Factors such as these add construct irrelevant variance to observed scores.

Most importantly, the experience of anxiety in older adults is not yet fully understood. Therefore, the theoretical foundation of any measure for anxiety used in older adults is not yet established. Until researchers understand *how* older adults experience anxiety, we will not know *what* must be included in a measure to accurately represent the construct of anxiety in this population. Therefore, evidence of construct validity will not be found until the underlying issue of content validity is addressed.

7
Overview of Current Study

The previous chapters have discussed the clinical utility of a valid psychological measure, and outlined the implications of using measures of anxiety in older adults which have significant limitations. Even with the limited research undertaken with existing psychological measures in older adult samples, there is enough evidence to suggest that there are issues with using these in older adult populations. Furthermore, refining these measures further to remove construct irrelevant variance will not solve the potential problem of construct underrepresentation. This is because the underlying issue of one of content validity. Content validity can only be argued once the question of "how do older adults experience anxiety?" has been answered, as then the theoretical foundation of the measure will be known.

In light of the validity issues of using existing psychological measures of anxiety in older adults, the primary aim of the present research is to generate a measure of anxiety for this group which has high clinical utility, and strong content validity. As it appears likely that the diagnostic criteria for GAD and other anxiety disorders may undergo another revision with the publication of the DSM-V, the present research will not focus on attempting to categorise participants as meeting a specific diagnosis of an anxiety disorder. Instead, it will draw from the understanding of GAD that has empirical support, which focuses on clients having excessive and difficult to control worry, which is accompanied by physical and cognitive symptoms (American Psychiatric Association, 1994; A. T Beck et al., 1985; D. A. Clark & Beck, 2010; Salkovskis, 1996; Wells, 2005).

It is essential that this measure has a strong theoretical foundation upon which to base its content, or risk contributing to the clutter of anxiety measures with poor validity. In order to meet this objective, the research must take place in stages to first build a theoretical foundation for the new measure. Only once a theoretical understanding of how older adults experience anxiety has been found, can the content of a new measure be determined.

Finding the theoretical foundation for a new measure within the existing literature is difficult. As discussed in previous chapters, the methodology used to study the experiences of anxiety in older adults can influence the research findings. The use of psychological measures with poor validity to study anxiety in older adults creates a perpetual cycle of confirmatory bias, whereby participants can only endorse experiences available on the measure. This potentially leads to the overlooking of experiences that are not included on the measures, which may be important in the older adult population.

The cognitive model (A. T Beck et al., 1985; D. A. Clark & Beck, 2010) provides a starting point because CBT has some empirical support in older adults (Stanley & Beck, 2000; Wolitzky-Taylor et al., 2010). Using this model within the framework of qualitative research provides participants with a broader way of responding compared to standard self-report measures of anxiety. In this sense, the cognitive model will help provide a direction for the research and link it to existing theories of anxiety. The use of qualitative methods helps to overcome the issue of confirmatory bias, as it uses an open-ended approach that is not constrained by the limited number of responses available.

Kline (2005) suggests using a combination of literature, and subject matter experts to develop test content. As older adults will have experiences of anxiety themselves, and may have observed other older adults experiencing anxiety, they will be considered subject matter experts in anxiety in their age group. However, older adults will not have the theoretical and conceptual understanding of what anxiety is and how it differs to younger adults. Therefore, clinicians working with anxious older adults will be used as a second source of information on item content.

Overview of Study One

Phase One- Clinicians Study

The first phase seeks to gain expert advice on the experience of anxiety in older adults from clinicians who work with this population. This method enables the research to draw from the combined clinical knowledge of experienced practitioners and respond to some of their concerns about existing anxiety

measures. Furthermore, it is essential when assessing an older adult to get collateral information from people that know the person well, in order to gain the most accurate and comprehensive information (Woods, 2008).

Clinicians will be asked what the defining features of anxiety in older adults are, and how they are different or similar to anxiety symptoms in other age groups. In addition, they will be invited to provide feedback on what they feel needs to be included in the test, and what aspects of current tests are helpful and unhelpful in working with their client base. This information may then be used to develop items for the new psychological measure. Through using clinicians who are experienced with the target population, the content validity of the test should be enhanced.

Phase Two- Older Adults

The second source of item content will be older adults themselves as they have a wealth of experience interacting within their own age cohort. Although older adults may not have expertise in psychology, they can offer valuable insights into their own experiences with anxiety, as well as their observations of their peers. By offering participants the opportunity to report on their own experience, and those of others, should enable a broader view of the experiences of anxiety in this community. It is hoped that even if the participant does not view themselves as having an issue with anxiety, that they may know someone who they perceive as having difficulties managing their anxiety and provide the researcher with their observations. This method is also hoped to reduce the impact of social desirability in the reporting of anxiety symptoms, as reported by Wolitzky-Taylor (2010).

Because the cognitive model (A. T Beck et al., 1985; D. A. Clark & Beck, 2010) is based on the most empirically supported theories, it will be used to direct and inform the nature of information sought from clinicians and older adults in the first phase of the research. The questionnaires for both clinicians and older adults will be designed from the cognitive perspective on anxiety, incorporating questions based on the framework of the 'five part model' outlined in chapter two (Greenberger & Padesky, 1995). Questions will be directed towards finding the common cognitive, physical, behavioural, and emotional experiences of participants. The questionnaire will also elicit general worry topics in order to explore what are the salient worry topics in older adult groups. It is predicted

that the worry topics found in the present research will reflect age appropriate themes, congruent with past research with older adults. Thematic analysis will be used to draw the core themes from participants' responses.

Overview of Study Two

The second research study will utilise the findings from the first phase of the research in conjunction with existing anxiety theory to form the theoretical foundation for content of the new measure. The study also will evaluate the factor structure of two existing measures of anxiety in an older adult sample. The test development component of this study consists of three related phases: (1) develop a new measure of anxiety for older adults; (2) evaluate the psychometric properties of the new measure in an older adult sample; (3) refine the test content to improve the measures psychometric properties and enhance the measure's clinical utility.

The test content will be developed based on the key themes which were found in both phases of study one, and additional items will be included that reflect the common theoretical understanding of anxiety in the general population. The resulting prototype measure will have a number of items reflecting each theme, with a view to selecting the optimally performing items and removing redundant or poorly performing items in phase three.

The performance of the new measure will be assessed in phase two, whereby the prototype will be evaluated alongside the HADS and AMAS-E. The HADS was chosen as based on the literature review in chapter six as it has the most empirical support for older adults. The AMAS-E was chosen as it is a newly developed measure which has been subject to limited research, however it was developed specifically for older adults. In contrast to other measures developed for older adults, the AMAS-E assesses a broad range of cognitive, affective and somatic symptoms.

The objectives of study two are as follows:

1) Phase One: Develop a new psychological measure for anxiety in older adults based on the common cognitive, affective, behavioural, and physiological symptoms discovered in study one.

2) Phase Two: Refine and modify the newly developed measure based on its performance in an older adult sample in the following ways:

   a. Evaluate the performance of the items within the newly developed test to determine which are the most appropriate for use in older adults, and which contribute the most to their overall score

   b. Remove poorly performing items that add construct irrelevant variance to the observed score

   c. Reduce the length of the measure to have a core group of items that accurately measure anxiety, and reduce the workload of the test-taker caused by fatigue effects

   d. Evaluate competing hypotheses of the factor structure of the new anxiety measure and finalise its content using CFA methods

   e. Evaluate the internal consistency of the new measure

3) Phase Three: Evaluate the performance of the HADS and AMAS-E

   a. Assess the reliability of both measures

   b. Evaluate their convergent and discriminant validity

   c. Undertake confirmatory factor analysis of each measure to evaluate the model's fit within the sample

4) Phase Four: Evaluate the convergent validity of the new measure against the HADS and AMAS-E

Contribution of the Current Study to the Literature

The overall aim of the present research is to produce a clinical measure of anxiety that has a strong theoretical basis, and high clinical utility for work with older adults. The unique feature of the measure in contrast to existing measures of anxiety in older adults, is that it will be built from the ground up. In other words, the first step is to find the relevant content for the test in order to justify its content and improve on the content validity of existing measures. The open-ended approach to finding test content enables the identification of symptoms and

experiences that may not otherwise be found if the research were to be constrained to meet DSM-IV criteria.

If the research is successful, it is hoped that the newly developed measure will be subject to ongoing research in clinical samples to establish its validity for use with older adults. Potentially, this measure could have clinical utility in quantifying the client's distress, clarifying its nature, and evaluating how their distress levels change during treatment.

8

Characterising Anxiety in Older Adults Questionnaire Analysis

This study sought the experiences of older adults and the expertise of clinicians who work with older adults in mental health to determine the essential content for a measure of anxiety relevant to older adults. The study was broken into stages whereby older adults and clinicians were recruited separately and discrete ethical approval was sought for each stage.

Part One - Clinicians Study

Kline (2005) suggests using subject matter experts to assist in developing test content, alongside a literature review. Because little is known about the phenomenology of anxiety in older adults and if this is different to younger adults, it was considered essential to approach clinical psychologists working with older adults. The clinical expertise of these practitioners could reveal essential experiences common to older adults that should be included in a new measure of anxiety. Ethical approval was granted by the Massey University Human Ethics low-risk option (see appendix A).

Participants

Participants were recruited by approaching the ten clinical psychologist members of the New Zealand Psychology for Older Persons (NZPOPS) organisation. Two responses were received from psychologists with four and eight years experience in the field.

Method

NZPOPS members were emailed a short questionnaire (Appendix B) asking how older adults experience anxiety in terms of emotions, physical sensations, behaviours, and thoughts, and how their experiences compare or differ to those of younger adults. Clinicians were also asked for their opinions on content for a new

measure of anxiety in older adults. A follow-up email was sent two-weeks after the initial distribution reminding clinicians to complete the questionnaire.

Clinicians Study Results

Two responses were received were returned which was insufficient to draw any definitive conclusions on anxiety in older adults. However, they were in agreement on the need for a new measure primarily due to the overrepresentation of physical symptoms that overlap with medical conditions on existing measures. Clinicians had also noticed an overlap between anxious and depressive symptoms in their patients, and the prevalence of sleep disturbance and withdrawal from pleasurable activities.

The low response rate was disappointing however was attributed to the overall pressure on clinicians working in community mental health teams. Because the present research was taking place within a short timeframe, and involving multiple stages, pursuit of further responses from clinicians was abandoned. Instead, it was decided that the content for the new measure will come from part two of the research, the Characterising Anxiety in Older Adults Questionnaire.

Part Two- Characterising Anxiety in Older Adults Questionnaire

The experiences and views of older adults living in the community were sought to help determine the core features of anxiety in this population. It was considered that older adults could draw on their own experiences as well as observations of people in their social circle who they perceived to have difficulties with anxiety. Therefore even if they did not perceive themselves as being anxious, they may know someone who displayed anxious behaviour that could contribute to an understanding of how anxiety presents in this group. Ethical approval was granted by the Massey University Human Ethics Committee Northern (08/027; see appendix C).

Participants

Older adults between ages 60 to 80 were recruited from older adult's organisations and word of mouth.   131 participants responded, demographic information is presented in Table 14. As participants were not screened for

cognitive impairment, participants in rest-homes or hospitals were excluded to minimise variance caused by cognitive impairment.

Table 14

Demographic information for Characterising Anxiety in Older Adults Study

	N	%
Age		
60-65	17	13
66-70	45	36
71-75	48	38
76-80	16	13
Sex		
Male	35	27
Female	95	73
Living Situation		
Independently in Community	122	95
Retirement Village	7	5
Total	131	

Procedure

Participants received an open-ended questionnaire (see appendix D) on their personal experiences with anxiety, worry topics, language used to describe worry, and their perception of another older adult's experience of anxiety. Questions were structured to reflect the cognitive behavioural 'five part model' format (Greenberger & Padesky, 1995), eliciting the behavioural, cognitive, physical, and emotional aspects of anxiety in a self-chosen recent worrying situation. As the response format for this study was open-ended questions, participants were able to give multiple symptoms and answers for each question. As the idea was to have participants generate their own ideas around worry, they were not given topics or words to endorse.

The process of thematic analysis described by Braun and Clarke (2006) provided a guideline for this research as it enables researchers to identify, analyse,

and report themes from data gathered from participants. This was essential in this study as the questionnaire followed an open-ended question format, and the goal was to find commonalities between the numerous participants in their experiences of anxiety.

Phase One familiarised the researcher with the overall responses of older adults. This included developing initial ideas of the overall themes from the participants and the best approach to interpretation.

Phase Two generated initial codes for participants' responses, using key words extracted from their questionnaires. If more than one participant reported a theme, it was used as a category and the same words reported by others were tallied. Frequently participants misclassified their experiences within the questionnaire, for example frequently identifying emotions in the thought section. These were reclassified into the appropriate sections, and the corresponding totals were corrected to avoid double counting.

Phase Three involved searching for themes, and occurred following the coding and collating of questionnaires. Clusters of codes are linked together as potentially part of broader themes (Braun & Clarke, 2006). Key words identified in the first phase were linked together, and synonyms were coded as the same theme.

Phase four reviewed and refined themes to evaluate whether they were appropriately related to the coded extracts and the overall data. Themes should cluster together however there should be clear distinctions between categories (Patton, 1990). Clusters of themes and the codes which contribute to them are re-read, and checked to ensure that they form a coherent pattern (Braun & Clarke, 2006). For this stage, a thematic map was used where key words were attached to the main theme. The data were revisited several times during the course of interpretation, as categories needed refining to ensure they were classified appropriately and not overlapping.

Characterising Anxiety in Older Adults Questionnaire Results
Heterogeneity in Responses

Because older adults were given an open ended questionnaire, multiple responses were given for each category, and of these, a high number of responses given were unique to the individual's circumstance or personality. These were

classified as 'miscellaneous' in the analysis, as they were not reported by other participants. As each participant gave several responses for each question, the miscellaneous category appears considerably higher than the other categories. However, the other categories relate to words or themes that repeatedly came up through the analysis. The percentages reported in tables relate to the overall percentage of participants who reported the theme.

Language around worry

Participants were asked to what words they commonly used to describe anxiety. They most commonly reported using worry, stress, concern, anxiety, and fear. Less commonly, participants used nervous, apprehension. Numerous other adjectives were put forward by participants, however only the ones which were suggested separately by multiple participants were counted for the analysis (see Table 15).

Table 15

Words Used by Older Adults to Describe Anxiety

Word used	n	Percentage
Worry	89	68
Stress	40	30
Concern	29	22
Anxiety	24	18
Fear	21	16
Nervous	14	10
Apprehension	9	6
Tension	9	6
Scared	8	5
Can't Cope	7	5
Uptight	7	5
other	70	53

Worry Topics

Participants were asked to name general topics which they worry about (see Table 16), and in another section what they believed another older adult they knew well worried about. The majority of participants reported worries were unique to their own circumstances, resulting in the large number of 'miscellaneous' worry topics. Examples included a sick pet or losing plane tickets. As participants were able to

list multiple topics, there were more common topics overall amongst participants than miscellaneous.

Table 16.
General Topics that Cause Older Adults Worry

	Self		Others	
Topic	n	%	n	%
Miscellaneous	62	53	30	23
Finances	42	36	41	32
Family	35	30	26	20
Personal Health	33	28	52	40
Security	17	14	8	6
Loss of independence/mobility	13	11	9	7
Bureaucracy	12	10	3	2
Driving	11	9	0	0
Managing affairs	10	8	0	0
Home maintenance	10	8	3	2
Being late	9	8	0	0
Health of others	8	7	7	5
Political	7	6	0	0
Social/world issues	7	6	0	0
New situations	6	5	0	0
Social isolation	5	4	0	0
Technology	3	3	0	0
Bereavement	2	2	16	12

Worry topics common amongst responses about self and perception of others were finances, family, and personal health. Older adults also commonly reported that they worried about security, driving, loss of independence/mobility, political and world issues, and bureaucracy. Interestingly, only two participants

worried about bereavement, but 16 perceived that others worried about bereavement. None worried about their own death. Overall the results for own and perception of others worry topics were similar.

Recent Worrying Situation

The majority of situations participants reported were unique to their own circumstances (miscellaneous). However of the topics they had in common, the majority worried about health, family, or financial related concerns. These topics were reported less frequently for themselves compared to their perception of others. Bereavement, social isolation, loss of independence or mobility, housing, and social isolation were more often perceived to be causing other people worry.

Table 17

Recent Specific Situation Causing Worry

	Self		Others	
Situation	n	%	n	%
Miscellaneous	40	37	31	30
Personal Health	17	16	52	50
Health of partner/family member	15	14	17	40
Family	9	8	26	25
Finances	7	7	42	40
Home maintenance	7	7	3	3
Interpersonal Conflict	7	7	0	0
Crime/ security	2	2	8	7
Dealing with bureaucracy	2	2	0	0
Bereavement	2	2	16	15
Housing	0	0	9	8
Social Isolation	0	0	10	9
Loss of independence/mobility	0	0	16	15

Physical Sensations

Participants were asked to report the physical sensations that they recalled when they were experiencing the recent anxiety provoking situation, and in a separate question were asked the same for another older adult they knew well. A large proportion of older adults reported experiences unique to them, which were classified as miscellaneous (see Table 18). The experiences most commonly reported by older adults were headaches, gastro-intestinal upset, tiredness, and tension. Fewer than 5% of participants reported cardiovascular symptoms (chest pain, increased pulse, increased blood pressure), butterflies, and shaking that are commonly associated with anxiety. However they more frequently perceived that others experience those symptoms. Overall the perception of self and others physical sensations when anxious were similar.

Table 18

Reported Physical Sensations in Recent Worrying Situation

	Self		Others	
Physical Self	n	%	n	%
Miscellaneous	64	56	52	40
Headache	24	21	24	25
GI Upset	23	20	23	24
Tiredness	19	17	16	16
Tension	17	15	12	12
Lost appetite	11	10	5	5
Pain	10	9	11	11
Breathing changes	8	7	9	9
Nausea	8	7	11	11
Increased appetite	7	6	0	0
Agitated/restless	6	5	7	5
Shaky	6	5	12	12
Butterflies	4	3	2	2
Increased pulse	3	3	6	5
Increased BP	3	3	6	5
Chest pain	3	3	0	0
Stomach knotted	3	3	0	0
Palpitations	2	2	9	9
Hot and cold flushes	1	1	8	8

Thought Process

Older adults reported their thought process whilst experiencing a recent anxiety provoking situation. A separate question asked the same for their perception of another older adult they knew well. The majority of symptoms reported were unique to the individual and were coded as miscellaneous. The thought processes most commonly reported for self and others were rumination, confusion, trying to solve the issue (problem solving) and loss of concentration. Interestingly, older adults infrequently reported that they were forgetful, however this was one of the most common symptoms noticed in others.

Table 19

Reported Thought Process of Older Adults in Recent Worrying Situation

	Self		Others	
	N	%	N	%
Miscellaneous	46	44	44	46
Ruminate/narrow focus	29	27	24	25
Confused	21	20	21	16
Problem Solve	17	16	17	13
Lose concentration	24	23	10	10
Preoccupied/inward looking	9	8	10	10
Illogical /irrational	7	6	8	6
Forgetful	6	5	23	24
Lose focus	6	5	0	0
Distract self	3	3	0	0
Lose clarity	3	3	8	8
Lose perspective	3	3	1	1
Muddled	2	2	11	11

Thought Content

The diversity of anxiety provoking situations reported by older adults was reflected in the thought content reported. As most thoughts were specific to the situation, the common themes of thoughts were extracted where possible. The most common themes which emerged were thinking of a solution to the problem, imagining the worst or other negative outcome, and wondering if they could cope. Participants reported trying to think positively, and wondering "what if ...?" A number of participants reported emotions such as anger (6%), worry (5%) and sadness (3%), which were re-classified into the emotions category and the respective total corrected. Although only one participant reported suicidal ideation in a worrying situation, alarmingly 13 perceived that others would have suicidal thoughts.

Table 20

Thought Content of Participants when in Worrying Situation

	Self		Others	
Thought Content	n	%	n	%
Miscellaneous	98	92	71	68
Solution	27	25	0	0
Worst case/ negative outcome	16	15	6	5
Can I cope?	9	8	8	7
Think positively	8	7	5	4
What if?	7	7	6	6
Cost	4	4	0	0
Religious	3	3	0	0
Why me?	3	3	8	7
Impact on others	3	3	7	6
Suicidal ideation	1	1	13	12

Emotional Experiences

Participants were asked to report their emotional experiences in a situation causing anxiety. A later similar question asked for their perception of others. A

number of emotions were reported by each participant (M = 2, SD = 1.9), and a considerable proportion of people reported thoughts which were reclassified appropriately. The most commonly reported emotions were irritability, anger, depression, and apprehension. Participants reported that others felt tearful when they were anxious more frequently when compared to themselves. The reverse was true for feelings of vulnerability. The leading nature of asking what emotions participants experience when anxious would likely influence their reporting of 'anxiety' type responses. Therefore the anxiety result should be interpreted with caution.

Table 21

Emotions reported by older adults in a worrying situation

	Self		Others	
Emotion	n	%	n	%
Miscellaneous	36	33	20	18
Irritability	26	24	20	18
Apprehension	20	18	14	12
Anger	19	16	22	21
Depression	19	16	15	13
Vulnerable/helpless	15	13	15	13
Annoyed	15	13	0	0
Tearful	11	9	28	24
Sadness	10	9	17	15
Anxious	9	8	6	5
Nervous	9	8	0	0
Fear	5	4	33	30
Panic	5	4	4	4
Incompetence/inadequacy	5	4	10	9
Frustration	3	3	6	5
Hopeless	3	3	5	4
Lonely	3	3	10	9

Behaviour

Older adults were asked to report what behaviour they showed when experiencing an anxious situation, and a later question asked for their perception of others behaviour. The majority of behaviours reported were specific to the unique situation of the participant. Older adults most commonly reported that they experienced sleep disturbances, took positive action to resolve the problem, and talked about their worry. Keeping busy and exercising was also reported, which could also be avoidance or distraction behaviours. Older adults also reported emotions and thoughts in this category, most commonly anger and thoughts of how to resolve their problem. Interestingly, older adults perceived that others would use maladaptive coping behaviour such as withdrawing, crying, using alcohol or cigarettes, behaviours they seldom or never reported engaging in themselves.

Table 22

Reported Behaviour When Worried

	Self		Others	
Behaviour	n	%	n	%
Miscellaneous	61	57	82	79
Lost sleep/ sleep disturbance	37	35	32	29
Took positive action	31	29	0	0
Talked about problem	23	21	40	36
Kept busy	11	10	9	8
Exercised	9	8	0	0
Pray	7	7	0	0
Withdraw	4	4	46	41
Crying	0	0	25	22
Visit Doctor	0	0	13	12
Drink/smoke	0	0	10	9
Sought reassurance	0	0	10	9
Ate less	3	0	14	13

Avoidance Behaviour

Miscellaneous avoidance behaviour was most commonly reported. 23% of participants reported some restrictions in their driving behaviour, such as driving only to familiar places, avoiding busy times, motorways, driving in to town, and driving at night. 22% of older adults reported they had no limitations, whereas 11% of participants avoided situations which could compromise their personal safety. For example, some reported avoiding congregations of youths or other situations where they feared they could be the victim of crime. Socialising, spending money, and interpersonal conflict were avoided by 8% of participants. Furthermore, 6% of participants avoided sources of worry from media, such as news programs, newspapers, and talkback radio. Some evidence of specific phobia and post-traumatic stress (e.g. avoid talking about war) was seen in miscellaneous concerns. Older adults more commonly thought that other people avoided going out, socialising, or talking about their problems compared to how they would act themselves.

Table 23

Reported Avoidance Behaviour to Reduce Worry

Behaviour	Self		Others	
	n	%	n	%
Miscellaneous	40	34	33	29
Restrict driving	27	23	6	5
No limitations	25	22	0	0
Situations which may reduce personal safety	13	11	0	0
Crowds	9	8	3	2
Restrict when going out	11	10	19	17
Conflict	8	7	0	0
Spending	8	7	12	11
Socialising	8	7	44	39
News	6	5	0	0
Public speaking	6	5	0	0
New situation	5	4	4	3
Heights	4	3	0	0
Going out	3	3	25	23
Talking about worry	2	2	13	12
Being alone	0	0	4	3
Personal care	0	0	9	8
Household care	0	0	3	2

Observations of another older adult experiencing anxiety

Older adults noticed a number of common symptoms when observing another older adult experiencing anxiety. Although they commonly knew through talking about anxiety with the person, older adults also noticed social withdrawal, a quiet demeanour, sleep disturbances, concentration problems, and irritability. Lack of care for themselves or their household was also commonly reported. More global statements about "their expression" or "demeanour" were common but could not be broken down into specific observations.

Table 24

How Older Adults Can Tell When another Older Adult is Experiencing Anxiety

Behaviour observed	n	%
Miscellaneous other	50	45
Talking about it	39	35
Withdrawn	22	20
Quiet	16	14
Tearful	15	13
Not caring for self or household	15	13
Not eating	15	13
Not sleeping	12	11
Difficulty concentrating	12	11
Expression	11	10
Demeanour	8	7
Depressed	7	6
Restless	7	6
Preoccupied	5	4
Not talking	5	4
Forgetful	4	4
Poor decision making	3	3
Confused	3	3

Relationship with GAD and Depressive symptoms

Although depression or GAD cannot be diagnosed from this questionnaire, and required time periods were not available, it was of interest to establish how the signs and symptoms listed in the DSM-IV related to older adults reported experiences. Both depressive and anxious symptoms were reported by participants, and a high proportion reported depressed mood or sadness. Sleep

disturbances, irritability, and difficulty concentrating were among the most commonly reported symptoms, which relate to both depressive and anxious symptoms. Symptoms specific to depression such as anhedonia, suicidal ideation, and feeling worthless or guilty were less common.

Table 25

Correspondence of Own Reported Symptoms with DSM-IV GAD and Depression Criteria

Symptoms	N	percentage
Sleep disturbance (GAD)	37	28
Insomnia or hypersomnia (depression)[1]	11	8
Irritability (GAD)	26	20
Depressed mood, tearfulness, sadness (depression)	26	20
Difficulty concentrating/mind going blank (GAD), or, Diminished ability to think or concentrate, or indecisiveness (depression)	24	18
Difficult to control worry (GAD)	19	15
Easily fatigued (GAD)	14	11
Fatigue or loss of energy (depression)		
Muscle tension (GAD)	14	11
Restlessness or feeling keyed up/on edge (GAD)	13	10
Anhedonia (depression)	5	4
Weight loss/gain/appetite change (depression)	5	4
Worthlessness or major guilt (depression)	5	4
Psychomotor agitation or retardation (depression)	3	2
Recurrent thoughts of death (depression)	1	<1

NB: [1] Sleep disturbance was classified as any sleep disturbance reported, and was considered less severe than insomnia/hypersomnia, which were recorded if symptoms appeared consistent with a higher level of severity or if the participants used the term insomnia

9

Characterising Anxiety in Older Adults

Discussion

The present research sought to determine the key features of anxiety in older adults that transcend individual differences in personality and life circumstances. Participants were asked to report their own experiences when anxious, and their observations of a person they knew well who was experiencing anxiety. The open-ended questions on the response sheet contributed to the high level of reporting miscellaneous topics and experiences. Of interest for clinicians is determining the common factors of anxiety that enable researchers to begin to define anxiety in older adults. This information will in turn provide content for a new measure of anxiety in older adults.

Worry topics

Overall, the worry topics reported by older adults were developmentally appropriate, and showed a strong link to contextual factors unique to the individual's circumstance. Of the worries that were reported by a number of participants, the top three worry topics of health, finances, and family found in this study are the same as those reported by Cotton (2007). However although Person and Borkovec (1995) found older adults worried more about health, they found older adults worried less about finances and family when compared to younger adults. The present research shows that these topics are still significant concerns for older adults.

The presence of political and social worry may be a temporal effect due to data collection taking place within six months of a government election. Also, the sample included participants from some politically orientated groups. Similarly, the high endorsement of financial worry could relate to sampling at the beginning of a recession. For example, several participants reported losing their investments due to financial companies collapsing as a source of worry.

Although similarities exist in worry content between older adults, Diefenbach, Stanley, and Beck (2001) found that pathological worry was not differentiated by worry content. Furthermore, the high number of miscellaneous

worries reported by this sample would make it impossible to cover all possible worry topics in a short self-report measure. Therefore, although worry topics could be woven into a new measure of anxiety in older adults they should not provide the foundation for the content. Rather than asking "what" people older adults worry about, the clinician should consider "how" older adults worry. This is in line with the view that worry process rather than content in GAD is salient in maintaining the client's distress (American Psychiatric Association, 2000). Therefore, in keeping with the cognitive model, the situation should be used to access the process of worry which is at the crux of maintaining the client's distress (Padesky & Greenberger, 1995).

Physical sensations

Numerous physical sensations were reported by older adults, with a large number of miscellaneous sensations. Headaches were the most common physical complaint of older adults experiencing anxiety, closely followed by gastrointestinal upset, tiredness, and tension. Participants reported little difference between their own physical experiences and their perception of others physical sensations when anxious. This may suggest they used their own sensations as a reference point for others. Interestingly the two most common reported symptoms in this study are not a recognised symptom for the diagnosis of anxiety using the DSM-IV (American Psychiatric Association, 2000). The finding of high levels of fatigue links to previous research. For example, Iwamasa (2001) found that easily fatigued was the most commonly reported symptom of anxiety amongst Japanese American older adults.

The high medical co-morbidity within this population means that the signs and symptoms of anxiety may vary between participants and reflect aspects of their underlying medical issues. However, the constellations of signs and symptoms are important to understand to differentiate between medical and psychological origins. Interestingly, Cotton (personal communication, September 12, 2009) found that older adults did not endorse symptoms on anxiety measures which they attributed to their medical conditions. Whilst her sample were high functioning and intelligent, this could suggest older adults may be able to independently differentiate between anxious symptoms and health related

symptoms. However, this has not been researched in a large sample, and may not be able to be generalised to other cohorts.

Despite concerns about somatisation in older adults, the current cohorts of older adults may not over-report physical symptoms on self-report measures. For example, Boston and Merrick (2010) found overall low levels of health anxiety in their study of 145 older adult New Zealanders. They found that levels of health anxiety were related to physical health, and in older adults without physical illness the levels were comparable to levels found in studies with younger adults. Similarly, measures of health anxiety in older adults tend to be over-inflated by physical frailty, rather than accurately reflecting pathological health anxiety (Bourgault-Fagnou & Hadjistravropoulos, 2009).

Cognitive symptoms

Process

The main themes found for thought process appeared to be related to rumination, confusion, loss of concentration, and preoccupation. Forgetfulness was rarely reported when discussing their own experiences, but was frequently perceived in others. This could suggest some downplay symptoms which are related to negative aspects of aging such as cognitive impairment. Alternatively, they may be less common symptoms of worry in older adults.   Difficulty concentrating is a symptom commonly found in previous research with older adults (Iwamasa, 2001), and is part of the DSM-IV criteria for GAD (American Psychiatric Association, 2000).

Content

The high proportion of miscellaneous thought content was expected as participants were recording their thoughts in a specific situation, and there was marked heterogeneity in situations reported. Despite this, the commonalities in thought content across situations were searching for a solution, and thinking of the worst case scenario. Searching for a solution and problem solving were endorsed both under process and content, and could potentially contribute to rumination. Previous authors have suggested that people with GAD use their worry as a way of problem solving (Borkovec, Hazlett-Stevens, & Diaz, 1999), which was consistent with the present study. Significantly, suicidal ideation was reported by a participant, however 12% thought that others might experience suicidal thoughts

when they are anxious. Potentially, older adults may experience suicidal ideation when they are anxious but because of social desirability issues may not report it for themselves. This would be an interesting topic to pursue in future research, as older adults have a high rate of suicide (Ministry of Health, 2007).

Emotions

Similar to previous research, (Ready et al., 2008) older adults reported numerous emotions including frustration and irritability, suggesting a complex emotional experience. This is similar to previous research that has found an increase in anger and frustration in late-life GAD when compared to other anxious states (Mohlman et al., 2004). However, methodological issues may have impacted on how emotional experiences were reported future research should consider re-wording the item to remove the leading nature of including the emotions "worried or anxious". In spite of this, it could have encouraged older adults to think more laterally and elicit a deeper emotional experience than the more concrete "I felt worried" type answer. The high presence of sadness, anger, and irritability supports the emerging notion of an overlap between depression and anxiety symptoms in the literature.

Differences were observed in the reporting of anxiety between self and others. For example, participants more commonly reported that others may feel fearful, tearful, incompetent, lonely, and sad. These emotions may reflect a higher level of severity, or less perceived coping ability.

Behaviour

The high level of miscellaneous behaviour reported is most likely due to the elicitation of a specific situation. However, the most commonly reported behaviour of difficulty sleeping in the present research is a well established finding across previous studies in both older and younger adult populations. Sleep disturbances are present in numerous anxiety disorders within the DSM-IV, and could be a key diagnostic indicator of psychological difficulties in older adults (Wetherell, Le Roux, & Gatz, 2003). However as with other physical symptoms, sleep disturbances could be attributed to medical conditions.

A number of older adults reported taking some form of positive action to resolve the issue causing them anxiety. However, this is unlikely to be a key factor in the assessment of worry in older adults unless this behaviour becomes excessive

for the context. Talking about the problem with others could also be seen as a constructive approach to resolving worry, unless it becomes excessive reassuring seeking behaviour. Reassurance seeking behaviour has been discussed elsewhere as a feature of problematic worry (Salkovskis, 1996), however future research specific to older adults should include frequency.

In contrast to their own reported behaviour when worried, older adults perceived others to use negative coping strategies more often. These included the use of cigarettes, alcohol, and withdrawing from activities and social occasions. Also, they perceived others would visit the doctor more, eat less, and be more tearful when compared to themselves. This could reflect a social desirability effect, as in a randomly selected New Zealand sample of 141 adults over 65 found that 100 currently used alcohol, and of those 68% reported drinking to help them relax, and 59% because it helped them feel better (Khan, Wilkinson, & Keeling, 2006).

Avoidance behaviour

The majority of participants in the present study engaged in some form of avoidance behaviour in their everyday lives to reduce anxiety. This was surprising as the participants in this study were relatively healthy, living independently, and involved in their community. Furthermore, "keeping busy" which was reported in behaviour also could serve as a form of avoidance, although in moderation could be a protective factor. The most common forms of avoidance were through restricting driving, avoiding situations which may compromise personal safety, crowds, and going out at night. Some responses were clichéd and unlikely to be part of their everyday life (e.g. public speaking and heights), however the majority could contribute towards limitations in their lifestyle.

Differences were observed in their perception of others behaviour when compared to their own. Older adults perceived that others were more likely when compared to themselves to reduce socialising, going out, and talking about worry. Potentially this reflects a higher level of severity observed in other people when compared to their own situation.

The nature of many of the avoidance behaviours reported (e.g. restricting driving, avoiding crowds, spending, conflict, socialising, going out, and new situations) could limit social opportunities and potentially contribute towards social isolation. The types of avoidance behaviour reported by older adults in this

study supports Gurian and Miner's (1991) suspicion that older adults may restrict their activity to familiar and non-demanding situations to avoid anxiety.

Relationship with GAD and Depression

An overlap between depression and anxiety was observed in the symptoms older adults reported experiencing when they were anxious, supporting the notion of a common negative affect component to the two disorders. Both cognitive and somatic symptoms were reported by older adults, providing further evidence that this cohort of older adults do not somatise their symptoms. The least frequently reported symptoms were those uniquely associated with depression such as anhedonia, appetite changes, psychomotor symptoms, guilt and suicidal ideation.

The symptoms reported by this cohort of older adults provide some initial support for the relevance of the tripartite model. The symptoms suggest there may be shared elements such as a common negative affect factor, such as the high reporting of difficulty concentrating, sleep disturbances, and loss of energy. A second element of worry related symptoms was also highly reported, alongside muscle tension and restlessness. Finally, the least frequently reported depressive symptoms, such as anhedonia.

Summary and conclusions

The finding from the present study contributes to the growing evidence supporting the development of a new psychological measure of anxiety in the elderly. The qualitative nature of the questionnaire employed enabled the elicitation of a broader range of anxiety symptoms than in previous research. Further research is necessary to build on this knowledge, however it contributes towards an understanding of what core features of worry should be included on a new measure of anxiety specific to older adults.

Although this was a non-clinical sample, some of the anxiety symptoms reported differed to the recognised diagnostic criteria for anxiety disorders such as GAD. For example, sadness, headaches, gastrointestinal upsets and sleep disturbances were among the most common symptoms reported. However, these symptoms may change based on the level of severity and could help differentiate between syndromal GAD and non-pathological levels of anxiety. Nevertheless, rather than relying on making a formal diagnosis, attention should be directed towards what processes are contributing to maintaining the client's distress.

Implications for new measure

The development of a new measure for anxiety in older adults must have sufficient emphasis on the commonalities in experiences across situations. Although a number of miscellaneous topics and symptoms were reported, common themes were identified that are essential to trial in a new measure of anxiety. Whilst the five part model is useful for eliciting specificities of an individual client, the use of a specific situation on this questionnaire contributed to a high level of variance in measurement. Therefore although this model has high utility in clinical practice, items on a new measure must target common symptoms to enable assessment of distress, and treatment gains. The clinician can access specific situational factors through their clinical interview, and use a measure to assess factors common to people experiencing anxiety.

Because participants in this study reported symptoms consistent with a negative affect component common to anxiety and depression, the choice of items on a new measure should reflect this. Therefore, rather than constraining a new measure to fit a categorical approach to diagnosis, it should reflect the dimensional presentation of anxiety and depression which is emerging in the literature. This appears to be the direction which is being taken in the development of the DSM-V (American Psychiatric Association, 2009).

In light of this diagnostic trend and the themes emerging from qualitative studies, the emphasis of a new measure should be on assessing signs and symptoms rather than trying to categorise people. Therefore, the foundation for the new measure should be assessing the degree of impairment in daily life, through the common cognitive processes, behaviours, and emotional experiences. Common worry topics may be used sparingly as a means to access these features and help give situational anchors within the measure, but should not be a dominant feature. The use of physical symptoms in a new measure is fraught with problems caused by medical co-morbidities. The myth of somatisation in older adults is being worn away by growing evidence of cognitive and behavioural components in this population. For example, the relatively low levels of health anxiety in this group when controlling for medical conditions (Boston & Merrick, 2010).

Cognitive components of a new measure should include processes of: rumination; confusion; problem solving; loss of concentration; and preoccupation. Content factors should be limited to catastrophic thinking; estimating coping ability; suicidal ideation, and wondering "what if"? Although suicidal ideation was uncommonly reported in own experiences, older adults thought others may frequently experience it. Therefore, suicidal ideation will be trialled on the new measure. Behavioural components varied on the basis of the situation but common factors useful to include would be sleep disturbances specifically due to worry; avoidance behaviour; and excessive talking about the problem. Emotional factors should include irritability; anger; sadness; worry; tearfulness; and feelings of vulnerability.

10

Study Two: The Development and Psychometric Evaluation of the Roberts Anxiety Scale for Elderly

The present study takes place in four stages and utilises data from Study One to develop a new measure for anxiety in older adults. The measure will then be tested in the following stages and evaluated alongside existing measures of anxiety used with older adults.

Stage One: Develop a New Psychological Measure

The results from Study One combined with the literature review support the development of a new measure of anxiety for older adults. The content for the new measure can be established from interpreting the experiences of anxiety in older adults in study one, and psychological theory. In addition, it is important to consider the unique needs of the older people who will use the new measure. The sensory and cognitive differences between older and younger adults should therefore be considered when developing a new measure.

Sheikh (1991) suggested a list of criteria for the ideal self-report anxiety measure for older adults, which can provide a guideline for things to consider in the present study. These criteria included: (1) maximum of 30 items, (2) large text size for easy reading, (3) clear instructions and simple language use throughout, (4) less than ten minutes to administer, (5) cover cognitive, behavioural, emotional, and physiological components of anxiety, (6) be psychometrically sound with norms and cut-offs specific to the elderly, (7) should show discriminant validity from depression, (8) should show sensitivity to therapeutic intervention.

In addition to these factors, it is important to consider the social desirability effects when discussing anxiety that were reported in previous studies. For example, older adults are reportedly reluctant to report anxiety experiences due to social desirability effects (Wolitzky-Taylor et al., 2010). This was also evident in the results from Study One, despite the research being anonymous. This may be in

part due to the clinician being unavailable to discuss and normalise the experience of anxiety. In light of this, the content of the measure was engineered to downplay the intention of measuring anxiety. As one of the most common ways older adults described anxiety was concern, the new measure was sent to participants titled "the Concerns Experience Scale" (see Appendix G). However, from herein the final measure will be referred to by its new name, the Roberts Anxiety Scale for Elderly (RASE). The name was changed to improve the recognition of the scale and increase its face validity for measuring anxiety in older adults. The instructions were designed to normalise anxiety experiences by saying "the statements below are experienced by everyone from time to time". The most common cognitive, behavioural, physiological, and affective experiences that were identified in study one were considered as essential test content. Worry processes were considered more important than worry content, however specific worry topics were also included on the prototype measure to see whether they assisted in accessing worry process.

As the intention of the RASE is that it will ultimately be used as a clinical measure of anxiety, a number of additional themes based on existing anxiety literature were included to supplement items generated from study one. These included attempting to assess the level of interference anxiety had on the individual's daily life to assist in evaluating functional impairment caused by worry.

Furthermore, due to the large variation in themes reported by older adults, some themes which were theoretically important in anxiety but reported at low frequencies were included to trial in the prototype RASE. This included items relating to frequency of doctors visits as previous research has found people with anxiety disorders visited their doctor more frequently compared to those with subsyndromal anxiety and normal controls (Cohen et al., 2006). Furthermore in study one older adults' perceived others to increase their doctors visits when they were anxious, even though they didn't themselves. Also included were items relating to how other people perceive them. For example, the older adult may not perceive themselves as being a 'worrier' but their spouse may frequently suggest they worry too much. Accessing this may provide the clinician with an indication of the client's experiences and insight into their issues.

Because of the emerging trend within the literature to view anxiety and depression as sharing a common factor of negative affect, symptoms which were found to be important in study one but traditionally considered depressive symptoms were included. Therefore the prototype RASE contains both anxiety and depression symptoms.

Despite the intention of having a high number of items relating to avoidance behaviour, these were the most difficult to develop due to the variability in these behaviours shown by participants in study one. The behaviours of reassurance seeking, loss of sleep, withdrawal, and occupying self with hobbies were chosen to include on the measure as these were the most universal themes. Sleep disturbances have been found in other studies with older adults (Wetherell et al., 2007; Wolitzky-Taylor et al., 2010).

A number of items were developed for each of these themes, with a view to selecting the best performing item for each theme to be submitted for CFA analysis in phase two. The prototype RASE was comprised of 85 items, reflecting cognitive processes and content, behavioural, emotional, physiological, and functional impairment symptoms.

A four point likert scale was chosen to enable quantification of anxiety symptoms in a clear way and avoid the selection of a neutral option. No items were reverse scored to remove the method effect found in previous research (Kvaal et al., 2005). The anchors were never, occasionally, frequently, and always.

Role of DSM-IV Diagnoses in RASE

The RASE was not developed based on the DSM-IV symptom profile of GAD for a number of reasons. Primarily, there have been difficulties using the DSM-IV criteria for GAD in research with older adults. Secondly, the diagnostic category has been under constant revision with each edition of the DSM. Finally, the view of anxiety is moving towards sharing symptoms with depression. Therefore, the RASE has been developed based on the common experiences of anxiety in older adults in the community, and takes a dimensional view of anxiety. The RASE is intended to be used to gauge the severity of anxiety symptoms and the degree of functional impairment caused by worry.

Summary

The RASE is an 85 item questionnaire designed to assess the severity of anxiety in an older adult sample. It contains cognitive, behavioural, affective, and physiological symptoms, and is designed to reflect the experiences of anxiety in older adults and the theoretical understanding of anxiety from adult samples. The prototypical nature of the RASE means that the performance of items will be evaluated in the following study, and the most reliable and valid set of items will be selected.

Stage Two: Item Analysis

Phase two of the present study sought to refine the prototype RASE to the stage of producing a measure which has evidence of validity for older adults. The refinement of the RASE is undertaken in two phases using data collected with older adult participants. Phase two refines the RASE through item analysis under the classical test theory model by removing items that obviously underperform. The remaining items will be submitted to phase three for further evaluation of the RASE's psychometric properties and further refinement of content to produce the final product. Phase four evaluates the psychometric properties of the HADS and AMAS-E in older adults and to assess convergent validity of the RASE.

Ethics

Ethical approval was obtained through Massey University Human Ethics Committee Northern (08/074; see appendix E). Participants were given information on where assistance for psychological distress could be found. No identifying information was solicited on the questionnaire, and participation was voluntary.

Participants

Older adults between ages 60 to 80 (*M* = 68, SD =7.2) were recruited from older adult's organisations, word of mouth, and participants from study one who had indicated they wished to participate in study two. Participants in rest-homes or hospitals were excluded. 203 predominantly New Zealand European participants responded (83% return rate), and of those, 81 returned demographic information, however 190 gave gender and age. An independent samples t-test was conducted to determine if there was a significant difference in scores on anxiety measures between people for whom demographic information was

reported and those that it was not. No significant difference was found on the total AMAS-E scores between participants who had missing demographic data ($M = 48$, $SD = 7.3$) and those that did not ($M = 46.8$, $SD = 7.8$), $t(167) = -1.29$, $p > .05$. Similarly, no significant difference was observed between scores on the HADS between people who had missing demographic data ($M = 21.7$, $SD = 6.5$) and those who did not ($M = 21.7$, $SD = 4.3$), $t(190) = -.48$, $p > .05$. Finally, no significant difference was observed between people who had missing demographic data on the RASE ($M = 42.7$, $SD = 11.5$) and those who did not ($M = 43.5$, $SD = 10.7$), $t(165) = -.48$, $p > .05$.

Table 26

Demographic information of participants

	N	%
Male	73	36
Female	117	57
Not Specified	13	7
Ethnicity		
New Zealand European	122	61
Other European	60	30
Maori	4	2
Not Specified	17	7
Highest Level Education		
Year 9 or 10	9	4.4
Year 11 or 12	25	12.3
University entrance	13	6.4
Tertiary	25	12.3
Post graduate	8	3.9
Not reported/ missing	120	59
Psychiatric History		
Any psychiatric history	22	10.8
Diagnosis of depression	13	6.4
Diagnosis of anxiety	5	5.7
Not reported/not elicited	112	55
Total participants	**203**	

Psychological Measures

Roberts Anxiety Scale for Elderly (RASE)

The most frequently self-reported and perceived themes from study one were combined to form the core content for the RASE. These themes fell within four main groups of cognitive, emotional, physical, and behavioural symptoms which were hypothesised to be underlying factors. Items were designed to reflect the highest ranked themes and symptoms from study one. Additional items that were reported at low frequencies but could have significance based on previous research were also included to assess their performance. Specific worry topics were limited due to the weak correlations shown in previous research with older adults between worry topics and worry severity (G. J. Diefenbach et al., 2001). Participants respond to items using a four point likert scale reflecting the frequency they experienced the corresponding anxiety symptoms in the last month, ranging from 'never'; 'occasionally'; 'frequently'; to 'always'.

Adult Manifest Anxiety Scale-Elderly version (AMAS-E)

The AMAS-E (Reynolds, Richmond, & Lowe, 2003) is a 44 item measure of anxiety in the elderly. Items on the AMAS-E are divided into four subscales: Worry/Oversensitivity (22 items); Physiological anxiety (7 items); Fear of Aging (7 items); and Lie (6 items). The psychometric properties of the AMAS-E have been reported in more detail in chapter six. The AMAS-E was chosen as it is a relatively new measure of anxiety designed specifically for older adults. As the AMAS-E provides a broad range of items specific to older adults, and low levels of somatic items, it may provide useful evidence of convergence with the RASE.

Hospital Anxiety and Depression Scale (HADS)

The HADS (Zigmond & Snaith, 1983) is a 14 item self-report measure of anxiety and depression, with items divided equally between both scales. Clients are asked to underline the reply which is closest to the way they are feeling. Each item has a different range of responses, some of which are specifically worded to reflect the item stem. The psychometric properties have been reported in detail in chapter six, however have been found to be acceptable in older adult samples. A copy of the measure is presented in Appendix G.

The HADS was chosen as it has the strongest evidence of validity for use with older adults, and has few items that overlap with medical symptoms.

Furthermore, as the HADS measures both anxiety and depression it can provide evidence of convergent and discriminant validity for the RASE.

Procedure

Participants were posted the AMAS-E, HADS, RASE, and a subgroup also received a questionnaire requesting additional demographic information including health and education (see appendix G). An information sheet was included giving specific instructions to participants on how to complete the measures, to not include their name anywhere, and where to seek additional information on mental health should their participation raise any concerns for their wellbeing. The order of the three questionnaires in the package was changed randomly by the community volunteers assisting in assembly.   Participants completed the questionnaires at their own pace and returned these through a freepost system. A subgroup of participants from study one that had indicated they wished to be contacted for study two were written to and offered the opportunity to participate again (see appendix F).

Phase One: Data Analysis

Each measure underwent separate analysis of their psychometric properties, including item-total correlations, reliability analysis, and confirmatory factor analysis (CFA) using SPSS (SPSS Inc) and AMOS (Arbuckle, 2006). In order to refine and strengthen the RASE, more comprehensive analysis was undertaken when compared to the AMAS-E and HADS. Specific details of the data analysis are provided in the following sections.

Data Preparation

Sample Size: The accuracy of fit indices and parameter estimates in structural equation modelling is dependent on having an adequate sample size to generate the level of power required for the analysis. A general guideline is complex models require larger samples, however no clear rule of thumb has been found to be helpful (MacCallum, Widaman, Zhang, & Hong, 1999). Smaller sample sizes in SEM tend to result in more pessimistic estimates of goodness of fit when compared to larger samples (Fan, Thompson, & Wang, 1999). The present sample of 203 participants is sufficient for the complexity of the models tested, and fit statistics that are less sensitive to sample size will be emphasised.

Missing Data: The presence of incomplete data in research must be addressed to minimise bias and enhance generalisability. The impact of missing data within a small sample was minimised through the use of pairwise exclusion in SPSS where available. The maximum likelihood method in SEM enables AMOS to estimate the values of parameters from missing data based on the entire data set. The maximum likelihood method is considered advantageous over listwise or pairwise deletion due to bias caused by either of these approaches with different types of missing data (Byrne, 2001). A significant Little's missing completely at random (MCAR) test suggested that data were missing at random, and therefore the maximum likelihood method was appropriate (Brown, 2006).

Normality: SEM is based on the assumption that data has a normal distribution, and violating this assumption is problematic. The bootstrapping method for correcting non-normal data takes multiple random samples from the original data, and corrects the deviation of parameter estimates using the estimates derived from the new samples (Byrne, 2001). The bootstrapping method was not used in this study as it requires a large sample. To minimise the effect of non-normal data, items were examined for normality and those that were non-normal were removed during the refinement stage of CFA.

Overview of Confirmatory Factor Analysis

Confirmatory factor analysis (CFA) is a form of structural equation modelling that takes a hypothesis testing approach to the analysis of relationships between observed and unobserved variables. CFA is useful when evaluating measurement models as it shows the magnitude and direction of the relationship between observed variables (items) and latent variables (factors). It also tests these hypothesised relationships and provides a statistical estimate of the plausibility of the hypothesised models within the data (Byrne, 2001). This study evaluated rival CFA models for each measure to determine the most appropriate relationships between the hypothesised factors of each measure. As the RASE was developed to measure specific empirically derived components of anxiety, and the HADS and AMAS-E have hypothesised factor structures a CFA approach was appropriate (Brown, 2006).

Evaluation of Model Fit

A number of statistics are available to researchers to evaluate model fit, however differing strengths and limitations are associated with each. The fit statistics outlined below were chosen as they are widely reported when evaluating measures, and therefore can provide a basis of comparison to past and for future research. These statistics are sensitive to model misspecification and provide useful additional information pertaining to the fit of a measurement model within the sample and estimating the model's fit within the population (Brown, 2006).

X^2 goodness of fit test. The X^2 goodness of fit is a test of the null hypothesis that the specification of factor loadings, factor variances, co-variances, and error variances for the model are valid, therefore a non-significant result suggests a well-fitting model (Byrne, 2001). However, X^2 is sensitive to sample size influences and even minor deviations between group's sample covariance matrices can cause a significant result (G. W. Cheung & Rensvold, 2002). Therefore, less emphasis will be placed on the X^2 and it will be interpreted in conjunction with the practical fit indexes outlined below that are less sensitive to sample size.

Comparative-fit index (CFI) and Tucker-Lewis index (TLI). Both the CFI and TLI are indicators of model fit derived from a comparison between the hypothesised model and a null model in which all observed variables are uncorrelated. Both indices yield a coefficient with values ranging from 0 to 1, with values greater than .90 suggesting adequate fit, and those exceeding .95 suggest the model is a good fit (Hu & Bentler, 1999). The CFI and TLI are not systematically related to sample size (Fan et al., 1999), and the TLI appropriately rewards model parsimony (G. W. Cheung & Rensvold, 2002). Although the formulas for the TLI and CFI involve terms to adjust for degrees of freedom, Cheung and Rensvold (2002) found that the number of items per factor and number of factors of the model affect most goodness of fit indices. Larger numbers of items and factors lead to smaller goodness of fit values due to the omission of correlated error variances and small theoretically insignificant factor loadings (G. W. Cheung & Rensvold, 2002; Hu & Bentler, 1998).

Root mean square error of approximation (RMSEA). This index estimates how well the model may hold in the population if the covariance matrix of the population was available. A RMSEA of $\leq$.05 is considered a close fit, .05-.08

indicates reasonable fit, .08 to .10 indicate mediocre fit, and >.1 indicate poor fit (Hu & Bentler, 1999). The RMSEA should be considered in the context of its 90% confidence interval. A narrow confidence interval accompanying the RMSEA indicates a high level of precision of the RMSEA value in reflecting the model fit to the population. In contrast, a wide confidence interval indicates that the RMSEA is imprecise and should be regarded with suspicion (Byrne, 2001). Unlike the CFI and TLI, the RMSEA is not affected by model complexity (Cheung & Rensvold, 2002). Furthermore, it is minimally affected by sample size (Fan et al., 1999).

Phase Two: Testing and modification of the RASE

The RASE is the primary measure of interest and therefore will be subjected to detailed evaluation and modification comprised of the following:

Item analysis

Item level statistics including item-total correlations, skewness, and kurtosis were examined for each measure and used to guide modifications of the scale during CFA. Items were removed if their item-total correlations were <.3, the alpha of the scale would increase if removed, and skewness or kurtosis were above the threshold of 2 and 7 respectively (Field, 2007), or if their content appeared problematic (e.g. negatively worded or difficult to understand). Items on the RASE that performed poorly based on these criteria during this assessment were excluded from further analysis.

1) *Confirmatory factor analysis*

Items which passed the initial screen for utility were employed in assessing the factor structure of the RASE using competing CFA models, and to further identify items that had low relationships with the construct of interest. Although there is no definitive criterion on the lower bound of acceptability for factor loadings, some researchers have suggested removing those with CFA loadings of <.38 (A. T. Beck, Brown, Steer, & Weissman, 1991). Therefore, following preliminary analysis of goodness of fit, the items in each factor were revised to remove those with factor loadings of <.40. Items that could be argued to load onto multiple factors were trialled on each and retained on the factor with the strongest loading. Items which had content that appeared homogenous were removed to

enhance test parsimony. The model which provided the best fit to the data will be utilised for further psychometric evaluation. The models hypothesised to account for observed scores on the RASE are presented below.

Hypothesised RASE models

A diagrammatic representation of the hypothesised RASE models is presented in appendix H, and also in the results section.

RASE1a:　　Four correlated factors (physical, behavioural, emotional, and cognitive), consistent with Greenberger and Padesky's (1995) Five Part Model.

RASE2a:　　A correlated three factor solution (somatic, anhedonia, negative affect), equivalent to that of the Tripartite Model (L. A. Clark & Watson, 1991).

RASE2b:　　The same three factors as RASE3a were accounted for by a higher order factor of latent anxiety. To prevent the issue of just-identification in higher order CFA models with three lower order factors, in accordance with Byrne (2001) two parameters were constrained on this and subsequent models with these specifications.

RASE3a:　　An alternative three factor solution that removes the anhedonia aspect considered characteristic of depression and replaces it with a worry factor. This model is considered to represent anxiety comprising of a difficult to control worry factor (as per DSM-IV criteria for GAD; American Psychological Association, 1994), a negative affect factor which includes common anxiety and depression factors, and a somatic element (as per the Tripartite model e.g. L. A. Clark & Watson 1991).

RASE 3b:　　The three specific anxiety factors hypothesised in RASE 3a represented by a higher order factor of latent anxiety.

RASE4a:　　An extension of the triparitite model (RASE3a) to include the specific worry factor hypothesised in RASE3a model.

RASE4b:　　The four factor model proposed in RASE4a was represented by a higher order factor

RASE5:　　A single factor model using the best items on the RASE

Phase Three- Evaluate the Psychometric Properties of the HADS and AMAS-E

Item level analysis

The HADS and AMAS-E were evaluated using all items from their original scales prior to revisions during CFA. This enhanced the ability to compare the present findings to previous research, and enable generalisations to be made in relation to the measure's clinical utility in its current form.

Confirmatory factor analysis

Both measures were evaluated using the full set of items that are in clinical use, and then were evaluated using revised models. Model revisions were made through removing redundant items as described in the *item analysis* section and then competing factor structures were trialled. The models hypothesised to account for observed scores on the AMAS-E and HADS are outlined below.

Hypothesised AMAS-E Models

AMAS1a: A correlated four factor structure (worry, fear of aging, physiological anxiety, lie) reported by Lowe and Reynolds (2000, 2006) using the complete published item set.

AMAS1b: The same four factors as AMAS1a were hypothesised to be explained by a second order factor, latent anxiety.

AMAS2: A revised model removing the lie scale, items with factor loadings <.30, and repositioning items that appeared to relate conceptually to other factors.

AMAS3: A revised model removing poorly performing items and those with factor loadings <.30, however retaining their original placement as specified by Lowe and Reynolds (2006).

Hypothesised HADS Models

HADS1: Two correlated factors - anxiety and depression - as per the factor structure reported by Moorey et al., (1991) and proposed by Zigmond and Snaith (1983).

HADS2:   Hypothesised that scores on the HADS were represented by three correlated factors (negative affect, anhedonic depression, and autonomic anxiety), consistent with the Triparitite model of anxiety and replicating the model proposed by Dunbar et al. (2000). Dunbar et al. considered item seven to load onto negative affect and anhedonic depression, and specified that the error of items 11 and 14 to covary.

HADS3:   Removed the error covariances of model HADS2, and the dual factor loading from item seven.

Phase Four- Convergent and Discriminant Validity

The observed total scores and subtest scores of the AMAS-E. HADS, and final RASE were correlated to assess convergent and discriminant validity among the measures. The sample was also assessed for distribution of participants between each band of anxiety severity based on the HADS and AMAS-E.

11

Study Two Results

Normality of Data

Evaluation of total scores on all measures showed data were marginally negatively skewed and slightly kurtotic (HADS .921, .577; AMAS -.302, 1.429; RASE .747, .412 respectively). The Kolmogorov-Smirnov test was significant for the AMAS, HADS, and RASE, suggesting that the distribution of scores on each measure significantly differed to a normal distribution (Feild, 2005). However, as item level analysis suggested the majority of item responses were normally distributed, only items on the RASE that showed significant skew or kurtosis were removed from the revised measure. Furthermore, as skew and kurtosis were minimal, the use of parametric statistics can be justified.

Group Level Analysis

Based on the recommended cut-offs (Spinhoven et al., 1997), the majority of the HADS anxiety sample was measured to have mild, moderate, or severe anxiety symptoms (30%, 40%, and 20% respectively), only 10% were measured in the 'normal' range. The AMAS-E also measured the majority of the sample to have mild, clinically significant, or extreme anxiety (40%, 22%, and 9% respectively) based on the recommended cut-offs (Lowe & Reynolds, 2006).

Phase Two- Refine the RASE

Item Level Analysis

Twenty three items were removed due to item-total correlations below the specified .4 cut-off. A further three items were removed due to high kurtosis. Items were then assessed for similar content, and those with item-totals < .5 were removed when alternative items were available. Items that were removed often related to specific worry topics, physical complaints, and activities related to preventing worry (e.g. keeping busy). The remaining 59 items were trialled in confirmatory factor analysis and further refined during later stages, during which a

further reduction in items took place. Items were removed on the basis that they were too similar in wording, had low factor loadings, or made little contribution to the final factors.

Phase Three- Evaluate the RASE and Further Refine

CFA

The hypothesised models RASE1a based on Greenberger and Padesky's (1995) five part model provided poor fit to the data (see Table 27). The removal of underperforming items left two behavioural items. This was considered to under represent the breadth of behaviours exhibited by anxious people and therefore the model was rejected for the RASE.

Table 27

Goodness of Fit Indices for Competing Structural Models of the RASE

Model	Df	X2	TLI	CFI	RMSEA (90%CI)
RASE1a	293	559.7*	.874	.895	.067 (.059-.080)
RASE2a	374	777.58*	.814	.840	.073 (.066-.080)
RASE2b	375	778.13*	.815	.840	.073 (.066-.080)
RASE3a	272	510.46*	.885	.904	.066 (.057-.075)
RASE3b	273	516.3*	.883	.902	.066 (.058-.075)
RASE4a	229	494.74*	.890	.909	.064 (.055-.073)
RASE4b	248	479.61*	.883	.904	.068 (.059-.077)
RASE5	276	724*	.786	.819	.090 (.082-.098)

Evaluate Model RASE1a

Although model RASE1a fit poorly, the relationships between items and factors were measured as moderate to strong. However, the high correlation between constructs suggests a large proportion of shared variance (see Figure 6).
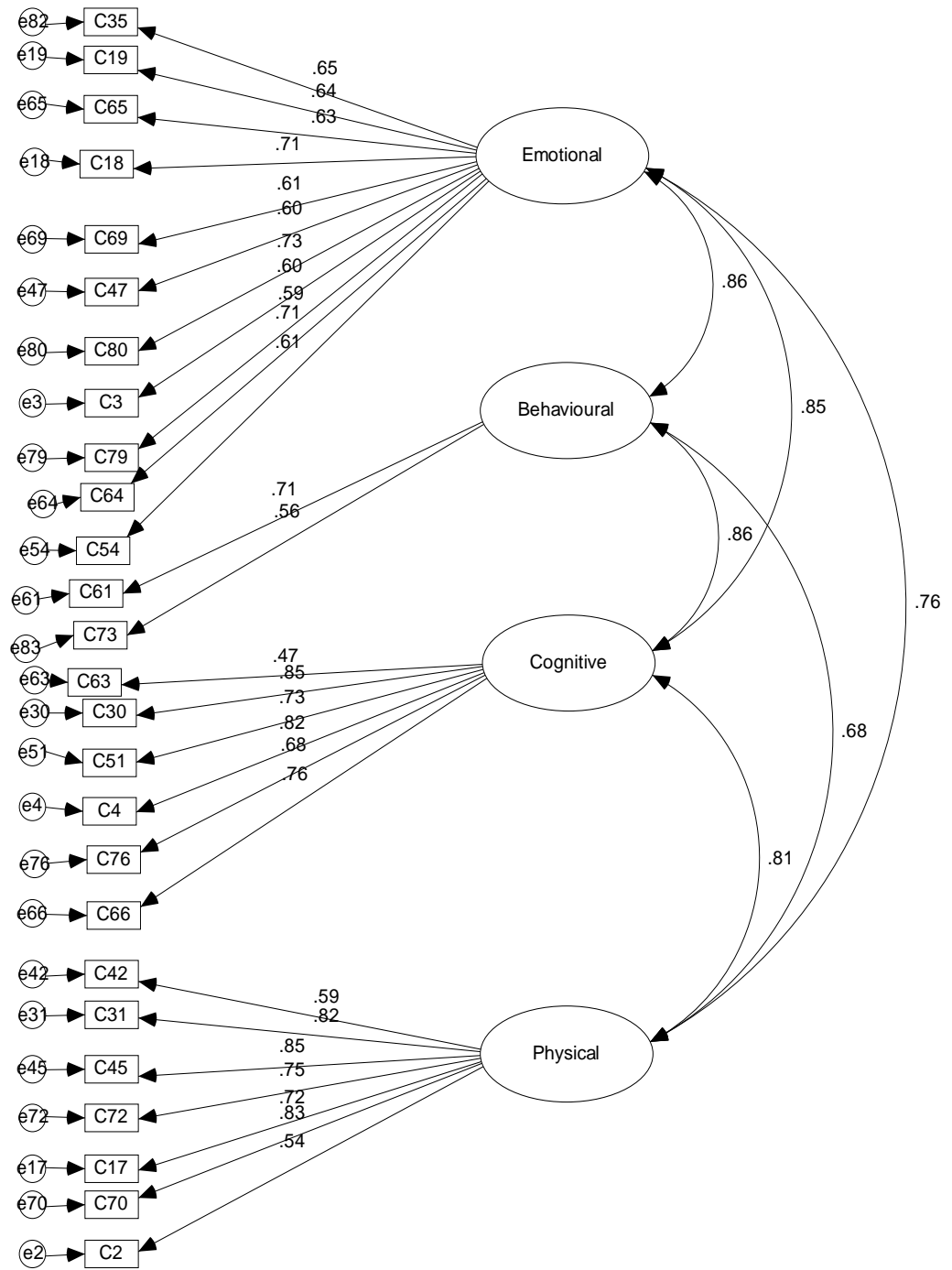
Figure 6. R*elationships between factors and items on RASE1a*

Evaluation of Goodness of Fit for Models RASE2a and RASE 2b

Models RASE2a and RASE2b were derived from the Tripartite model (L. A. Clark & Watson, 1991) and also showed poor fit after revising to remove redundant and poor loading items (see Table 27).
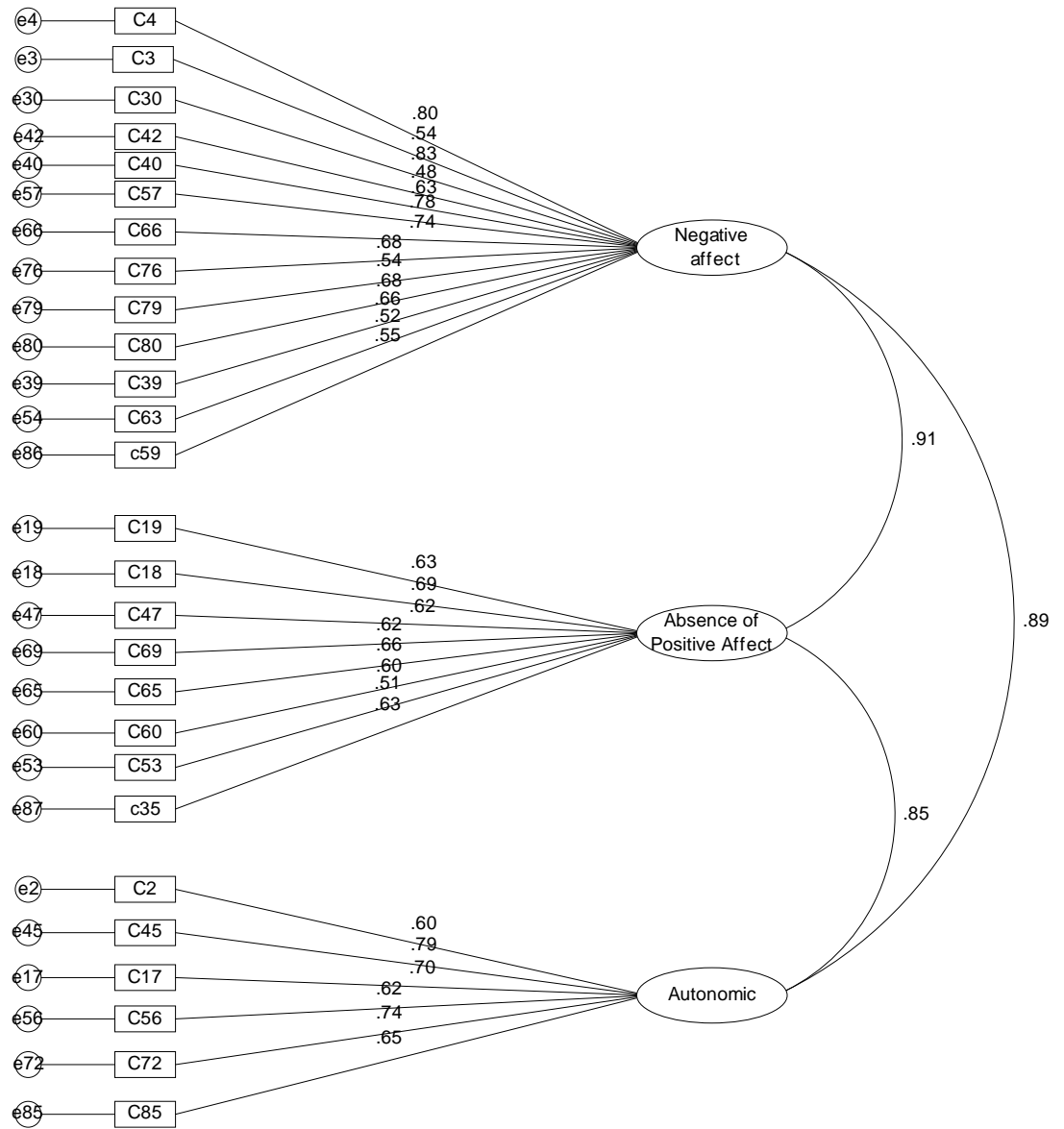
Figure 7. Observed relationships between items and hypothesised factors of model RASE2a

Although items showed strong relationships with their respective factors on RASE2a (see Figure 7), the strong correlations between factors suggest a high level of shared variance between constructs. The fit indexes were below the lower bound of acceptability (see Table 27).
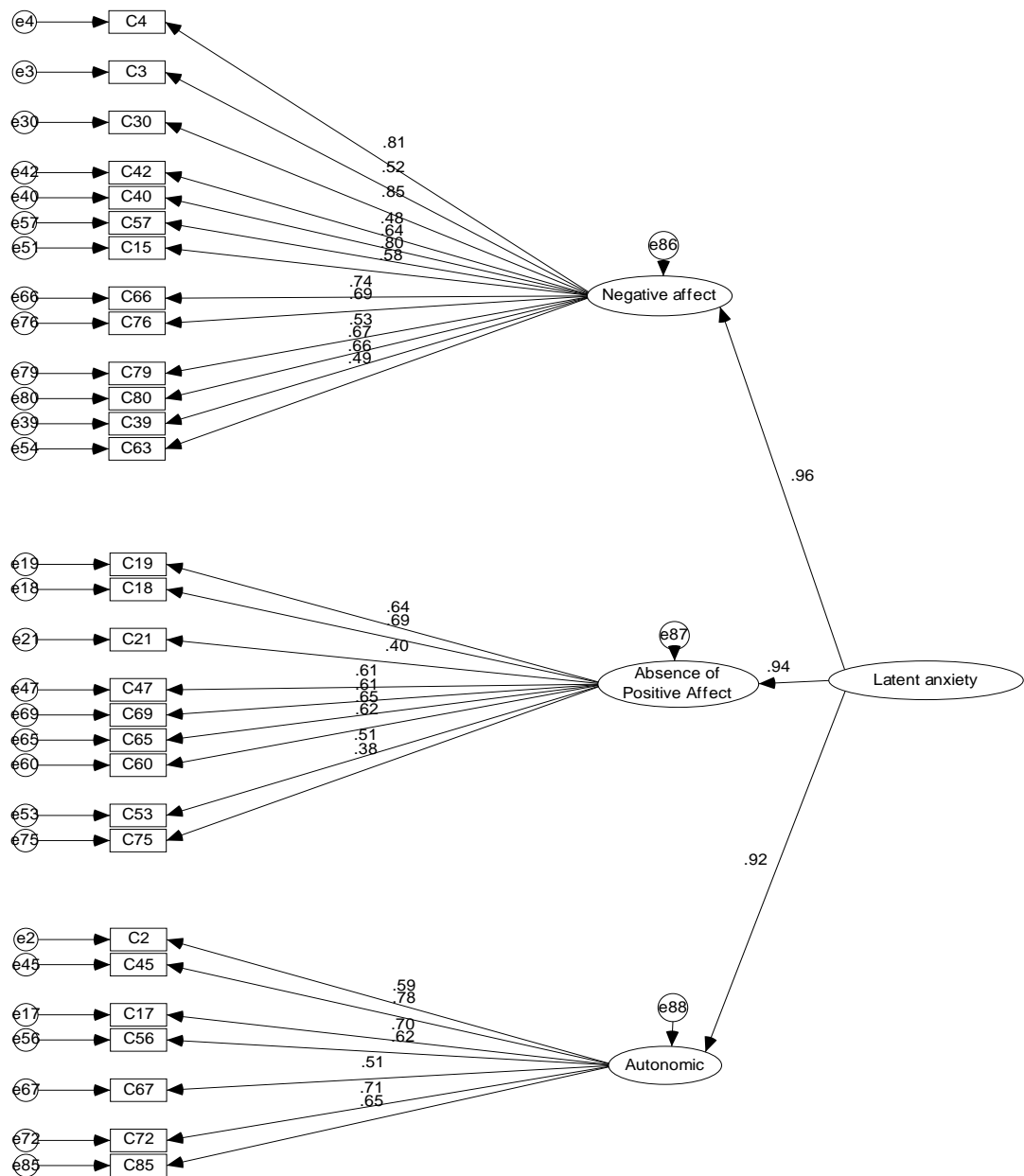
Figure 8. Observed relationships between items and hypothesised factors of the RASE, as proposed in model RASE2b.

Model RASE2b showed that each factor had strong relationships with the higher order factor of latent anxiety (see Figure 8), however the fit indexes were beneath acceptable levels (see Table 27).

Evaluation of Goodness of fit for Models RASE3a and RASE3b

Models RASE3a and RASE3b provided adequate fit to the data (see Table 27), although the TLI on both models was below the ideal specified threshold of .90. Item 42 "I feel irritable" could be argued to load onto negative affect so was

trialled with dual loadings on somatic and negative affect. However the strongest loading was observed onto somatic, and model fit decreased when item 42 was placed on negative affect therefore the item was retained in on the somatic factor. High correlations were observed between factors suggesting a high proportion of shared variance between factors (see Figure 9).
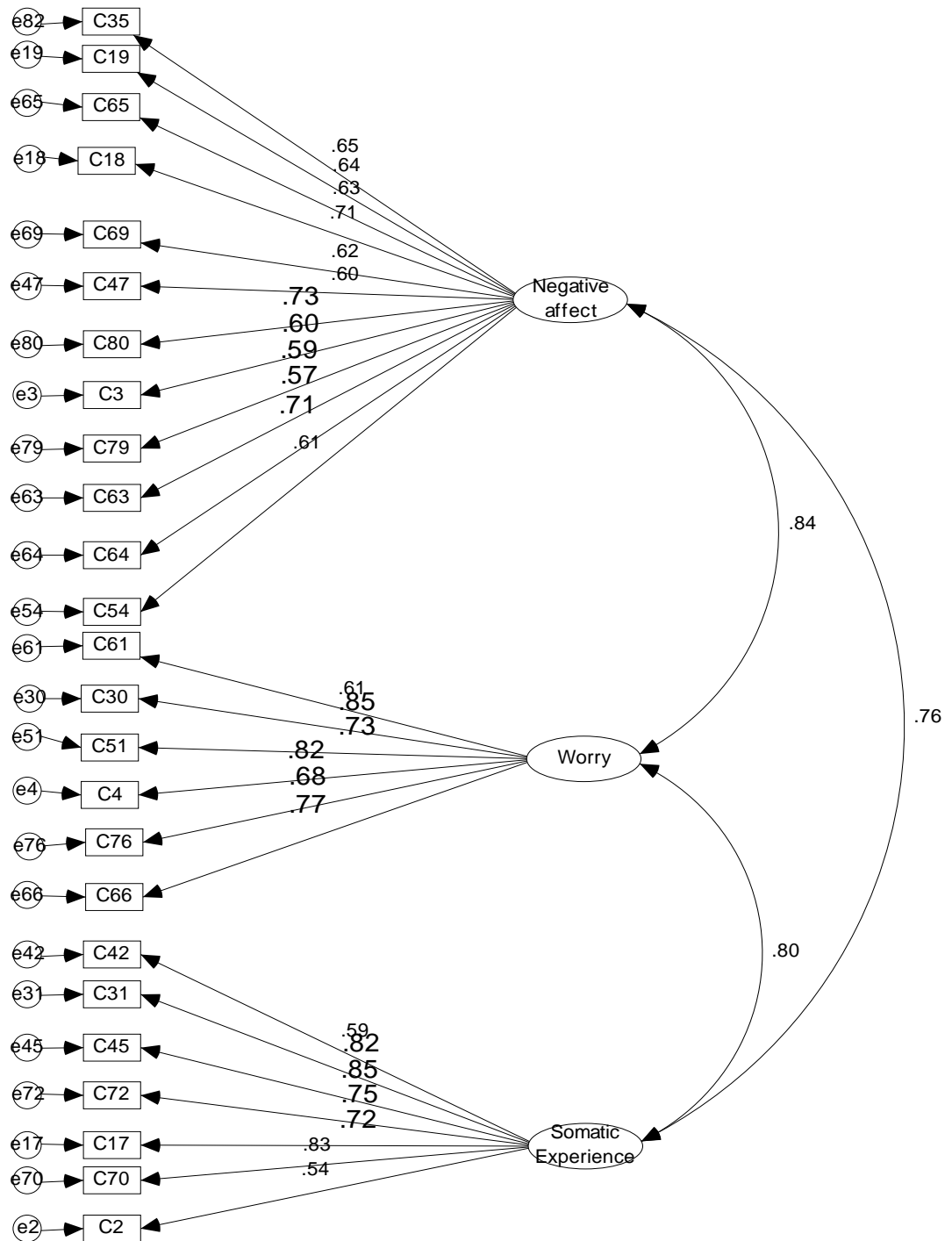
Figure 9. Observed relationships between observed and latent variables of RASE 3a.

The conversion of RASE3a to the higher order model RASE3b (see Figure 10) caused a small reduction in fit (see Table 27), however a higher order structure is more theoretically plausible so the higher order model was retained.
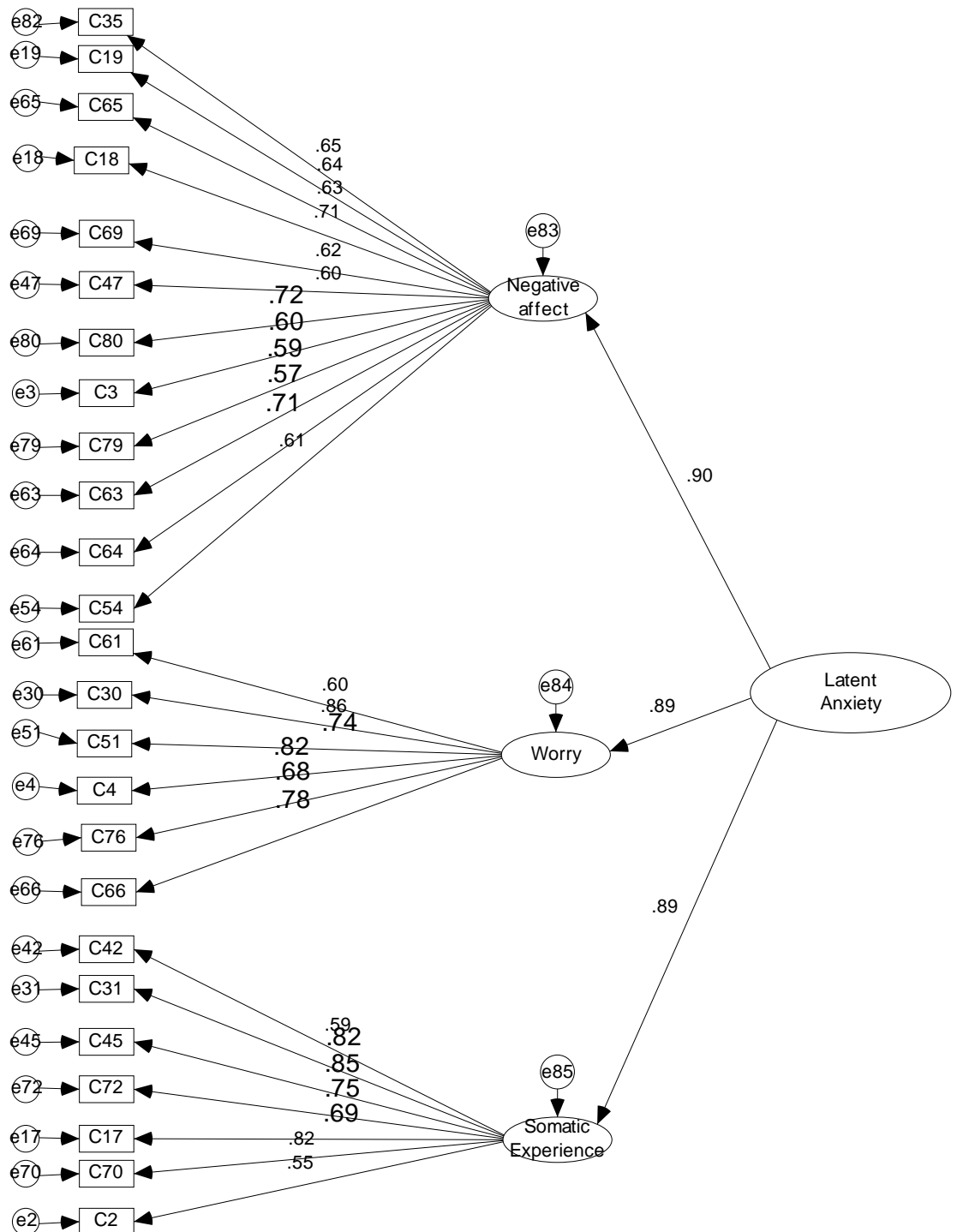
Figure 10. Observed relationships between items and hypothesised factors in model RASE3b.

Evaluation of Model Fit for RASE4a and RASE4b

Although model RASE4a demonstrated the best fit of the series when accounting for all fit statistics (see Table 27), it showed high correlations between factors (see Figure 11). This suggested that the negative affect and anhedonia factors were measuring the same construct, and should be combined (Brown, 2006). The combination of the two factors is the same as models RASE3a and RASE3b and therefore RASE3b is more appropriate in terms of parsimony and factor structure.
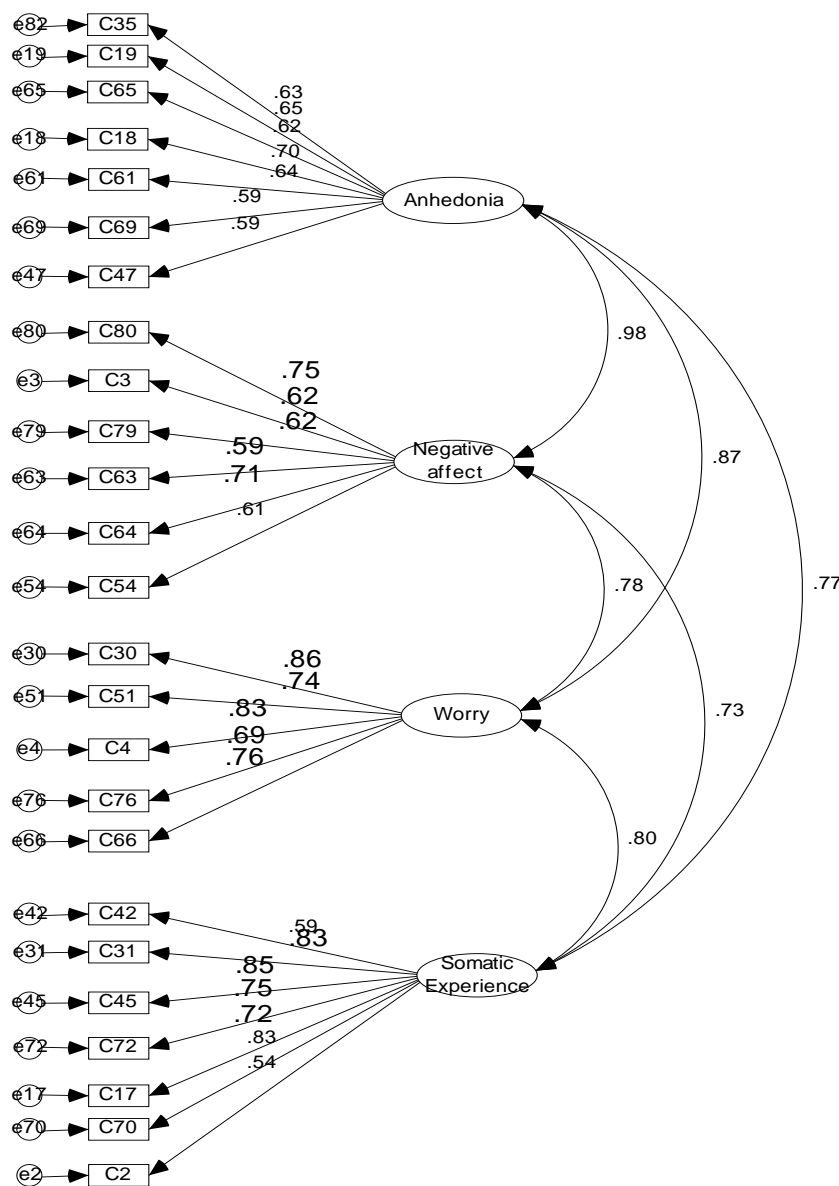
Figure 11. Relationship between items and factors for the RASE4a model.

The high correlations between factors on the first order model, and reduction of fit in the higher order model meant that RASE4b was not chosen as the final factor structure of the RASE.
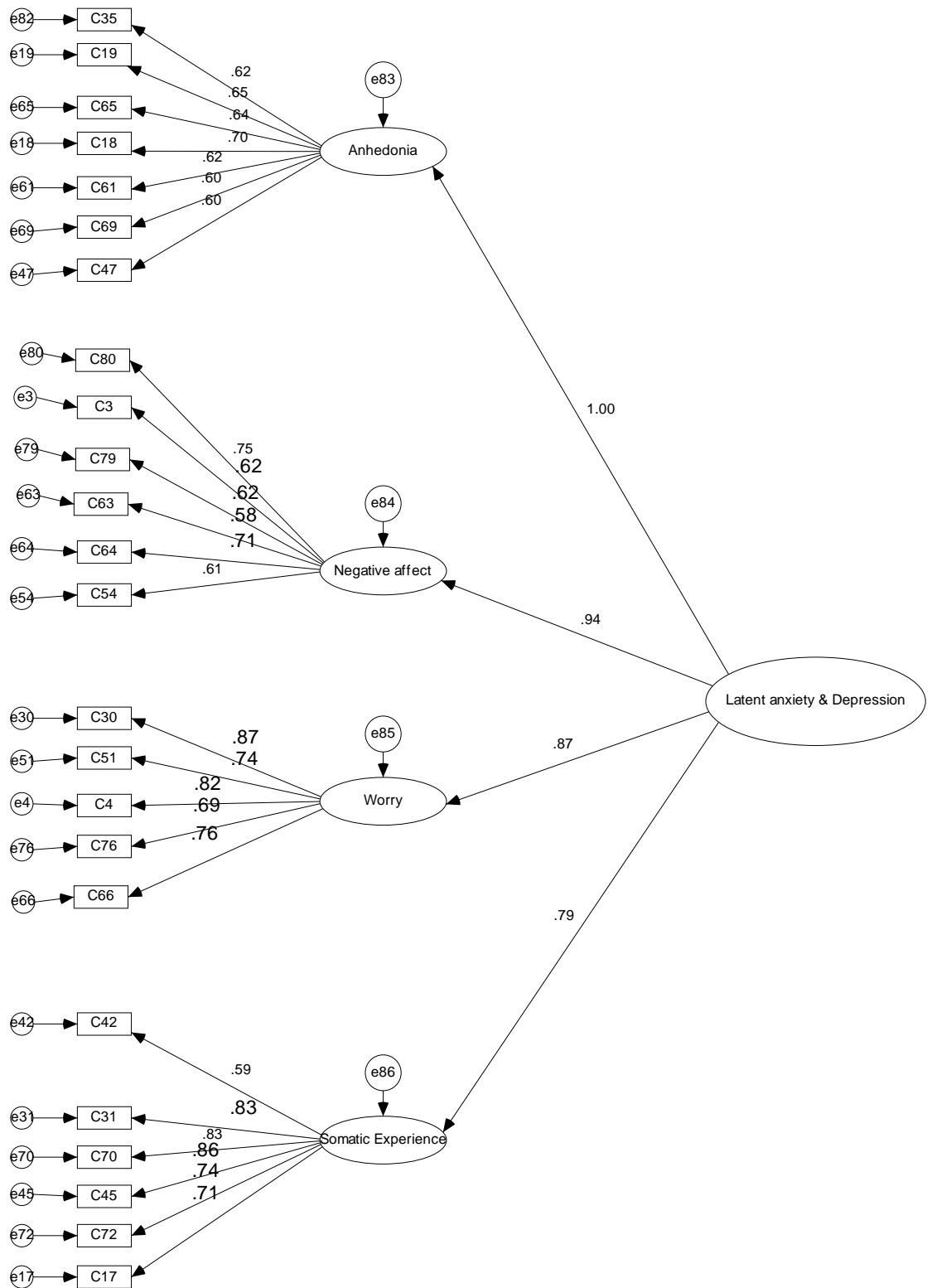
Figure 12. Relationships between items and hypothesised factors on RASE4b model.

Evaluate the Fit of Model RASE5

A univariate model (see Figure 13) was tested due to the high correlations between factors observed on the preceding models. The univariate model showed poor fit based on all goodness of fit statistics (see Table 27) and therefore was rejected.
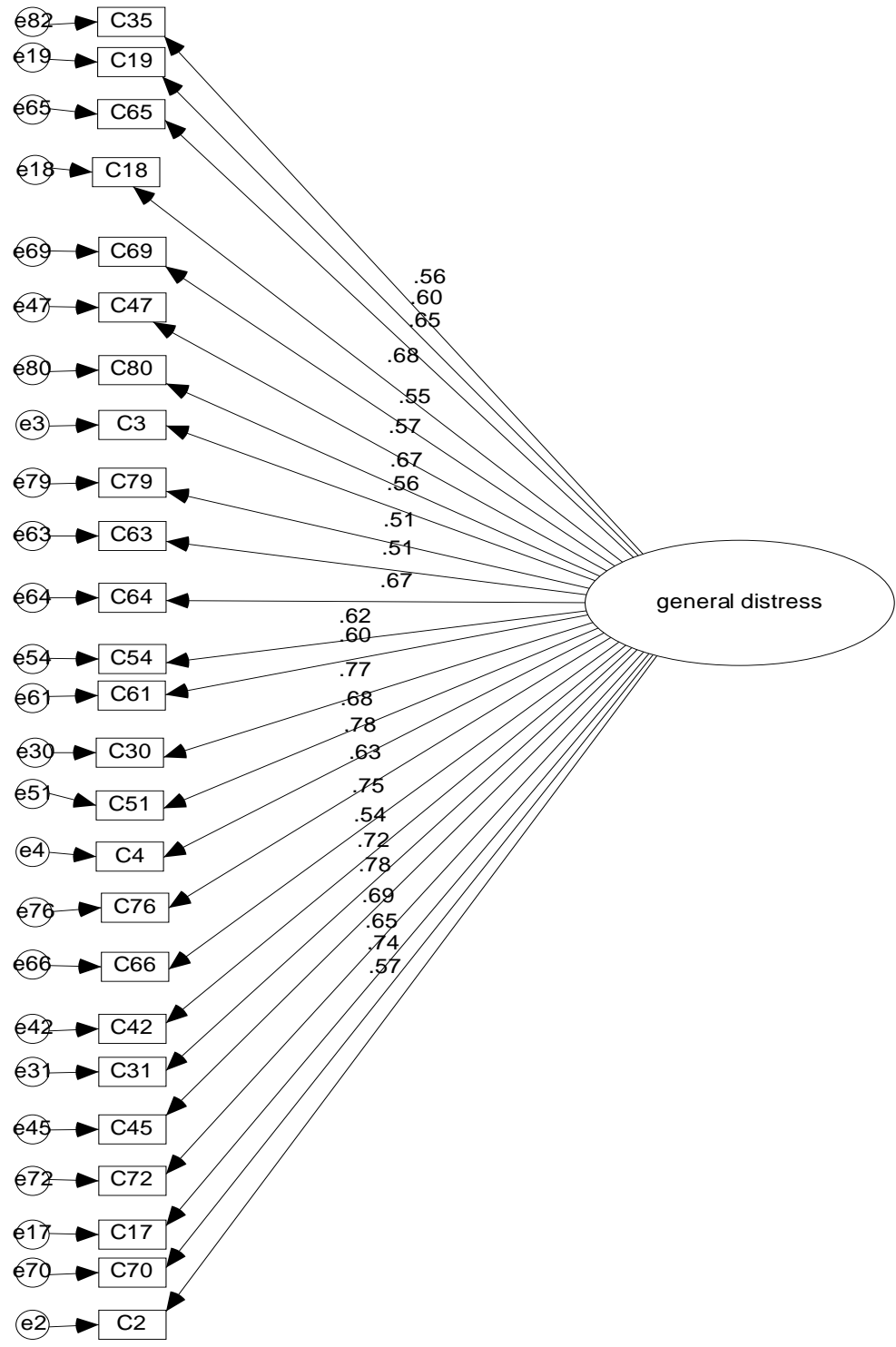
Figure 13. Relationships between items and hypothesised factors on RASE5 model.

Final Factor Structure for the RASE

The RASE3b model showed similar fit statistics to the four factor RASE4b model (see Table 27). However, it showed better differentiation between factors, and model parsimony improved. Therefore the three factor model was considered a better representation of the factor structure of the RASE. Although the first order model shows strong relationships between the latent constructs, they are considered to represent a higher order factor of anxiety. This higher order factor has been named latent anxiety for the purpose of the analysis. The final items which provide the content for the RASE are presented in Table 28.

Table 28

The Roberts Anxiety Scale for Elderly (RASE) Factor Structure and Loadings from Model RASE3b

Item Number	Item stem	Factor			*M*	SD
		Negative	Worry	Somatic		
3	My life feels out of my control	.60			1.42	.65
54	I get easily frustrated	.61			1.72	.62
63	I find it hard to concentrate	.57			1.66	.62
64	I feel vulnerable	.71			1.60	.69
79	I feel incompetent	.59			1.48	.62
80	I feel helpless	.75			1.30	.52
35	Going to activities I usually enjoy is less attractive	.65			1.61	.71
19	Feeling positive about the future is hard for me	.64			1.58	.70
65	Small things upset me	.63			1.66	.59
18	I feel overwhelmed	.71			1.60	.59
69	Other peoples company doesn't interest me as much as it used to	.62			1.54	.72
47	Even in the company of others I feel alone	.66			1.46	.68
61	Worry stops me from doing		.60		1.23	.49

	everyday activities				
4	I find it hard to stop thinking about my worries	.82		1.83	.75
30	I think I worry too much	.85		1.79	.83
51	I worry that the worst might happen	.74		1.63	.75
66	Worry interferes with my daily life	.78		1.31	.53
76	Too many worrying thoughts go through my mind when I try to sleep	.68		2.08	.77
2	I feel restless		.55	1.83	.60
17	I feel tense		.69	1.83	.64
31	I feel wound up		.82	1.70	.64
42	I feel irritable		.59	1.71	.54
45	I feel on edge		.85	1.61	.61
70	I feel uptight		.82	1.64	.62
72	I feel agitated		.75	1.61	.56

Evaluate the Internal consistency of the RASE

Items which provided the content for the RASE were submitted for reliability analysis. Cronbach's α was used to evaluate the internal consistency of subscales which yielded coefficients were between the range of .86 and .90 (see Table 29). Cronbach's α for the total scores on the RASE was .94. These statistics suggest good internal consistency, and is above the level of .75 which is considered acceptable for clinical scales (Cicchetti, 1994).

Table 29

Descriptive Statistics and Internal Consistency Coefficients for the RASE

Subscale	N	M	α
Somatic	179	11	.87
Worry	180	8	.86
Negative Affect	177	18	.89
Total	177	36	.94

Phase Four- Evaluation of the AMAS-E and HADS

Evaluation of the AMAS-E

Internal Consistency

The subscales of the AMAS-E showed variable reliability as measured by Cronbach's α coefficient (see Table 30), with the Physiological Anxiety and Fear of Aging subscales showing poor internal consistency. The Lie and Worry/oversensitivity subscales showed the best internal consistency. However the length of the Worry/oversensitivity scale could artificially inflate the internal consistency coefficient. Although the overall total of the AMAS-E appeared to have acceptable internal consistency, the inadequate internal consistency of two subscales suggests caution when interpreting results.

Table 30

Descriptive Statistics and Internal Consistency Coefficients for the AMAS-E

Subscale	N	M	α
Worry/Oversensitivity	174	18	.80
Physiological Anxiety	189	5	.67
Fear of Aging	188	5	.46
Lie	185	5	.78
Total Anxiety	169	27	.81

The item total correlations for the AMAS-E ranged from -.01 to .50. The lowest item-total scores were from the lie scale, and highest from the worry/oversensitivity scale. However, 20 of the 44 items considerably underperformed as had item-total correlations of < .30. Removal of these items may increase the performance of the AMAS-E models during CFA and enhance clinical utility.

Confirmatory Factor Analysis of AMAS-E

The AMAS1a and AMAS1b models showed poor fit, and the RMSEA suggested that the models produced would reflect the performance in the population (Table 31). The AMAS 1b model showed marginally better fit compared

to AMAS1a, and conceptually the three anxiety factors were considered to be represented by a higher order latent anxiety factor.

Table 31

Goodness of Fit Indices for Competing Structural Models of the AMAS-E

Model	Df	X^2	TLI	CFI	RMSEA (90%CI)
AMAS 1a	896	1352.3*	.777	.798	.050 (.045-.056)
AMAS 1b	898	1352.6*	.779	.799	.050 (.045-.056)
AMAS2	404	754.4*	.751	.784	.066 (.058-.073)
AMAS3	434	917.2*	.672	.713	.074 (.068-.081)

A revision of the AMAS-E was undertaken to determine whether the model fit could be improved by removing poorly performing items. The AMAS2 model repositioned items to subscales that seemed conceptually appropriate, for example those that related to physiological sensations on the worry/oversensitivity subscale were trialled on the physiological subscale. Furthermore, items with factor loadings <.30 were removed, along with the entire lie scale due to its poor conceptual relationship to anxiety. The AMAS3 model retained the original item placement from Lowe and Reynolds (2006) but removed items with factor loadings <.30 and the lie scale. Both revisions caused a reduction in model fit, therefore the AMAS1b model is preferred.

Relationships between Latent Variables

The AMAS1b model showed a strong relationship between the Worry/oversensitivity factor and Latent Anxiety, and moderate relationships between latent anxiety and the other two anxiety factors (Physiological and Fear of Aging). The strong relationship between the worry/oversensitivity factor and latent anxiety suggests most of the variance in scores can be attributed to this subscale. No significant relationship was observed between the lie factor and latent anxiety (see Figure 12).
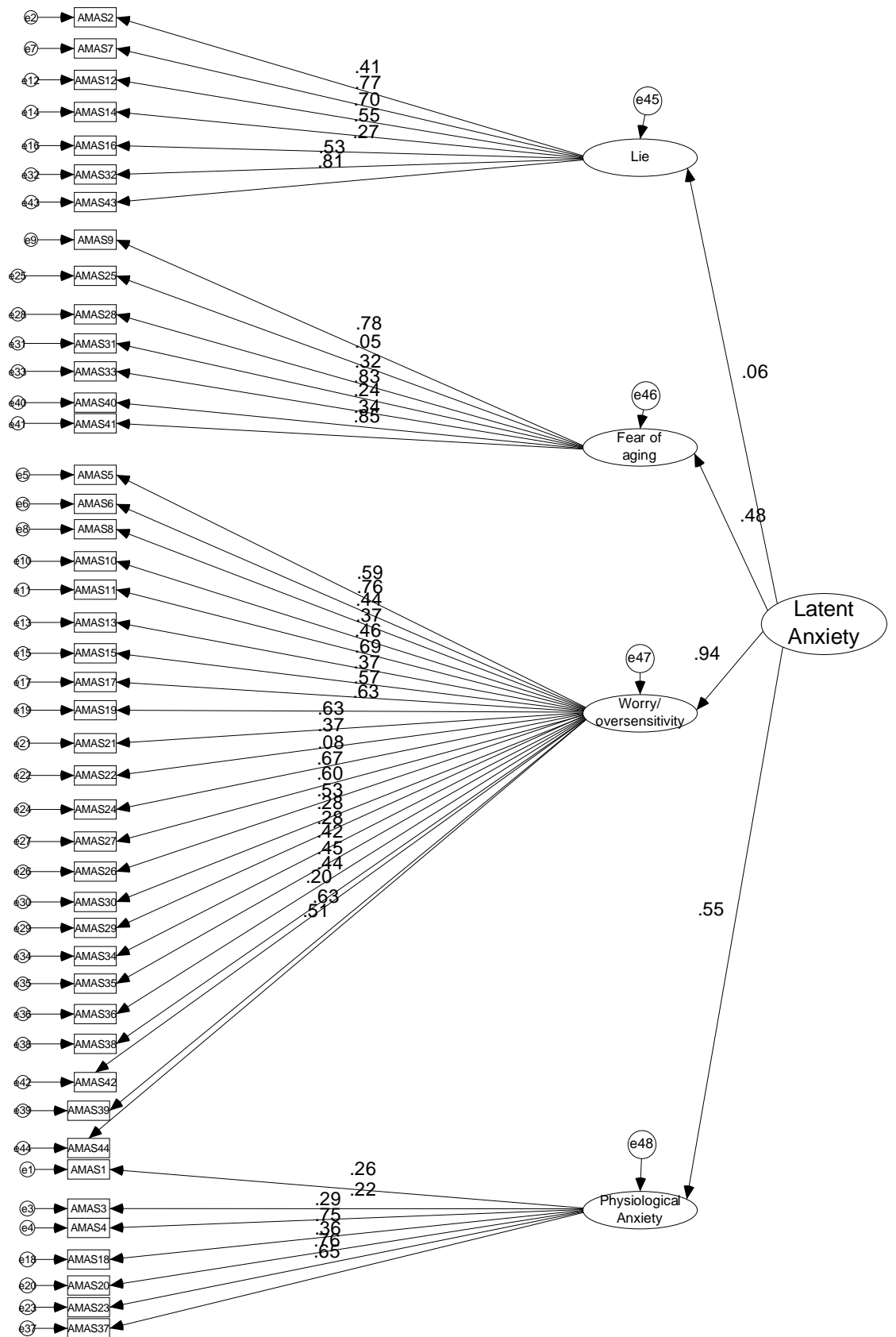
Figure 14. Standardised Estimates of Relationships between Factors on the AMAS1b with Latent Anxiety

Relationships between observed and latent variables

A high proportion of items (36%) on the AMAS-E showed weak (<.40) relationships with their corresponding latent variable (Table 32), and therefore could be removed[2]. Four of the seven items on the fear of aging subscale have weak relationships with their respective construct. The remaining three related to fears of dementia. A further group of items were slight variations on the same construct, e.g. tiredness.

Table 32

Standardised Estimates of AMAS1b Items onto Latent Variables and Estimates of Items Repositioned on AMAS2

	Factor			
Item Number	Worry /Oversensitivity	Physiological	Fear of Aging	Lie
44	.51			
42	.20			
39	.63			
38	.44			
36	.46			
35	.42			
34	.28	.16[AMAS2]		
30	.53			
29	.28	.13[AMAS2]		
27	.67			
26	.60			
24	.23	.22[AMAS2]		
22	.37	.31[AMAS2]		
21	.63	.43[AMAS2]		
19	.63			
17	.57			
15	.37			
13	.69			
11	.47			
10	.38			
8	.45			
6	.75			

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[2] Due to copyright restrictions individual item stems and subscales for the AMAS-E could not be included as a reference in this thesis (see Appendix I).

Item			
5	.59		
37		.65	
23		.76	
20		.36	
18		.75	
4		.29	
3		.22	
1		.26	
41			.85
40			.34
33			.24
31			.83
28			.32
25			.20
9			.78
43				.81
32				.53
16				.27
14				.55
12				.70
7				.77
2				.41

Four of the items that poorly performed on the worry/oversensitivity subscale (items 34, 29, 24, and 22) as specified by Lowe and Reynolds (2006) appeared to relate to physiological symptoms. Therefore were trialled on the physiological subscale on the AMAS2. Their corresponding factor loadings are presented on Table 32 alongside their factor loadings as per the Lowe and Reynolds model. The reallocation of these items showed weaker relationships with the physiological subscale, and the overall model showed poorer fit (see Table 31).

Evaluation of the HADS

Internal Consistency

The internal consistency of the HADS anxiety was slightly higher than for the depression, however both were in the acceptable range (Table 33). The item-total statistics for the HADS ranged from .33 to .65, with items 14 and 10 contributing the least to the total observed score.

Table 33

HADS Descriptive Statistics and Internal Consistency Coefficients

Subscale	N	*M*	*SD*	α
Anxiety	194	11.9	3.6	.84
Depression	194	9.9	2.5	.75

Confirmatory Factor Analysis

The HADS1 model based on the hypothesised two factor structure was a poor fit to the data (Table 34). A large correlation was observed between the anxiety and depression factors (.68). Removal of items 10 and 14 that had low item-total correlations (.36 and .33 respectively), and or kurtosis considerably reduced the model fit (TLI = .825, CFI = .881, RMSEA = .097).

Table 34

Goodness of Fit Indices for Competing Structural Models of the HADS

Model	Df	X2	TLI	CFI	RMSEA (90%CI)
HADS 1	76	188.4*	.828	.875	.086 (.070-.101)
HADS 2	72	142.7*	.886	.922	.070 (.053-.086)
HADS 3	74	148.4*	.883	.917	.071 (.054-.087)

The standardised estimates of HADS1 items show moderate to strong relationships with their respective latent variables (see Table 34). Item 14 showed a poor relationship with latent depression. A moderate correlation was observed between the anxiety and depression factors.
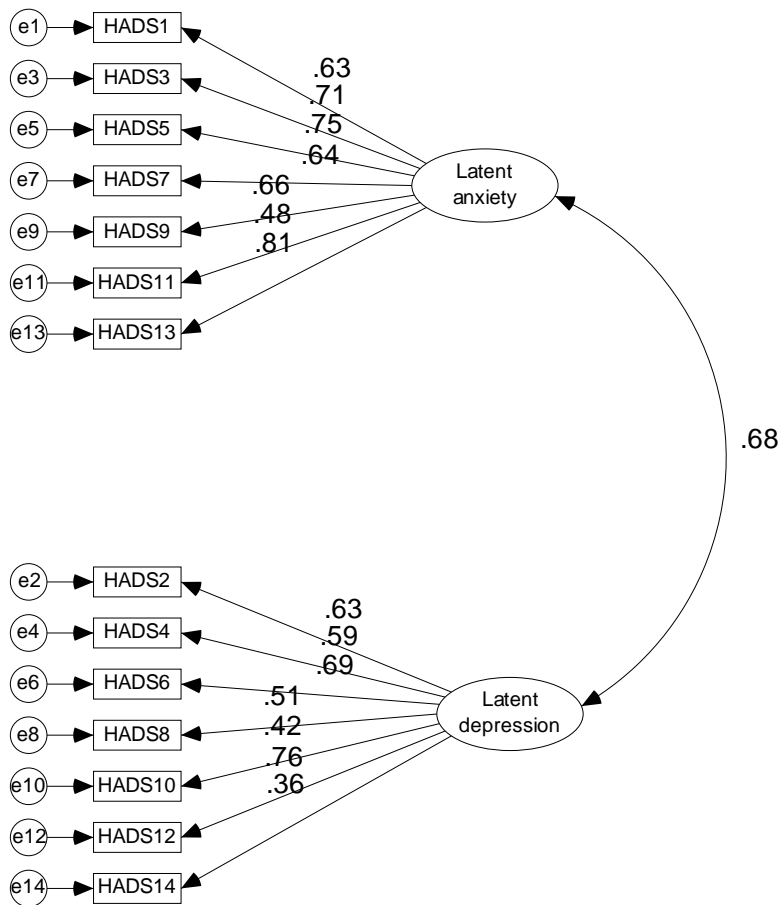
Figure 15. The factor structure and relationship between items and latent variables of the HADS1 model.

Table 35

Relationships between items and latent variables on the HADS1 model

Item Number	Item Stem	Depression	Anxiety
			Factor Loading
1	I feel tense or 'wound up'		.63
3	I get a sort of frightened feeling as if something awful is about to happen		.71
5	Worrying thoughts go through my mind		.75
7	I can sit at ease and feel relaxed		.64
9	I get a sort of frightened feeling like 'butterflies' in the stomach		.66
11	I feel restless as if I have to be on the move		.48
13	I get sudden feelings of panic		.81
2	I still enjoy the things I used to enjoy	.63	
4	I can laugh and see the funny side	.59	
6	I feel cheerful	.69	
8	I feel as if I am slowed down	.51	
10	I have lost interest in my appearance	.42	
12	I look forward with enjoyment to things	.76	
14	I can enjoy a good book or radio or television program	.36	

The HADS2 model with three correlated factors provided the best fit to the data, however the low loading of item 7 onto anhedonia (.29) and stronger loading

onto negative affect (.44) suggested a weak relationship with anhedonia. The shared error variance between items 11 and 14 was insignificant and considered spurious. Strong correlations were observed between negative affect and anhedonia, and negative affect and autonomic anxiety, suggesting a high proportion of shared variance (Brown, 2006). A moderate correlation was observed between autonomic anxiety and anhedonia.
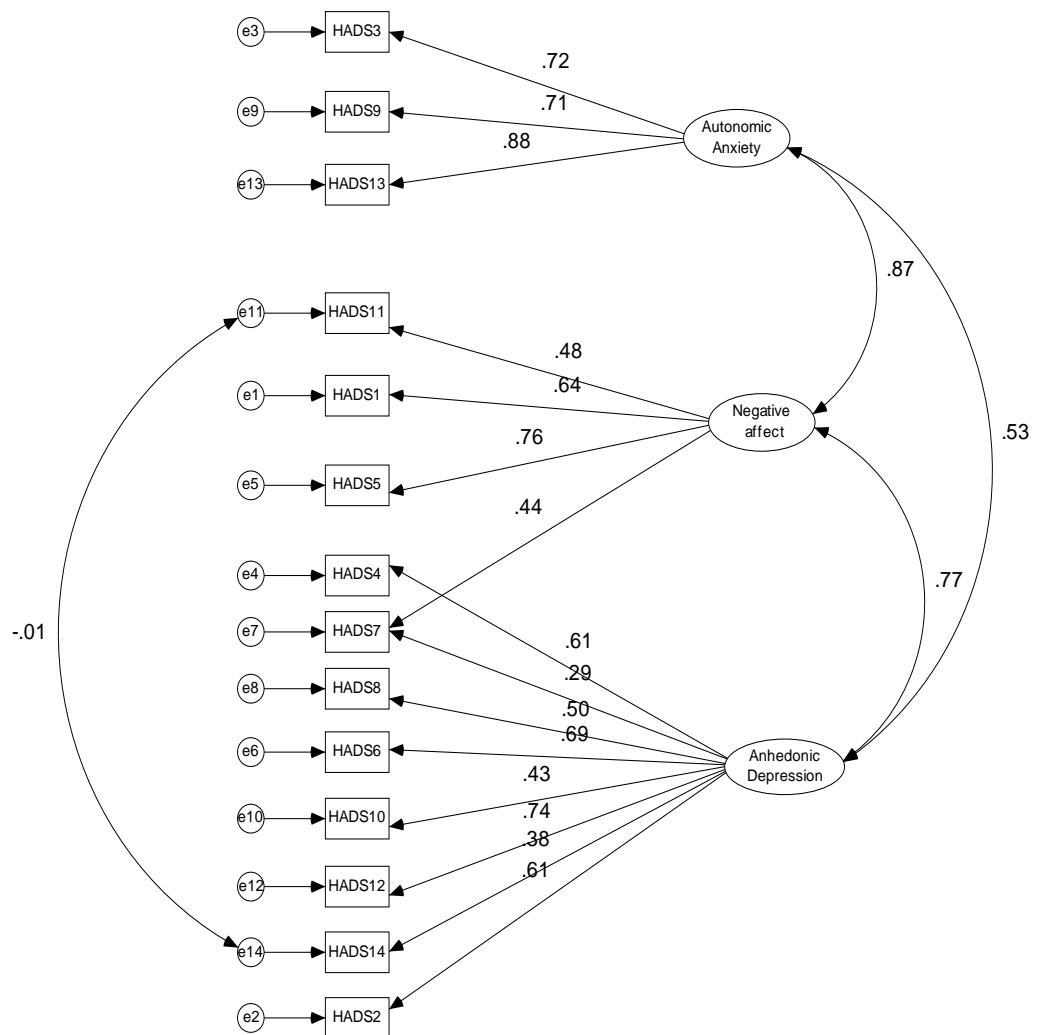
Figure 16. Relationship between observed and latent variables on the HADS2

The performance of item seven in HADS2 meant that it was specified in HADS3 to load only onto negative affect. This placement increased the estimate to .69 from .44 when the factor loading was shared with anhedonia. This change was at the expense of model fit. The HADS3 model provided the best fit to the data

when accounting for the appropriate placement of items. However the broad confidence interval of the RMSEA for all models suggests that the estimated discrepancy value is imprecise and therefore the model's fit to the population can not accurately be determined (MacCallum et al., 1996; as cited in Byrne, 2001). Furthermore, the high correlations between negative affect and the other two factors suggest a lack of differentiation between the constructs as measured by the HADS. Therefore, the two-factor model is favoured.
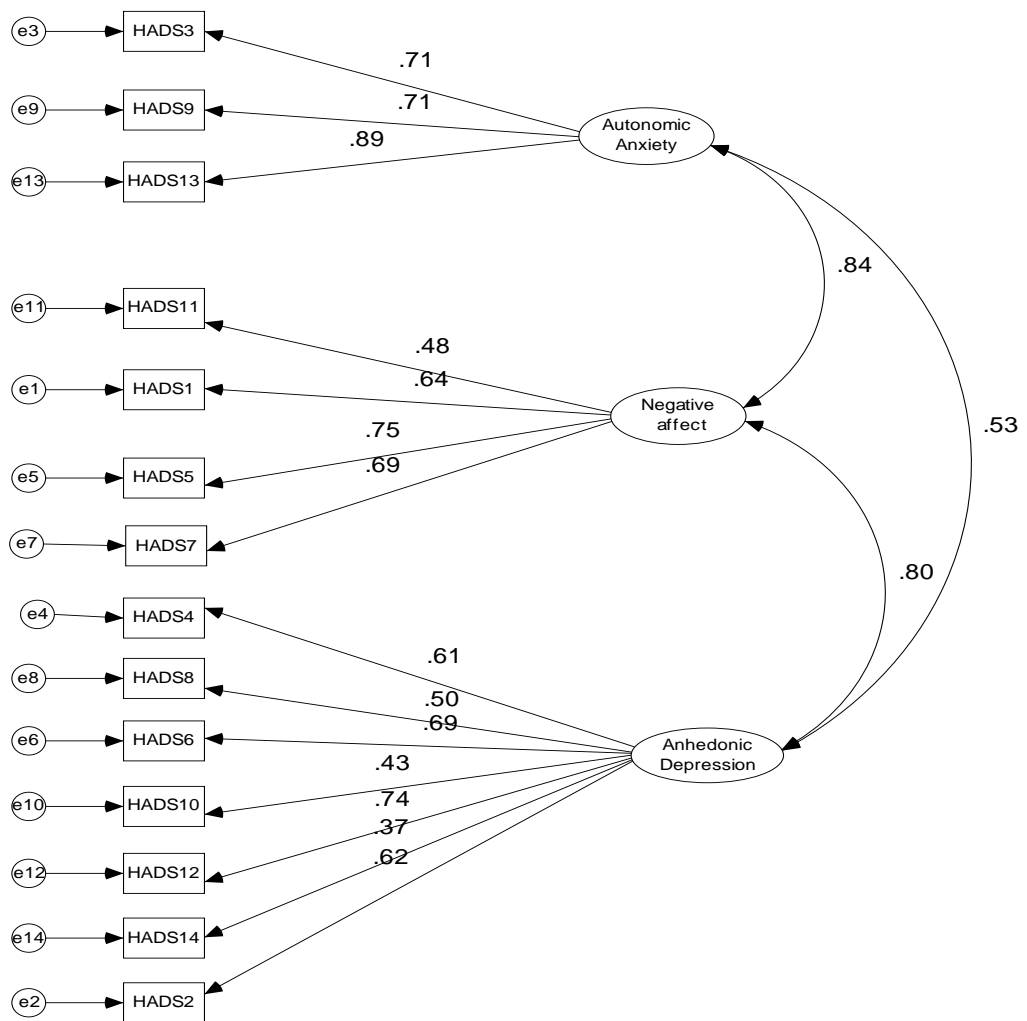
Figure 17. Relationships between items and factors as proposed in structural model HADS3

Phase Five- Convergent Validity

The AMAS-E anxiety subscales were measured to have a moderate to large positive correlation with both subscales of the HADS (see Table 36). Of the three subscales that contribute to AMAS-E total anxiety, the AMAS-E physiological subscale was observed to have the lowest correlations with the HADS anxiety subscale. The AMAS-E worry/oversensitivity scale showed the strongest relationship with the HADS anxiety subscale, and the subscales of the RASE. Furthermore, the relationship between AMAS-E physiological and HADS depression scale was stronger when compared to the relationship between the AMAS-E somatic and HADS anxiety. The AMAS-E lie subscale was not measured to have a significant relationship with any measure, the exception being a small negative correlation with the RASE somatic subscale.

The RASE subscales were observed to have a large significant correlation with the HADS anxiety subscale, and significant medium to large correlations with the HADS depression subscale. Significant medium to large positive correlations were observed between the AMAS-E anxiety subscales and the RASE subscales, and between the total scores on the RASE and AMAS-E. Overall the RASE showed good relationships with other measures of anxiety.

Table 36

Correlation Matrix Showing Convergent Validity for the RASE, HADS, and AMAS-E

	HADS		AMAS-E					RASE			
	Anx	Dep	Total	Worry/Over sensitivity	Phys.	Fear of Aging	Lie	Total	Somatic	Worry	Negative Affect
HADS											
Anxiety	1.00										
Depression	.50**	1.00									
AMAS											
Total	.62**	.45**	1.00								
Worry/ Oversens.	.71**	.45**	.90**	1.00							
Physiological	.35**	.44**	.69**	.49**	1.00						
Fear of aging	.42**	.31**	.72**	.47**	.40**	1.00					
lie	-.03	-.07	-.02	-.07	.00	.05	1.00				
RASE											
Total	.77**	.58**	.76**	.78**	.48**	.52**	-.11	1.00			
Somatic	.66**	. 43**	.64**	.68**	.40**	.38**	-.16*	.86**	1.00		
Worry	.71**	.44**	.72**	.75**	.38**	.56**	.02	.67**	.67**	1.00	
Negative affect	.65**	.63**	.67**	.67**	.49**	.49**	-.09	.93**	.71**	.69**	1.00

N.B: ** $p < .01$, * $p < .05$

12

Study Two Discussion

The overarching aim of the present study was to develop a measure of anxiety for older adults that takes into account the specific needs of their developmental stage. The study set out to achieve this in four stages: (1) develop a new psychological measure of anxiety in older adults based on the common cognitive, affective, behavioural, and physiological symptoms discovered in study one; (2) refine the content of the measure by evaluating the performance of the items, removing items that added construct irrelevant variance to the observed score, and reduce the overall length of the measure to be appropriate for clinical use; (3) evaluate the psychometric properties of the refined test using reliability analysis, CFA methods, and assessing its convergence with other measures of anxiety; (4) evaluate the psychometric properties of the HADS and AMAS-E, including reliability, confirmatory factor analysis, and convergent validity.

Roberts Anxiety Scale for Elderly

The study achieved its primary aim of developing a measure of anxiety specifically for older adults based on their reported experiences of anxiety. The prototype 85-item RASE was refined to produce a final 25-item measure with good internal consistency, and acceptable factor structure. The RASE is a unique measure of anxiety in older adults as it has been developed with content validity at the forefront through the use of older adults everyday experiences of anxiety. Furthermore, it incorporates the key tenets of the cognitive behavioural model of anxiety through the inclusion of cognitive, behavioural, emotional, and physiological elements.

Internal Consistency

The items which comprised the final RASE were found to have good internal consistency as measured by Cronbach's α. Furthermore, all of the subscales which contribute to the final RASE score had strong internal consistency. All of the final items of the RASE had high item-total correlations, and redundant items were removed. Items were assessed at the factor level to ensure they contributed to the total score on the RASE, and had a strong relationship with their respective factor.

Redundant items were removed and the items overall showed good relationships with the construct they were intended to measure.

Factor Structure

Five competing factor structures were trialled for the RASE, including (1) a four factor structure based on the five part model; (2) a three factor structure based on the tripartite model (negative affect, anhedonia, and somatic); (3) an alternative three factor structure (negative affect, worry, and somatic); (4) a combination of models two and three (negative affect, worry, somatic, anhedonia); and (5) a univariate model combining all items onto a single general distress factor. Each model was trialled as both a first and second order structure.

The four factor solution for the RASE of negative affect, worry, somatic, and anhedonia initially appeared to provide the best fit to the data. However, the high correlation between the negative affect and anhedonia factors suggested these were reflecting the same construct, and therefore were combined to one factor labelled negative affect. Therefore, the final structure for the RASE was comprised of negative affect, worry, and somatic represented by a higher order factor of latent anxiety.

Negative affect comprised items which reflected emotional components common to anxiety and depression as hypothesised by the tripartite model of anxiety (L. A. Clark et al., 1994). These include feelings of frustration, helplessness, loss of control, loss of concentration, vulnerability, feeling overwhelmed, lonely, hopelessness, and incompetence. Negative affect was also expanded to include behavioural elements of anhedonia such as withdrawal from social activities, and loss of interest in usual activities.

The worry factor in the RASE reflected the cognitive process of worry and is aligned with the understanding that GAD is characterised by difficult to control worry that interferes with daily functioning (American Psychiatric Association, 1994). The worry factor also included common features of the cognitive model of anxiety, such as worry that the worst might happen (D. A. Clark & Beck, 2010).

The somatic factor within the tripartite model is considered to be the hallmark of anxiety that differentiates it from depressive symptoms (L. A. Clark & Watson, 1991). Furthermore, somatic sensations are considered to be an important dimension of anxiety experiences within the cognitive model (A. T Beck

et al., 1985). Within the present study, the somatic symptoms of tension, feeling on edge, uptight, agitated, wound up, and irritable were found to contribute the most to overall somatic experiences of anxiety.

Although irritability could be argued as belonging on the negative affect factor, the movement of this item from somatic onto negative affect reduced model fit considerably.   Loading irritability onto negative affect and somatic simultaneously showed a greater affinity to somatic sensations, and the variance accounted by negative affect was negligible. This could suggest that older adults experience irritability as a physical sensation, and is consistent with Clark and Beck's (2010) placement of irritability as belonging to physical sensations within the cognitive model.

The three factors of the RASE were considered to be explained by a higher order structure named latent anxiety in this study.   However, a competing explanation could be that it was a general distress factor as the elements of anhedonia included in the negative affect factor are considered specific to depression. Alternatively, the inclusion of anhedonia could reflect the study one finding that some aspects of anxiety in older adults cause a loss of interest in usual activities.   This understanding is aligned with the overlap of depression and anxiety in the literature discussed in chapter three.

Although a higher order model of the RASE was chosen, the high correlations observed between all first order models trialled for all three measures in this study suggest a high proportion of shared variance between factors. However, a single factor model of the RASE was trialled and not supported. The strong relationship between factors suggests that there may not be clear differentiation between symptoms of worry, negative affect, and anhedonia. This is similar to previous confirmatory factor analytic studies that have found strong relationships between the constructs of negative affect, anxiety, and depression in older adults (Christensen et al., 1999; Gale et al., 2010; Meeks et al., 2003; Shapiro et al., 1999).

Support was not found for the hypothesised models that were based on the five part model (Greenberger & Padesky, 1995). This was an unexpected finding as the measure was created around the five part model, and it was anticipated that the factor structure would reflect this. There are several possible reasons for this

finding. Firstly, the behaviour factor was under represented. The heterogeneity of behaviours in the sample meant that a specific group of anxious behaviours were not found in study one, and those which were trialled on the RASE did not adequately contribute to the measurement of anxiety in this group of older adults.

Another reason for the poor fit of the five part model, is that it is a clinical tool rather than a theory on the factor structure of anxiety. The five part model has high clinical utility, but the strong relationships between some of the elements such as thought and feelings, may have caused less clarity in the factor structure. Certainly within the first study, a lot of the participant's emotion responses had to be manually reclassified as thoughts.

Despite the factor structure not fitting the components of the five part model, the measure can be used in conjunction with the five part model in clinical practice. For example, the client's responses on the RASE can be placed within the five part model diagram in clinical use in reference to a particular situation. Furthermore, the measure can be used as a way of evaluating worry severity in clinical practice, and be used alongside the five part model to illustrate how severity escalates based on the relationship between thoughts, feelings, behaviour, and physical sensations.

Support was not found in this sample for Clark and Watsons (1991) tripartite structure of the RASE. There are several factors which may have contributed to this finding. Firstly, previous research has generally used the same specific measures of positive and negative affect which were constructed to test the tripartite model. This may be an issue of confirmatory bias, where participants only have a limited range of items to endorse, leaving other factors unknown. Second, the present study had a limited number of items that clearly reflected a loss of interest and pleasure. Items that were trialled as anhedonia such as feeling hopelessness and easily upset, were more suited to the negative affect component. Therefore the issue may have been construct underrepresentation for anhedonia.

Relationship with Study One

The cognitive model of anxiety (D. A. Clark & Beck, 2010) highlights the interaction between thoughts, feelings, behaviours, and physical sensations within the context of a situation as producing and escalating anxiety. The present study trialled a number of items that were based on the common experiences of anxiety

from study one, to evaluate which contributed the most information on worry severity.

Somatic Symptoms

The most frequently reported somatic symptoms from study one (frequency of headaches, stomach upsets, and tiredness) had low item total correlations in the present study and were removed. Similarly, although loss of appetite was reported by a number of participants in study one, it was not significantly related to total scores on the RASE and therefore was removed. Tension was commonly reported in study one and was found to be a meaningful item and therefore retained on the final RASE. Unexpectedly, although restlessness and agitation were uncommon symptoms reported in study one, these were well performing items on study two and were retained in the final version.

Overall, few somatic items contributed adequately to total scores on the RASE. This may have been a reflection of the overall low level of anxiety severity in this group. Potentially, somatic symptoms may be more noticeable in higher levels of anxiety than in lower levels of anxiety. Secondly, older adults may be less aware of somatic sensations than younger adults, or attribute them to the aging process. (Levy et al., 2003). The low levels of somatic symptoms in this group is in contrast to statements by previous authors suggesting that older adults experience anxiety somatically (Blazer, 1997). Instead, within this sample older adults had a predominantly cognitive experience of anxiety. This finding is similar to that of Cotton (2007) who found that older adults expressed few somatic and predominantly cognitive symptoms of anxiety.

Cognitive symptoms

Thought process: Although confusion was endorsed by a number of participants in the first study, it showed a low item-total correlation in this study. Interestingly, the items which were designed to assess avoidance such as "I try to think positively when I have concerns on my mind" had a very low relationship with the total score on the measure. Potentially these items reflect coping skills rather than avoidance in this group. Cotton (2007) found that a positive outlook was associated with a reduction in anxiety. Although reassurance seeking behaviour was thought to relate to anxiety, these items showed weak relationships to the overall scores.

Items pertaining to excessive and uncontrollable worry performed well in the RASE and were retained in the final measure. This included difficulties controlling worry when trying to sleep or go about daily activities, and generally an inability to stop thinking worrying thoughts. This is consistent with the notion that GAD is characterised by excessive and uncontrollable worry (American Psychiatric Association, 1994).

Thought content: Consistent with research in younger adults (American Psychiatric Association, 1994), and older adults (G. J. Diefenbach et al., 2003; G. J. Diefenbach et al., 2001), this study found that *how* older adults worry is more important that *what* they worry about. Items pertaining to specific worry topics did not significantly contribute to overall worry severity and therefore were not retained on the final measure. Overall, anxious thought content related to views of self as a "worrier", vulnerable, thinking that they are unable to cope with anxiety, or unable to have control over their life circumstances. It was also associated with pessimistic thoughts about the future, and concerns that the worst might happen. These findings are consistent with the cognitive model of anxiety (A. T Beck et al., 1985; D. A. Clark & Beck, 2010; Salkovskis, 1996).

Behavioural Symptoms

A small number of behavioural items were retained in the final measure, which was most likely due to the heterogeneity of anxiety related behaviours found in study one. The best performing items related to general themes such as withdrawal from enjoyable activities, and avoidance of the company of others. These were consistent with the anhedonia component of the tripartite model (L. A. Clark & Watson, 1991). The other well performing behavioural symptoms were indirect measures of behaviour, pertaining to interference in daily life. These items relate to functional impairment caused by anxiety, and are essential components to assess when evaluating level of distress (American Psychiatric Association, 1994).

Emotional Symptoms

The emotions of sadness, irritability, and vulnerability commonly reported in the first study were well performing items and retained in the final measure. Although anger was reported frequently in the first study, items relating to temper did not perform well and were removed. Experiences of frustration, hopelessness,

and incompetence were rarely reported in study one but are linked to anxiety under the tripartite model (L. A. Clark et al., 1994) and have been found in previous research (Mohlman et al., 2004). Therefore items relating to these emotions were trialled in the final measure, and were retained since they made significant contributions to the overall scores on the RASE.

Convergent Validity

Initial evidence of convergent validity was found for the RASE, with both the total scores and factor scores showing a strong relationship with the HADS anxiety subscale. The RASE total scores and factor scores showed slightly lower but still significant relationships with HADS depression scores. The overlap between measures of depression and anxiety is well documented, and reflects the growing understanding that the two disorders are related (L. A. Clark et al., 1994). The poor factor structure of the AMAS-E found in the present study meant that it was not considered adequate as a measure of convergent validity. However, the moderate to strong relationships between the anxiety subscales of the AMAS-E and the RASE suggest they are measuring a similar construct.

The high correlation between the RASE negative affect factor, and the RASE somatic factor with the RASE total score suggest a high proportion of shared variance between them. This provides further evidence that the use of individual subscale scores for the RASE is not recommended, instead total scores should be used for the RASE. Overall, the moderate to strong correlations observed between the RASE and anxiety subscales of other measures suggest they are accessing similar psychological constructs.

Relationship to Psychological Theory

Relationship with cognitive theory

The cognitive model of anxiety suggests that anxiety results from an underestimation of the ability to cope in the presence of an overestimation of threat (A. T Beck et al., 1985; D. A. Clark & Beck, 2010; Salkovskis, 1996). The underestimation of an individual's ability to cope was evident in the strong relationship seen between total anxiety and items relating to feelings of vulnerability, inadequacy, and helplessness. Second, an overestimation of threat was evident in the strong relationship between total anxiety and items relating to

the uncontrollability of the future, pessimistic beliefs about the future, and worry that the worst may happen.

Within the cognitive theory of anxiety, views of the self as vulnerable, world as dangerous and unpredictable, and others as dangerous are considered to contribute to anxiety (A. T Beck et al., 1985; D. A. Clark & Beck, 2010). Consistent with the cognitive model of anxiety, this study found that items relating to subjective feelings of being unable to cope, a worrier, vulnerable, and having little control over their environment were strongly related to worry severity. Beliefs pertaining to the world and others were less visible however themes of the world being uncontrollable were evident. Cotton (2007) also found that older adults who believed they had inadequate coping skills and a negative outlook were more associated with worry than those who had high beliefs about coping and a positive future outlook.

Relationship with generalised anxiety disorder

The intention of this research was not to develop a specific measure of DSM-IV GAD for older adults, primarily due to the changing nature of GAD within the literature. However the RASE reflects many of the symptoms characteristic of GAD. The current clinical understanding of GAD originated from the concept of "free floating" anxiety which in earlier versions of the DSM did not belong to a specific category (American Psychiatric Association, 1994). Furthermore, the DSM-IV criteria for GAD has been criticised for excluding a number of older adults with clinically significant symptoms (Palmer et al., 1997). Despite these issues, it is of theoretical interest that some symptoms found in this study overlap with those of GAD.

Part of the diagnosis of GAD requires three or more of the following symptoms for most days over a period of six months: (1) Feeling wound-up, tense, or restless; (2) easily becoming fatigued or worn-out; (3) concentration problems, (4) irritability; (5) tension in muscles; (6) sleep disturbances (American Psychiatric Association, 1994). All of these symptoms are covered in the RASE in some form, however muscle tension is not directly assessed due to potential overlap from medical conditions. Instead, the RASE asks about subjective feelings of tension or feeling uptight.

The RASE also has a number of items pertaining to intensity and controllability of worry, which partially corresponds with the GAD criteria of at least 6 months of "excessive anxiety and worry" about a variety of events and situations (American Psychiatric Association, 1994). However, as items pertaining to specific worry topics did not correspond with worry severity in this study, they were not included in the final version of the RASE.

An important part of assessing anxiety is determining whether it is clinically significant and interferes with the client's everyday functioning (American Psychiatric Association, 1994). Therefore the clinical utility of the RASE is enhanced as it includes indicators of the level of distress and impairment the client may be experiencing due to their anxiety symptoms. For example, the RASE includes items on withdrawal from social activities, and interference with daily life.

Psychological measures cannot be used as standalone diagnostic tools for psychological disorders, however can be used to assist in clinical decision making and the differentiation between similar disorders (Groth-Marnet, 2003). The RASE cannot be used to aid in the diagnosis of GAD in its present stage for a number of reasons. Firstly, it was not developed as a measure for GAD, rather its intention was to provide a clinically useful indicator of worry severity, worry symptoms, impairment and distress. Second, it does not contain the required indicators of time frame of symptoms required for a diagnosis of GAD. Third, the measure was developed in a non-clinical sample, and comparisons have not been made with a clinical group yet. Finally, there are no clinical cut-offs, and no information on sensitivity and specificity for GAD. However, these issues may be addressed in future research with the RASE.

Anxiety and Depression Overlap and Relationship to the Tripartite Model

Support was not found for Clark and Watsons (1991, 1994) tripartite model of anxiety and depression in this study, although elements of the model were supported. The tripartite model views anxiety and depression having a shared negative affect factor, and specific anxiety and depression components of somatic sensations and anhedonia respectively. Support was found for a common negative affect factor, and for specific somatic symptoms. However a specific anhedonia factor was not found, and an additional cognitive component of worry was also supported. Clark et al., (1994) found a modest relationship between anhedonia

items and the negative affect factor in a sample of younger adults. Potentially anhedonia more strongly relates to negative affect in older adults when compared to younger adults. Alternatively, this result may be due to the low representation of the anhedonia factor by the items in the measures used.

Contribution of the Research to the Anxiety in Older Adults' Literature

The present research has highlighted the relevance of the cognitive model of anxiety (Clark & Beck, 2010) to older adults. However, some aspects of the cognitive model are of greater importance to older adults than others. For example, some of the strongest items were related to cognitive components of anxiety such as worry. In contrast, few somatic items overall were important to this older adult group. This differs from anecdotal reports of older adults experiencing anxiety somatically (Blazer, 1997).

Second, evidence was found for an overlap between experiences of anxiety and depression in this group in the first and second studies with older adults. Study two found that items traditionally viewed as relating to depression contributed to their total score on measures of anxiety, and that the two factors were closely related. This supports the notion of emotional complexity in older adults that has been reported elsewhere (Ong & Bergeman, 2004). It also supports the overlap of anxiety and depression in this population that has been found in past studies (J. G. Beck et al., 2003; J. G. Beck, Stanley et al., 1996; Meeks et al., 2003; Shapiro et al., 1999). The present research supports the notion that anxiety and depression share a common and closely related negative affect factor in older adults.

The RASE is a unique measure of anxiety in older adults as it is the first to directly address the issue of inadequate content validity in existing anxiety measures for older adults. The RASE items were developed from the results of an initial study determining what core content would reflect the experience of anxiety in older adults. Past measures of anxiety in older adults have missed this vital step, and generated items based the experiences of anxiety in younger adults. As such, a strength of the RASE compared to existing measures of anxiety in older adults is that it has evidence of content validity for older adults.

Existing measures of anxiety used with older adults have been criticised for the overlap with medical symptoms, in particular cardiovascular symptoms

(Wolitzky-Taylor et al., 2010). One of the main benefits of the RASE is that it is not overly represented by items relating to medical symptoms. Although a small component of items on the RASE are somatic in nature, symptoms relating to panic which cross over with cardiac and respiratory symptoms are not included. This means that it is appropriate for use with older adults with medical comorbidities.

The inclusion of items relating to functional impairment on the RASE is a unique feature of this measure, which improves its clinical utility. This feature fills a gap in existing measures of anxiety used in older adults that have been criticised for not including information on functional impairment (Wetherell & Gatz, 2005). The RASE measures functional impairment through evaluating the degree to which worry interferes with the older adult's daily life, their loss of interest in social activities, and whether or not worry stops them from doing every day activities. These are essential areas to assess as it gives the clinician information on the severity of anxiety, and the wellbeing of the older person. For example, a clinician would be concerned if the older person was restricting their daily activities due to worry as this would negatively impact their quality of life. By monitoring changes in functional impairment, the clinician can gather information on treatment progress.

The use of everyday experiences of anxiety to form the foundation for the RASE takes the theoretical view of anxiety belonging on a continuum of severity. Therefore, the experiences of anxiety in healthy older adults should be similar in nature to those who have difficulties with anxiety, however with different levels of functional impairment. This assumption has not yet been tested with the RASE, and therefore future research with the RASE should evaluate its performance in clinical samples.

The Hospital Anxiety and Depression Scale

Internal Consistency

The HADS showed good internal consistency for both subscales, which adds further support for the high internal consistency of the HADS found in other older adult samples (Bryant et al., 2009; Spinhoven et al., 1997; Wetherell et al., 2007). The majority of items showed good factor loadings onto their respective constructs and good item-total correlations. The exceptions were items 14: "I can enjoy a good book or radio or television programme" and 10: "I have lost interest in my

appearance". It is possible that the non-clinical nature of the present sample meant that the severity of anhedonia symptoms were not severe enough to show a higher loading.

Factor Structure

Although the fit statistics for the original two factor structure of the HADS were beneath the lower bound of what would be considered good fit, competing factor structures were not supported. The tripartite model, the model could not be accepted based on the lack of differentiation between factors and the poor RMSEA statistic. The support found for the two factor model over the tripartite model in this study is similar to previous research with older adults (Desmond & MacLachlan, 2005; Dunbar et al., 2000; Gale et al., 2010).

The high correlations observed between the anhedonia and negative affect factor, and autonomic anxiety and negative affect factor suggested that these were measuring the same psychological construct. These correlations were of similar magnitude to those observed in previous studies testing a tripartite structure (Desmond & MacLachlan, 2005; Dunbar et al., 2000; Gale et al., 2010). As a result of these high observed correlations, Gale et al., (2010) questioned whether the three factors are clinically meaningful constructs within the HADS, especially since there are few indicators two of the three factors. Certainly the high correlations between factors in the present study add weight to that argument. In light of this, the present finding may not suggest that the tripartite model will not be supported in research using other measures of anxiety and depression.

Convergent Validity of the HADS

The HADS showed good convergent validity with the AMAS-E and the RASE however a moderate overlap between the anxiety and depression subscales were observed. This is consistent with the current understanding of an overlap between anxiety and depression (L. A. Clark et al., 1994), and has been found consistently in past research with the HADS (Bjelland et al., 2002; Gale et al., 2010).

Summary of HADS findings

The HADS showed good internal consistency in this older adult sample. Although the tripartite model showed better fit when compared to the two factor structure, the high correlations between factors and low number of items per factor meant the two factor model was favoured. The HADS showed good

convergence with other measures of anxiety, but was not able to effectively discriminate depression. The efficacy of the HADS could be improved through the removal of poor performing items. Overall, the use of the HADS can be supported in older adults.

The Adult Manifest Anxiety Scale - Elderly

Internal Consistency

Although the internal consistency of the entire AMAS-E as measured by Cronbach's α was acceptable, there was variability at subscale level with the fear of aging and physiological anxiety scales showing poor internal consistency. The homogeneity of some items and test length may have overinflated the Cronbach's α on the AMAS-E. In light of these issues, the reliability of the AMAS-E in older adult populations is considered questionable and items could be measuring extraneous factors.

Factor Structure

The factor structure reported by Lowe and Reynolds (2000, 2006) was not supported in this sample, and was estimated to be an accurate representation of how this model would fit in the population. The estimates of relationships between the subscales on the AMAS-E and the higher order factor of latent anxiety were variable. The Worry/Oversensitivity subscale accounted for the most variance in scores, and had a very strong relationship with the total anxiety score. It was also the longest subscale on the AMAS-E which may have overinflated the relationship with total anxiety compared to the other subtests. The physiological anxiety and fear of aging subscales had moderate relationships with the total anxiety scores. This suggests that the majority of variability of observed scores on the AMAS-E comes from scores on the worry/oversensitivity subscale. The lie scale did not have a significant relationship with observed scores on the AMAS-E.

Subscale and Item Content

Approximately half of the items on the AMAS-E showed weak relationships with their respective factors, or were problematic for other reasons. For example: (a) repetition of content, e.g. three of the seven items on the physiological scale pertained to tiredness; (b) inappropriate wording for a dichotomous response format; (c) poor relationship with the respective construct; (d) inclusion of worry topics; (e) inclusion of topics relating to work. A second group were

inappropriately placed, e.g. physiological sensations (e.g. tension, restlessness, nervous energy, and keyed up) on the worry/oversensitivity subscale rather than on the physiological scale. Finally, the inclusion of a lie scale did not appear appropriate due to the wording on the instructions asking people to respond yes if items were true most of the time. The items on the lie scale predominantly appeared to have content that reflected values expected in most adults, e.g. having good social skills, generally being honest, and showing emotional regulation. A number of older adults included comments to the researcher about their problems constraining answers into a dichotomous format. A number of participants left items on the lie scale blank, particularly those that were negatively worded.

Revision of the AMAS-E

Due to the high proportion of problematic items on the AMAS-E, a revision was undertaken to appropriately reallocate items and remove those which underperformed in initial factor analysis. The revision of the AMAS-E left 17 items, which were considered to under-represent the construct of anxiety. Furthermore, the model showed poorer fit when compared to the original model proposed by the authors. However, the revised model is likely to be more appropriate as the inclusion of under-performing items on a clinical measure of anxiety should not be supported. Further revisions were beyond the scope of the present study.

Convergent Validity

The original AMAS-E was used for undertaking convergent validity analysis alongside the RASE and HADS. The AMAS-E total score showed moderate convergence with both the HADS anxiety and depression scales. AMAS-E worry/oversensitivity subscale showed a stronger relationship to the HADS anxiety subscale compared to the AMAS-E total score. The physiological anxiety and fear of aging subscales showed the weakest relationships with the HADS anxiety scale, and interestingly the physiological subscale showed a stronger relationship to depression when compared to anxiety. Potentially the high number of fatigue symptoms may have contributed to this. The lie scale had no relationship to anxiety or depression scores on the HADS.

Similar patterns were observed in the relationships between the RASE and the AMAS-E. Overall the fear of aging subscale showed the weakest relationship with the subscales on the RASE, and the worry/oversensitivity subscale showed

the highest. Overall, the AMAS-E showed good convergent validity with the RASE with the exception of the fear of aging and lie subscales.

Although the overlap between measures of anxiety and depression has been well documented, in this sample the HADS depression subscales showed a stronger relationship with the physiological anxiety subscale on the AMAS-E compared to the HADS anxiety subscale. This is indicative of poor discriminant validity of the AMAS-E, as somatic anxiety is considered to reflect pure anxiety within the tripartite model rather than the common negative affect factor (L. A. Clark et al., 1994).

Summary of Findings for the AMAS-E

The factor structure of the AMAS-E previously reported by Lowe and Reynolds (2000; 2006) was not supported in an older adult sample, and a revision of the AMAS-E to remove underperforming items reduced model fit. A large proportion of items on the AMAS-E underperformed in terms of the item-total correlations and relationships with their respective factors. Furthermore, the dichotomous test format was problematic for older adults. Because of the high number of problematic items, the removal of these would lead to a small pool of items and construct underrepresentation. In summary, the present study found limited validity evidence for the AMAS-E for older adults in its present format, and as such the use of the AMAS-E in older adult samples is not recommended.

Worry severity as measured by the HADS and AMAS-E

The majority of participants were measured as having mild, moderate or severe anxiety symptoms on the HADS, with only 10% falling in the range considered 'normal' based on the recommended cut-offs. In contrast, 40% of the participants were considered to fall in the mild range on the AMAS-E. This may suggest that the cut-offs are inappropriate for older adults, potentially resulting in mis-specifying older adults as anxious when they are not. However, when considering 'mild' anxiety and normal anxiety together on the HADS as reflecting mild anxiety, a similar distribution was seen to the AMAS-E. Importantly, neither the HADS nor AMAS-E provide clinicians with information on the functional impairment caused by anxiety, which may help to identify clinically significant anxiety.

Study limitations

The non-clinical nature of this sample meant that overall there was a low level of symptom severity in this study. Potentially, the low level of somatic symptoms reported by this sample could reflect the level of severity. Future studies could investigate whether specific somatic symptoms of anxiety are noticeable once a threshold of anxiety has been reached. Ideally, a repeat study with the RASE would evaluate whether somatic items are more salient in clinical populations.

It is essential to consider older adults within their culture, context, and cohort, and not generalise information gathered from one group to another without first testing the validity of doing so (B. G. Knight & Poon, 2008). Because participants were recruited from organisations which had predominantly white middle class older adults, were mostly female, and aged in their 60's, results obtained in this sample may not generalise to other ethnic groups or cohorts. Therefore it is important that future research with the RASE assesses the validity of the measure in other groups before use in different populations.

Although a first order model was not chosen to represent the structure of the RASE, the high correlations between factors in the first order model suggest a high proportion of shared variance between factors. This was evidenced again in the correlations between factor scores when conducting convergent validity analysis. In light of this, the use of individual subscale scores on the RASE cannot be recommended. Rather, clinicians should consider all components of the client's distress together and assess changes at item and or total score level rather than looking for changes at subscale levels.

The lack of differentiation between factors on anxiety and depression measures is a unique finding to older adults, and has been found in several studies (Christensen et al., 1999; Gale et al., 2010; Meeks et al., 2003; Shapiro et al., 1999). Meeks et al., (2003) attributed this overlap to the emotional complexity reported in older adults. However the overlap also leads to questions regarding whether differentiation between factors is clinically meaningful in older adult populations, or if the general distress component is sufficient to determine the need for a clinical intervention. Alternatively, is this an issue relating to self-report measures of anxiety? Potentially, method variance is contributing to the difference in

structures between younger and older adults. Older adults may respond to self-report measures differently due to cognitive and sensory changes, which in turn could add variance in the observed scores. Future research using multi-trait/multi-method or latent mean analysis could help disentangle these issues.

Future directions

The small sample of men in the present study ruled out the use of invariance testing across genders for the anxiety measures. Future research using CFA methods could evaluate the degree to which true score variability is clouded by method related variance. Invariance testing may also be used to evaluate whether discrete cohorts of older adults respond differently on the RASE. This information may prove useful as there may be differences in the experiences of anxiety between cohorts. Certainly previous research with the HADS has shown differences between cohorts of older adults was greater than between males and females of the same cohort (Gale et al., 2010).

Although the RASE was developed from information gathered from older adults, the content of the measure may also be relevant for younger adults as it does not include age-specific worry topics. However, it has high clinical utility for older adults and potentially people who are physically unwell as it does not cross over into medical conditions such as cardiovascular or respiratory symptoms. If the same methodology had been used to develop a measure for younger adults, it is possible that similar experiences of anxiety would have been relevant. Certainly the links with the cognitive theory of anxiety suggest that the measure could be used in younger adult populations. Therefore future research could examine the validity of using the RASE in younger adults.

The RASE currently is 25 items, however could potentially be shortened following testing in clinical populations. A shorter version of the RASE may reduce administration time in clinical practice and therefore increase the clinical utility of the measure. However, it is important to first evaluate the performance in clinical populations to determine which items are the most salient in differentiating between levels of clinically significant anxiety from those which are of low severity.

Conducting another study using a clinically anxious group would enable cut-offs to be developed, and sensitivity and specificity to be assessed. The

development of standardized scores would enable clinicians to determine the client's level of functioning in comparison to other individuals of a similar age (Cicchetti, 1994). These processes would enhance the clinical utility of the measure as it would enable meaningful interpretation of the test score.

Executive summary

Anxiety in older adults is a significant issue that has been given limited attention in the research. Because of the unique nature of older adults, and the issues of cohort effects, it is imprudent to assume that anxiety models developed for younger adults will generalise to older adults. Despite this, past research with older adults has favoured the use of psychological measures developed and normed for younger adults. This created a confirmatory bias situation, whereby older adult participants were unable to endorse experiences that were not present as items on the measure. Furthermore, these measures did not have adequate validity evidence to argue that they were measuring anxiety, and not medical conditions or other construct irrelevant variance. In turn, the literature surrounding anxiety in older adults had conflicting results, and there was a lack of consensus on the characteristics of anxiety in older adults.

Because clinicians were unable to get a clear picture from research on what signs and symptoms are characteristic of anxiety in older adults, they were limited in their ability to accurately assess and differentially diagnose anxiety in their elderly clients. Furthermore, the use of psychological measures that had little validity and were not normed for older adults, contributed further variance to the assessment process. Although other researchers attempted to develop new psychological measures for anxiety in older adults, the validity of their measures was limited by the difficulty in justifying the test content. Without first understanding how anxiety presents in older adults, the rationale for test content cannot be provided.

This study responded to the need for a new anxiety measure for older adults by first seeking to understand the characteristics of anxiety in this population, and using that information develop content for a new measure. This is a unique approach that strengthened the content validity of the RASE. By using older adults' experiences of anxiety in their everyday lives, the measure can respond to the challenges of working with older adult clients with anxiety.

The RASE is a unique measure as it is sensitive to the unique characteristics of anxiety in older adults, however was designed to minimise construct irrelevant variance caused by medical conditions. Although the RASE was developed alongside existing models of anxiety, it does not attempt to artificially constrain the client to fit into a particular model. For example, the RASE was developed with a focus on symptoms of anxiety rather than attempting to correspond to the current GAD definition. However, the RASE relates to a large proportion of the symptoms of GAD listed in the DSM-IV (American Psychological Association, 1994). The RASE is also complementary to existing cognitive models of anxiety and provides some preliminary evidence of the applicability of these models to older adult populations. A further benefit of the RASE is that it can be used alongside other assessment methods such as the five part model, and can be used to monitor treatment progression. In particular, the RASE may be able to evaluate changes in functional impairment such as withdrawal from everyday activities.

Overall, the study achieved its primary objective of developing a measure of anxiety in older adults. Initial psychometric evidence suggests that the RASE has acceptable psychometric properties in community dwelling older adults, and preliminary evidence of validity. However, the differentiation between factors on the RASE is small, supporting the use of a total score rather than subscale scores. The strength of the RASE is the way in which content validity was held at the forefront of test development and evaluation. Because test validation is an ongoing process, the present study reflects the first step in that journey. As new cohorts enter old age, the validity of the RASE should be evaluated to assess the impact of cohort effects on the measurement of anxiety in older adults. However, the most appropriate next phase is to evaluate the performance of the RASE in a clinical sample of older adults.

It is hoped that this study has provided the literature with a better understanding of the experience of anxiety in older adults. More importantly, that the older adult clients with anxiety will benefit from the availability of a measure designed with their life experience and stage in mind. Potentially, this measure will enable their experience of anxiety to be accurately captured during the assessment process, and enable clinicians to respond to their unique needs.

Appendix A
Ethical Approval for Clinicians' Study

Massey University

FILE

15 April 2008

Margaret Sandham
72 Gulf View Road
Rothesay Bay
AUCKLAND

Dear Margaret

Re: **Development of a Psychometric Tool to Assess Anxiety in Older Adults**

Thank you for your Low Risk Notification which was received on 15 April 2008.

Your project has been recorded on the Low Risk Database which is reported in the Annual Report of the Massey University Human Ethics Committees.

Please notify me if situations subsequently occur which cause you to reconsider your initial ethical analysis that it is safe to proceed without approval by one of the University's Human Ethics Committees.

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

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

If you have any concerns about the conduct of this research that you wish to raise with someone other than the researcher(s), please contact Professor Sylvia Rumball, Assistant to the Vice-Chancellor (Research Ethics), telephone 06 350 5249, e-mail humanethics@massey.ac.nz".

Please note that if a sponsoring organisation, funding authority or a journal in which you wish to publish requires evidence of committee approval (with an approval number), you will have to provide a full application to one of the University's Human Ethics Committees. You should also note that such an approval can only be provided prior to the commencement of the research.

Yours sincerely

Sylvia Rumball

Sylvia V Rumball (Professor)
Chair, Human Ethics Chairs' Committee and
Assistant to the Vice-Chancellor (Research Ethics)

cc   Dr Richard Fletcher   Assoc Prof Paul Merrick
        School of Psychology   School of Psychology
        Albany   Albany

        Dr Jennifer Stillman   Prof Ian Evans, HoS
        School of Psychology   School of Psychology
        Albany   PN320

Massey University Human Ethics Committee
Accredited by the Health Research Council

Appendix B

Clinicians' Questionnaire and Information Sheet

The Assessment of Anxiety in Older Adults Study

INFORMATION SHEET

Dear Clinician,

You are invited to participate in research being conducted by Massey University on anxiety in older adults. The purpose of this research is to develop a questionnaire for use by health professionals to assist the assessment of anxiety in older adults. This will fill a gap in existing assessment tools.

For the first phase of this research I am surveying members of NZPOPS on what they feel the key features of anxiety in older adults are. I am deliberately using a broad definition of anxiety to include the mixed presentation of anxiety in the elderly. The age group of interest is between about 65 to 75 years of age. This survey should take 10-20 minutes to complete, and results will be used in conjunction with those from a partner study with older adults, to form the basis for questions on a new psychometric measure.

Please complete the enclosed questionnaire and return it via email to margaret@sandham.cx, or if you prefer, print it out and return it in the post to:
> Margaret Sandham
> School of Psychology
> Massey University Albany
> Private Bag 102 904
> North Shore Mail Centre
> Auckland

A response by the 20th of May would be greatly appreciated.

This research is being conducted by Margaret Sandham, a doctoral student in Clinical Psychology at Massey University, Auckland. The research is supervised by Dr Richard Fletcher, Dr Paul Merrick, and Dr Jennifer Stillman.

Information provided by participants in this study will be stored without identifying information on the participants in a locked cupboard at Massey University, and destroyed five years following the completion of the project.

Completion and return of the questionnaire implies consent. You have the right to decline to answer any particular question.

Please contact Margaret Sandham with questions about the research Margaret@sandham.cx
 09 476 7373 or Dr Richard Fletcher in relation to broader supervision issues r.b.fletcher@massey.ac.nz
09 414 0800 extension 41213

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

If you have any concerns about the conduct of this research that you wish to raise with someone other than the researcher(s,) please contact Professor Sylvia Rumball, Assistant to the Vice Chancellor (research Ethics), telephone 06 350 5249, email humanethics@massey.ac.nz

Clinician Questionnaire

1) Based on your professional experience working with older adults who experience anxiety, what are the features (including presentation) of anxiety in older adults? Please list as many words and ideas as possible to describe anxiety in older adults. The headings below may help you, but please include other ideas which may not fit into those categories

a. *Behavioural* (e.g. how can you tell that they are anxious, what do they do or not do? What do they or their caregivers report them doing or not doing?)

b. *Emotional* (e.g. what do they describe themselves as feeling? What words do they use to describe anxiety?)

c. *Physical* (e.g. what physical symptoms do they experience?)

d. *Cognitive* (e.g. what thoughts do they notice they have when they are anxious? What do they worry about? What happens to their thought process?)

e. *Other* (is there anything else which you think is relevant, for example how anxiety impacts their life)

2) Please rank the words and ideas you have listed above from 1 (most important) to 5 (least important) in terms of how closely these words or ideas capture anxiety in older adults

3) What methods do you currently use to assess anxiety in older adults? Please be as specific as possible e.g. names of psychometric measures used, questions you may ask in interview.

4) What do you feel are some of the limitations of existing psychometric measures of anxiety used with older adults?

5) What do you think are important questions to include on a new psychometric measure of anxiety in older adults?

6) What questions do you think are important to include on a survey to older adults to understand their experiences of anxiety in order to generate questions to include in a new measure for anxiety?

7) Are there any other considerations you would like me to take into account when developing this measure?

8) Which professional group do you identify with?

9) How much experience do you have working with the elderly?

Appendix C

Study One Ethical Approval

Massey University
AUCKLAND

OFFICE OF THE ASSISTANT
TO THE VICE-CHANCELLOR
(Research Ethics)
Private Bag 102 904
North Shore 0745
Auckland
New Zealand
T 64 9 414 0800 extension 9539
F 64 9 414 0814
humanethics@massey.ac.nz
www.massey.ac.nz

12 June 2008

Margaret Sandham
c/- Dr R Fletcher
College of Humanities and Social Sciences
Massey University
Albany

Dear Margaret

HUMAN ETHICS APPROVAL APPLICATION – MUHECN 08/027
"Development of a Psychometric Tool to Assess Anxiety in Older Adults"

Thank you for your application. It has been fully considered, and approved by the Massey University Human Ethics Committee: Northern.

Approval is for three years. If this project has not been completed within three years from the date of this letter, a reapproval must be requested.

If the nature, content, location, procedures or personnel of your approved application change, please advise the Secretary of the Committee.

Yours sincerely

Dr Denise Wilson
Chair
Human Ethics Committee: Northern

cc: Dr R Fletcher
College of Humanities and Social Sciences

Appendix D

Study one Information Sheet and Questionnaire

Massey University

Characterising Anxiety in Older Adults

INFORMATION SHEET

My name is Margaret Sandham, and I am a Doctor of Clinical Psychology student at Massey University, Albany. I am inviting older adults to participate in a short survey on anxiety in their everyday lives.

This research is important as anxiety is experienced by most people at sometime in their lives, however the majority of research has been done with young to middle aged adults. The results from this study will contribute towards a questionnaire on anxiety which will be used by psychologists, doctors, and other health professionals to assess anxiety in older adults.

In order to meet the aims of this study I would like to have approximately 200 people from a range of backgrounds. To participate in this study you must be:

- Between 60 and 75 years of age
- Fluent in spoken and written English
- Living independently (not in a rest home or hospital)

You do not need to have experienced problematic anxiety for your responses to be helpful for this research.

It is estimated that this questionnaire will take between 20 and 30 minutes to complete.

While it is not expected that this study will have any harmful effects to participants, the process of reflecting on experiences of anxiety may be uncomfortable. If this study raises feelings that you would like to discuss with someone, you can contact lifeline for free, anonymous, 24 hour phone counselling on 0800 LIFE LINE. Alternatively, please contact your general practitioner

who will be able to refer you to appropriate psychological services if necessary.

Due to the sensitive nature of information collected on this survey, results are confidential. No identifying information will be kept that could link you to the completed survey. The completed survey will be kept in locked storage for five years after the doctoral thesis is marked. When this mandatory time period is complete, the completed surveys will be destroyed.

You are under no obligation to accept this invitation. If you decide to participate, you have the right to:

- Decline to answer any particular question;
- Ask any questions about the study at any time during participation;
- Provide information on the understanding that your name will not be used unless you give permission to the researcher;
- Be given access to a summary of the project findings when it is concluded.

Completion and return of the questionnaire implies consent. You have the right to decline to answer any particular question.

If you choose to participate in this survey, and would also like to receive a summary of the research findings, please provide your address on the separate page which is enclosed with the survey. Any contact information you provide will be stored separately to the completed surveys and destroyed as soon as the information or follow up questionnaire has been posted.

Should you have any further questions regarding this research, please contact Margaret Sandham (researcher) directly, or her supervisor Dr Richard Fletcher at the numbers listed below.

Researcher:	**Supervisor:**
Margaret Sandham	Doctor Richard Fletcher
(Doctor of Clinical Psychology Student)	*(Senior Lecturer)*
School of Psychology	School of Psychology
Massey University, Albany	Massey University, Albany
Telephone: (09) 443 9797	Telephone: (09) 414 0800 ext 41213
Email: Margaret@sandham.cx	Email: r.b.fletcher@massey.ac.nz

This project has been reviewed and approved by the
Massey University Human Ethics Committee: Northern, Application 08/027.

If you have any concerns about the conduct of this research, please contact:
Dr Denise Wilson, Chair, Massey University Human Ethics Committee: Northern
Telephone: 09 414 0800 x 9070, Email: humanethicsnorth@massey.ac.nz

We all experience anxiety or worry from time to time in our everyday lives. This questionnaire asks you to give information on the experience of anxiety in Older Adults. It would be helpful if you provide as much information as you can when completing this survey. Please do not provide any information which could identify you or anyone else on this questionnaire.

1	**Living Situation**

What best describes your living situation? *(please tick)*

a. Living independently in the community ☐

b. Living in a retirement village ☐

c. Living in a rest home or hospital ☐
(note, if you are living in a rest home or hospital, you do not need to complete this questionnaire as your results will not be used in this study)

2	**Personal Details**

1a.   Are you *(please tick)*   ☐ Male   ☐ Female

1b.   Which age group are you in? *(please tick)*   ☐ 60 to 65   *If your age is outside the range*
☐ 66 to 70   *listed, you are welcome to pass*
this questionnaire on to someone
☐ 71 to 75   *within this age group.*

3	**Anxiety Vocabulary**

What words do older adults use to describe anxiety?

_____

_____

_____

4	**Age Differences**

Do you think older adults experience anxiety or worry in a different way to younger adults? If so, how?

_____

_____

_____

5	**Experience with Others**

Think of an older adult between the age of 60 and 75 whom you know well. Imagine them experiencing a situation that may cause them to feel anxious or worried.

a. What is this situation?

_____

_____

_____

_____

continued overleaf…

Experience with Others *(continued)*

Please answer the following questions thinking of the person experiencing this situation:

b. how might you tell if they are anxious or worried?

_____

_____

_____

c. What things might they do because they are anxious or worried?

_____

_____

_____

d. What things might they avoid doing because they are worried or anxious?

_____

_____

e. What happens to their thinking process when they are anxious or worried?

_____

_____

_____

f. What thoughts might go through their mind when they are anxious or worried?

_____

_____

_____

g. What bodily sensations might they feel when they are anxious or worried?

_____

_____

h. What emotions might they experience when they are anxious or worried?

_____

_____

_____

---

6   **Everyday Situations**

What sorts of situations or things in **everyday life** make **YOU** feel worried or anxious?

_____

_____

_____

_____

_____

_____

_____

7	Personal Experience

Think of a recent situation when you were anxious or worried about something.

a. What happened in this situation?

_____
_____
_____
_____

b. What sorts of things did you do when you were worried or anxious?

_____
_____
_____
_____

c. What happened to your thought process when you were worried or anxious?

_____
_____
_____
_____

d. What thoughts did you have when you were worried or anxious?

_____
_____
_____
_____

e. What bodily sensations did you have when you were worried or anxious?

_____
_____
_____
_____

f. What emotions did you experience when you were worried or anxious?

_____
_____
_____
_____

8	Other People

How might **other people** tell that **YOU** are anxious or worried?

_____
_____
_____

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9	Limitations

Are there things that you avoid doing because they make you worried or anxious? Please give some examples.

_____

_____

_____

_____

10	Keeping Safe from Worry

Are there things that you do to protect yourself from anxiety or worry? What are these?

_____

_____

_____

_____

Thank you for your participation in this survey. Please post your completed questionnaire in the supplied envelope to the address below.

Freepost 166505
Margaret Sandham
School of Psychology
Massey University
Albany
Private Bag 102 904
North Shore Mail Centre
Auckland

	Follow-Up Study

If you are willing to be contacted concerning participation in a follow-up study which involves a questionnaire on anxiety symptoms which will be developed from the results of this study, please tick the appropriate box on the enclosed page and provide your address.

The follow up study will be titled '**The Development of a Psychological Measure to Assess Anxiety in Older Adults**' *(Please note, ticking the box does not obligate you in any way to participate in the follow-up study, you can still refuse to participate after reading the information sheet which will be posted together with the next questionnaire).*

If you are interested in receiving information on the overall results of this study, please tick the appropriate box on the enclosed page and provide your address.

Appendix E

Study Two Ethical Approval
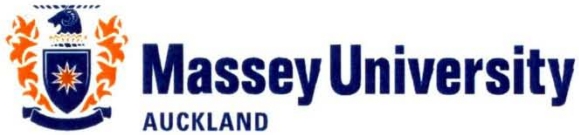
Massey University
AUCKLAND

OFFICE OF THE ASSISTANT
TO THE VICE-CHANCELLOR
(Research Ethics)
Private Bag 102 904
North Shore 0745
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F 64 9 414 0814
humanethics@massey.ac.nz
www.massey.ac.nz

26 March 2009

Margaret Sandham
c/- Dr R Fletcher
College of Humanities and Social Sciences
Massey University
Albany

Dear Margaret

HUMAN ETHICS APPROVAL APPLICATION – MUHECN 08/074
"The Development of a Psychometric Measure to Assess Anxiety in Older Adults"

Thank you for your amended application. It has been fully considered, and approved by the Massey University Human Ethics Committee: Northern.

Approval is for three years. If this project has not been completed within three years from the date of this letter, a reapproval must be requested.

If the nature, content, location, procedures or personnel of your approved application change, please advise the Secretary of the Committee.

Yours sincerely

Dr Denise Wilson
Chair
Human Ethics Committee: Northern

cc: Dr R Fletcher
College of Humanities and Social Sciences

Appendix F

Letter to Participants from Study One Who Wished to be Contacted for Study Two

Massey University

3rd May 2009

Dear Participant,

Thank you for your participation in my recent study on how older adults experience worry in their everyday lives. The purpose of the research was to provide the necessary understanding of how older adults experience worry, in order to create a questionnaire that can help health practitioners diagnose anxiety in older adults.

 The research which you participated in was essential for the development of a new questionnaire, as there had been minimal research in this field. 130 adults between 60 and 80 years old participated in the study.   These participants were recruited through word of mouth, from University of the Third Age, and Greypower. I would like to thank these organisations for their support, without them this research would have been much more difficult.

Thank you for your participation in my research, I appreciate the time and thought which you put into your answers. Without your generosity of spirit my research would not be possible. When you returned your survey, you offered to participate in testing the newly developed questionnaire. I have included it with this letter. Through testing the new measure with older adults we can refine it and ensure that it is measuring anxiety accurately. I need a range of experiences, from people who are not anxious but have worry from time to time, up to those for who worry interferes with their daily life. I will be needing additional people to participate, so if you have friends that are willing, or would like to invite me to speak for five to ten minutes at a community organisation, please contact me on 09 442 6107 or email margaret@sandham.cx.

You are under no obligation to participate further, if you have changed your mind about participating, due to the expense of these questionnaires please just return them in the freepost envelope.

Warm regards,

Margaret Sandham
Doctor of Clinical Psychology Student

Appendix G

Study Two Questionnaires and Information Sheet

Massey University

Assessing Worry in Older Adults

INFORMATION SHEET

My name is Margaret Sandham, and I am a Doctor of Clinical Psychology student at Massey University, Albany. I am inviting older adults to participate in a short questionnaire on worry in their everyday lives. The aim of this study is to test the new questionnaire which I have developed to assess worry in older adults. It is estimated that this questionnaire will take approximately 20 minutes.

This questionnaire will be used by health professionals to help in their assessment of problematic worry. At present, there are no questionnaires that have been made specifically for older adults, which is a problem as worry related difficulties in older people is hard to accurately diagnose. Your participation in this research will help other older people who might experience difficulties with anxiety to receive an appropriate diagnosis when they visit a health professional, and enable them to receive appropriate treatment.

I need a range of experiences, so this includes people who don't have a problem with worry, but may sometimes worry about everyday things like "did I leave the iron on" right up to people for whom worry interferes with their ability to function. In order to meet the aims of this study I would like to have approximately 200 people from a range of backgrounds. To participate in this study you must be:

- Between 60 and 80 years of age
- Fluent in spoken and written English
- Living independently (not in a rest home or hospital)

While it is not expected that this study will have any harmful effects to participants, the process of reflecting on experiences of worry may be uncomfortable. If this study raises feelings that you would like to discuss with someone, you can contact lifeline for free, anonymous, 24 hour phone counselling on 0800 LIFE LINE. Alternatively, please contact your general practitioner who will be able to refer you to appropriate psychological services if necessary.

Due to the sensitive nature of information collected on this survey, results are confidential. No identifying information will be kept that could link you to the completed survey. The completed survey will be kept in locked storage for five

years after the doctoral thesis is marked. When this mandatory time period is complete, the completed surveys will be destroyed.

You are under no obligation to accept this invitation. If you decide to participate, you have the right to:

- Decline to answer any particular question; however, on one of the questionnaires (Hospital Anxiety and Depression Inventory- HADS) you will be required to answer all the questions.
- Ask any questions about the study at any time during participation;
- Provide information on the understanding that your name will not be used unless you give permission to the researcher;
- Be given access to a summary of the project findings when it is concluded.

Completion and return of the questionnaire implies consent. You have the right to decline to answer any particular question however, on one of the questionnaires (Hospital Anxiety and Depression Inventory- HADS) you will be required to answer all the questions.

If you choose to participate in this survey, and would also like to receive a summary of the research findings, please provide your address on the separate page which is enclosed with the survey. Any contact information you provide will be stored separately to the completed surveys and destroyed as soon as the information or follow up questionnaire has been posted.

Should you have any further questions regarding this research, please contact Margaret Sandham (researcher) directly, or her supervisor Dr Richard Fletcher at the numbers listed below. **If you wish to be sent a general summary of the research findings, on a separate piece of paper (for confidentiality) please include your name and address.**

Researcher: **Supervisor:**
Margaret Sandham   Doctor Richard Fletcher
(Doctor of Clinical Psychology Student)   (Senior Lecturer)
School of Psychology   School of Psychology
Massey University, Albany   Massey University, Albany
Telephone: (09) 442 6107   Telephone: (09) 414 0800 ext 41213
Email: Margaret@sandham.cx   Email: r.b.fletcher@massey.ac.nz

This project has been reviewed and approved by the Massey University Human Ethics Committee: Northern, Application 08/074. If you have any concerns about the conduct of this research, please contact Dr Denise Wilson, Chair, Massey University Human Ethics Committee: Northern, telephone 09 414 0800 x 9070 email humanethicsnorth@massey.ac.nz

DEMOGRAPHIC QUESTIONNAIRE

All questions contained in this questionnaire are strictly confidential, and used to help see if different groups of people respond to the questions on the following pages differently. Please do not include your name

Gender	☐ M ☐ F	Ethnicity
Age	☐ 60-65 ☐ 66-70 ☐ 71-75 ☐ 76-80	
Marital status:	☐ Single ☐ Partnered ☐ Married ☐ Separated ☐ Divorced ☐ Widowed	
Highest level of schooling completed:	☐ Intermediate school or below ☐ Form 3-4 ☐ Form 5-6 ☐ University Entrance ☐ Tertiary ☐ Post-graduate	
Main occupation held prior to retirement or currently:		

PERSONAL HEALTH HISTORY

Have you ever been diagnosed with the following? Please name it if you can

	☐ Heart Condition	☐ Stroke/mini stroke/ TIA
	☐ Respiratory condition	☐ Bone or Joint condition
	☐ Diabetes	☐ Anxiety
	☐ Depression	☐ Other (please list below)
	☐ Gastric/ Stomach/bowel	

List any other medical conditions that other doctors have diagnosed

Have you ever visited a psychologist, or psychiatrist? ☐ No ☐ Yes

List your prescribed medicines and over-the-counter drugs		

Exercise	☐ Sedentary (No exercise)
	☐ Mild exercise (i.e., climb stairs, walk 3 blocks, golf)
	☐ Occasional vigorous exercise (i.e., work or recreation, less than 4x/week for 30 min.)
	☐ Regular vigorous exercise (i.e., work or recreation 4x/week for 30 minutes)

Concerns Experience Scale for Older Adults

The statements below are experienced by everyone from time to time. Please circle the response which best estimates how often you have experienced these symptoms in the _last month_.

1. My thoughts get muddled .... Never Occasionally Frequently Always
2. I feel restless .... Never Occasionally Frequently Always
3. My life feels out of my control .... Never Occasionally Frequently Always
4. I find it hard to stop thinking about my worries .... Never Occasionally Frequently Always
5. I feel down .... Never Occasionally Frequently Always
6. I get headaches more than usual .... Never Occasionally Frequently Always
7. I spend a lot of time thinking about how to solve my problems .... Never Occasionally Frequently Always
8. I get confused .... Never Occasionally Frequently Always
9. I talk to my family about my concerns .... Never Occasionally Frequently Always
10. I try not to think about things that worry me .... Never Occasionally Frequently Always
11. It is easy to annoy me .... Never Occasionally Frequently Always
12. I have low energy.. Never Occasionally Frequently Always
13. Other people say I'm forgetful.. Never Occasionally Frequently Always
14. I lose focus .... Never Occasionally Frequently Always
15. The worst case scenario goes through my mind .... Never Occasionally Frequently Always
16. I have an upset stomach for no medical reason .... Never Occasionally Frequently Always
17. I feel tense.. Never Occasionally Frequently Always
18. I feel overwhelmed.. Never Occasionally Frequently Always
19. Feeling positive about the future is hard for me................................ Never Occasionally Frequently Always
20. I feel tearful.. Never Occasionally Frequently Always
21. I wish that I wouldn't wake up .... Never Occasionally Frequently Always
22. I wonder "why me?" .... Never Occasionally Frequently Always
23. I think about ways of solving my problems .... Never Occasionally Frequently Always
24. I have less interest in food than usual.. Never Occasionally Frequently Always
25. People tell me that I worry too much .... Never Occasionally Frequently Always
26. I put things off that need doing because I worry about money .... Never Occasionally Frequently Always
27. I seek reassurance from others about things that are concerning me .. Never Occasionally Frequently Always
28. I don't sleep as well as I normally do .... Never Occasionally Frequently Always
29. I feel weary.. Never Occasionally Frequently Always
30. I think I worry too much... Never Occasionally Frequently Always
31. I feel wound up.. Never Occasionally Frequently Always
32. I don't eat as much as I should .... Never Occasionally Frequently Always
33. Even though I could, I don't go out as much .... Never Occasionally Frequently Always

34. I prefer my own company .... Never Occasionally Frequently Always

35. Going to activities I usually enjoy is less attractive .... Never Occasionally Frequently Always

36. I avoid answering the phone, door, or email .... Never Occasionally Frequently Always

37. I keep busy to avoid thinking about my problems .... Never Occasionally Frequently Always

38. My temper is easy to flare .... Never Occasionally Frequently Always

39. Small things bother me .... Never Occasionally Frequently Always

40. Other people think I worry too much.................................... Never Occasionally Frequently Always

41. I visit the doctor more than my friends................................. Never Occasionally Frequently Always

42. I feel irritable... Never Occasionally Frequently Always

43. I worry that my health will fail .... Never Occasionally Frequently Always

44. I go without things I need because I worry about money .... Never Occasionally Frequently Always

45. I feel on edge.. Never Occasionally Frequently Always

46. I sometimes wonder if I can cope .... Never Occasionally Frequently Always

47. Even in the company of others I feel alone .... Never Occasionally Frequently Always

48. I feel like I could just give up and die .... Never Occasionally Frequently Always

49. I forget things more than usual .... Never Occasionally Frequently Always

50. It is easy to upset me .... Never Occasionally Frequently Always

51. I worry that the worst might happen................................... Never Occasionally Frequently Always

52. My body aches more than usual... Never Occasionally Frequently Always

53. I feel worn out... Never Occasionally Frequently Always

54. I get easily frustrated .... Never Occasionally Frequently Always

55. People don't visit me as much as I would like .... Never Occasionally Frequently Always

56. I have butterflies in my stomach .... Never Occasionally Frequently Always

57. I think of myself as a worrier .... Never Occasionally Frequently Always

58. I eat more than usual... Never Occasionally Frequently Always

59. I find it hard to think straight .... Never Occasionally Frequently Always

60. I feel close to tears... Never Occasionally Frequently Always

61. Worry stops me from doing everyday activities .... Never Occasionally Frequently Always

62. I feel lonely.. Never Occasionally Frequently Always

63. I find it hard to concentrate .... Never Occasionally Frequently Always

64. I feel vulnerable.. Never Occasionally Frequently Always

65. Small things upset me.. Never Occasionally Frequently Always

66. Worry interferes with my daily life .... Never Occasionally Frequently Always

67. I get an upset stomach when there are things on my mind.................. Never Occasionally Frequently Always

68. People try to reassure me about my concerns .... Never Occasionally Frequently Always

69. Other peoples company doesn't interest me as much as it used to...... Never Occasionally Frequently Always

70. I feel uptight.. Never Occasionally Frequently Always

71. I find it hard to stop thinking about things that concern me .... Never Occasionally Frequently Always

72. I feel agitated .... Never Occasionally Frequently   Always

73. I occupy myself with hobbies to avoid thinking about my worries .... Never Occasionally Frequently   Always

74. I feel that it would be better if I was dead .... Never Occasionally Frequently   Always

75. I have little appetite... Never Occasionally Frequently   Always

76. Too many thoughts go through my mind when I try to sleep .... Never Occasionally Frequently   Always

77. I worry about my health.. Never Occasionally Frequently   Always

78. Getting back to sleep is difficult if I wake in the night.......................... Never Occasionally Frequently   Always

79. I feel incompetent .... Never Occasionally Frequently   Always

80. I feel helpless.. Never Occasionally Frequently   Always

81. Other people tell me I shouldn't be so frugal with myself.................... Never Occasionally Frequently   Always

82. I worry about people important to me .... Never Occasionally Frequently   Always

83. I make an effort to think positively when I have concerns on my mind Never Occasionally Frequently   Always

84. Worry stops me from doing things other people might .... Never Occasionally Frequently   Always

85. I find it hard to settle .... Never Occasionally Frequently   Always

Thank you for completing this questionnaire, your contribution to the research project is invaluable. Please return the completed questionnaires in the envelope provided.

Hospital Anxiety and Depression Scale (HADS)

GL assessment — the measure of potential

Name: _____ Date: _____

FOLD HERE

Clinicians are aware that emotions play an important part in most illnesses. If your clinician knows about these feelings he or she will be able to help you more.

This questionnaire is designed to help your clinician to know how you feel. Read each item below and **underline the reply** which comes closest to how you have been feeling in the past week. Ignore the numbers printed at the edge of the questionnaire.

Don't take too long over your replies, your immediate reaction to each item will probably be more accurate than a long, thought-out response.

A D		A D

I feel tense or 'wound up'
- Most of the time — A 3
- A lot of the time — A 2
- From time to time, occasionally — A 1
- Not at all — A 0

I feel as if I am slowed down
- Nearly all the time — D 3
- Very often — D 2
- Sometimes — D 1
- Not at all — D 0

I still enjoy the things I used to enjoy
- Definitely as much — D 0
- Not quite so much — D 1
- Only a little — D 2
- Hardly at all — D 3

I get a sort of frightened feeling like 'butterflies' in the stomach
- Not at all — A 0
- Occasionally — A 1
- Quite often — A 2
- Very often — A 3

I get a sort of frightened feeling as if something awful is about to happen
- Very definitely and quite badly — A 3
- Yes, but not too badly — A 2
- A little, but it doesn't worry me — A 1
- Not at all — A 0

I have lost interest in my appearance
- Definitely — D 3
- I don't take as much care as I should — D 2
- I may not take quite as much care — D 1
- I take just as much care as ever — D 0

I can laugh and see the funny side of things
- As much as I always could — D 0
- Not quite so much now — D 1
- Definitely not so much now — D 2
- Not at all — D 3

I feel restless as if I have to be on the move
- Very much indeed — A 3
- Quite a lot — A 2
- Not very much — A 1
- Not at all — A 0

Worrying thoughts go through my mind
- A great deal of the time — A 3
- A lot of the time — A 2
- Not too often — A 1
- Very little — A 0

I look forward with enjoyment to things
- As much as I ever did — D 0
- Rather less than I used to — D 1
- Definitely less than I used to — D 2
- Hardly at all — D 3

I feel cheerful
- Never — D 3
- Not often — D 2
- Sometimes — D 1
- Most of the time — D 0

I get sudden feelings of panic
- Very often indeed — A 3
- Quite often — A 2
- Not very often — A 1
- Not at all — A 0

I can sit at ease and feel relaxed
- Definitely — A 0
- Usually — A 1
- Not often — A 2
- Not at all — A 3

I can enjoy a good book or radio or television programme
- Often — D 0
- Sometimes — D 1
- Not often — D 2
- Very seldom — D 3

Now check that you have answered all the questions

A	D
TOTAL	

N.B. The Adult Manifest Anxiety Scale Elderly Version (AMAS-E) was not included due to copyright restrictions from the publisher.

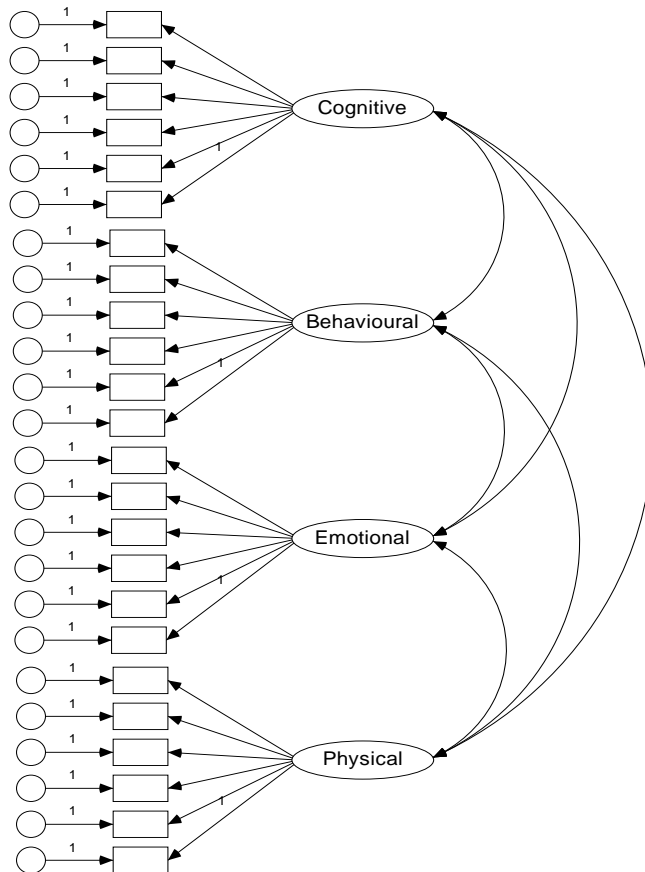# *Appendix H*

Hypothesised RASE models

Figure 18. Diagram of hypothesised CFA model RASE1a. Four correlated factors (physical, behavioural, emotional, and cognitive), consistent with Greenberger and Padesky's (1995) Five Part Model
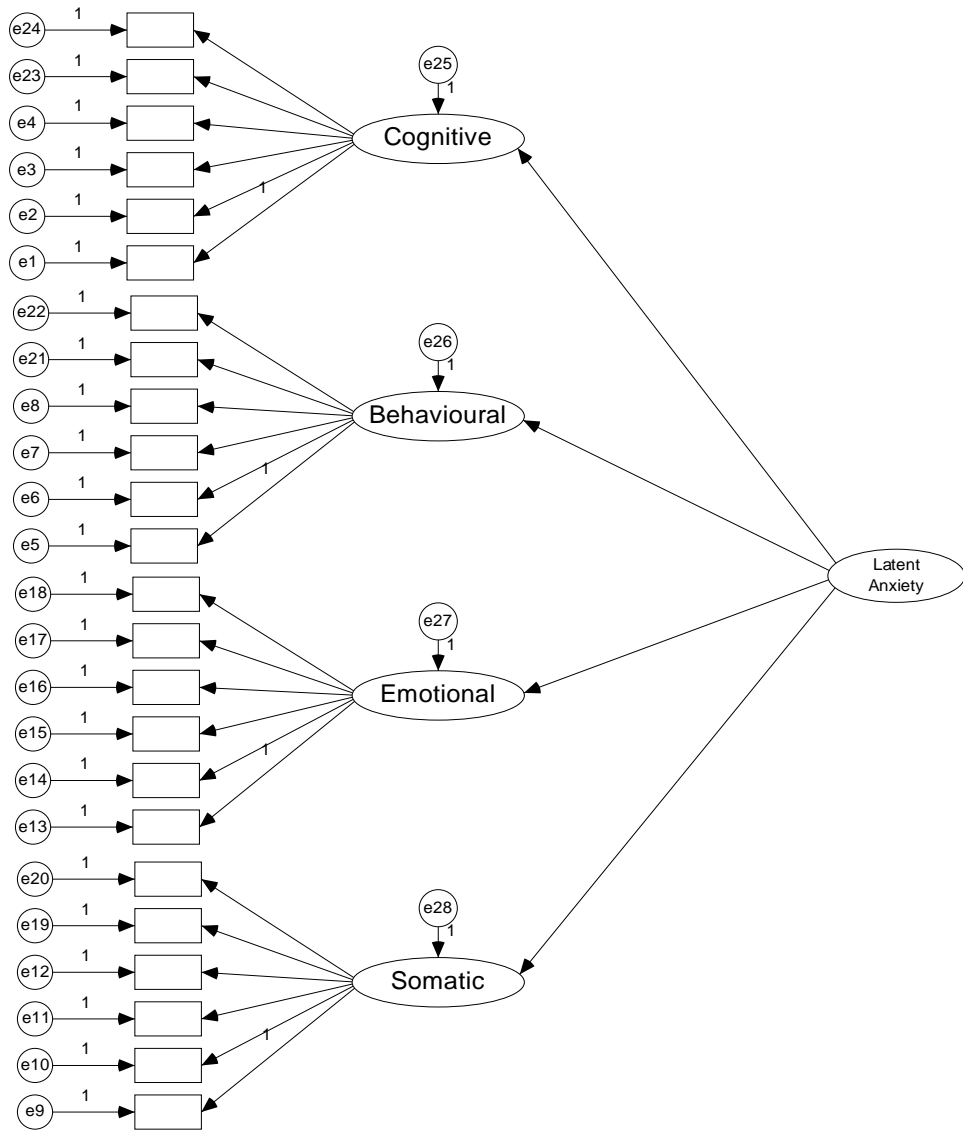
Figure 19. Diagram of hypothesised model RASE1b. Four of the factors from the five part model (physical, behavioural, emotional, and cognitive) represented by a higher order factor of latent anxiety.
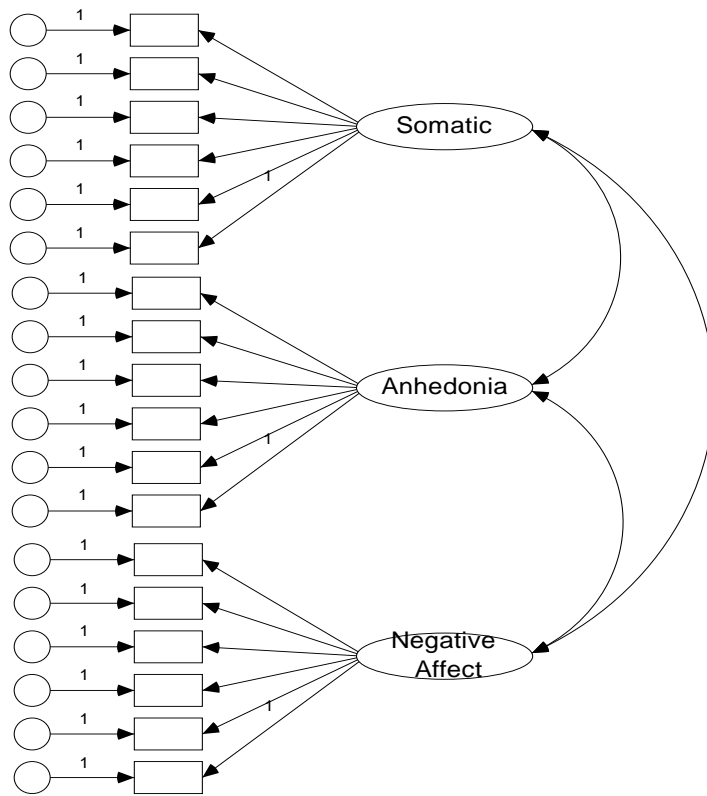
Figure 20. Hypothesised model RASE2a. A correlated three factor solution (somatic, anhedonia, negative affect), equivalent to that of the Tripartite Model (L. A. Clark & Watson, 1991).
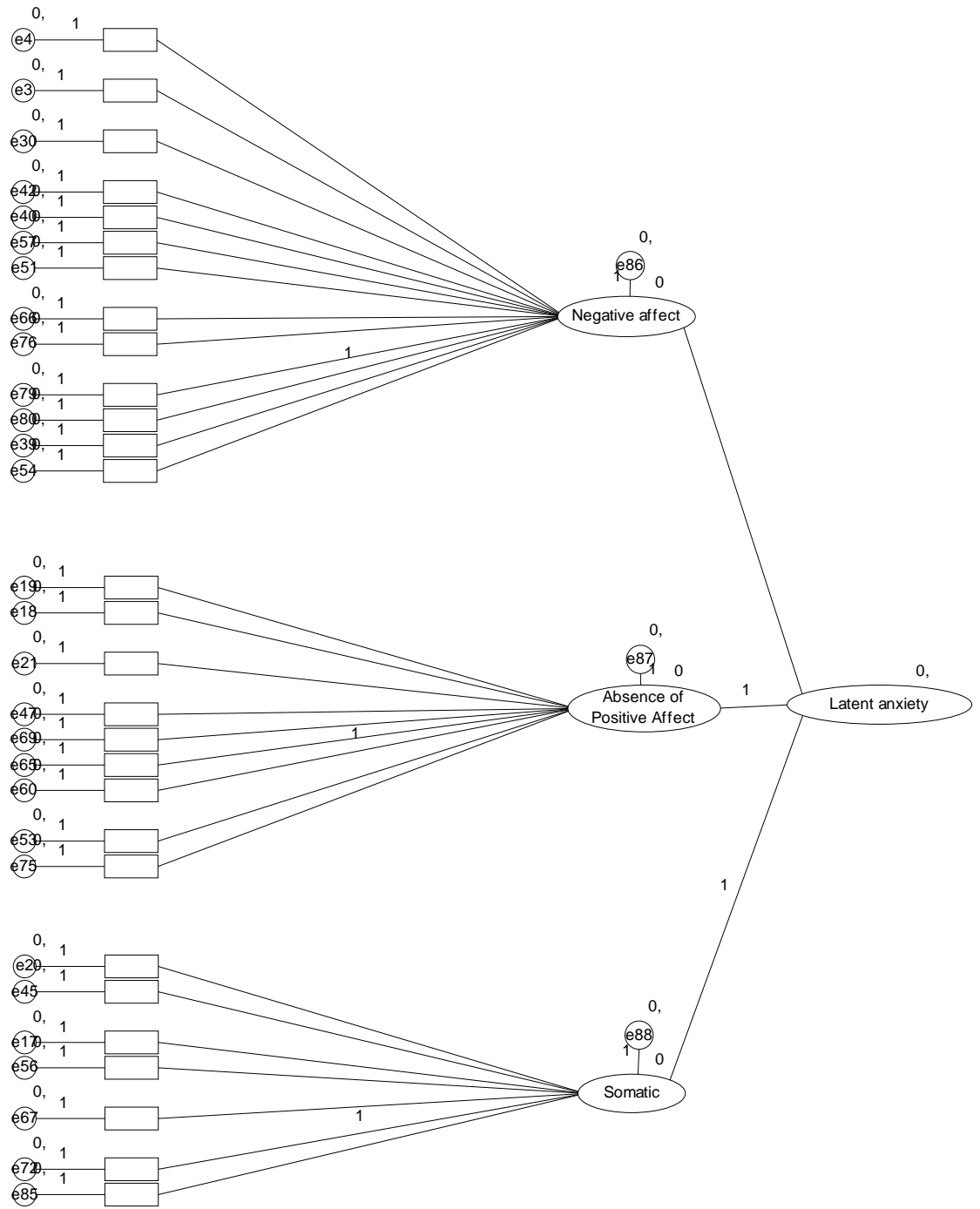
Figure 21. Hypothesised model RASE2b. The same three factors as RASE3a were accounted for by a higher order factor of latent anxiety.
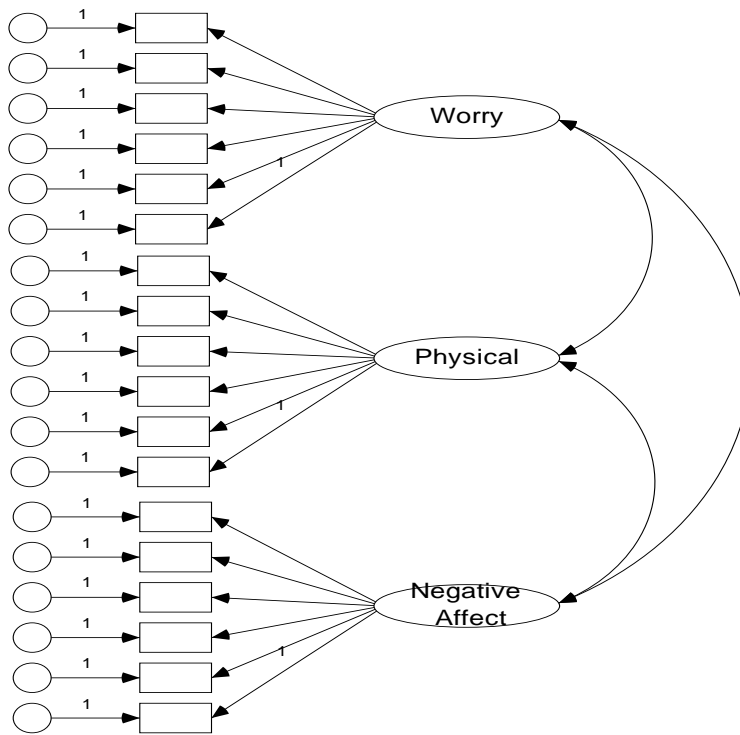
Figure 22. Hypothesised model RASE 3a. An alternative three factor solution that removes the anhedonia aspect considered characteristic of depression and replaces it with a worry factor. This model is considered to represent pure anxiety, rather than overlapping anxiety and depression.
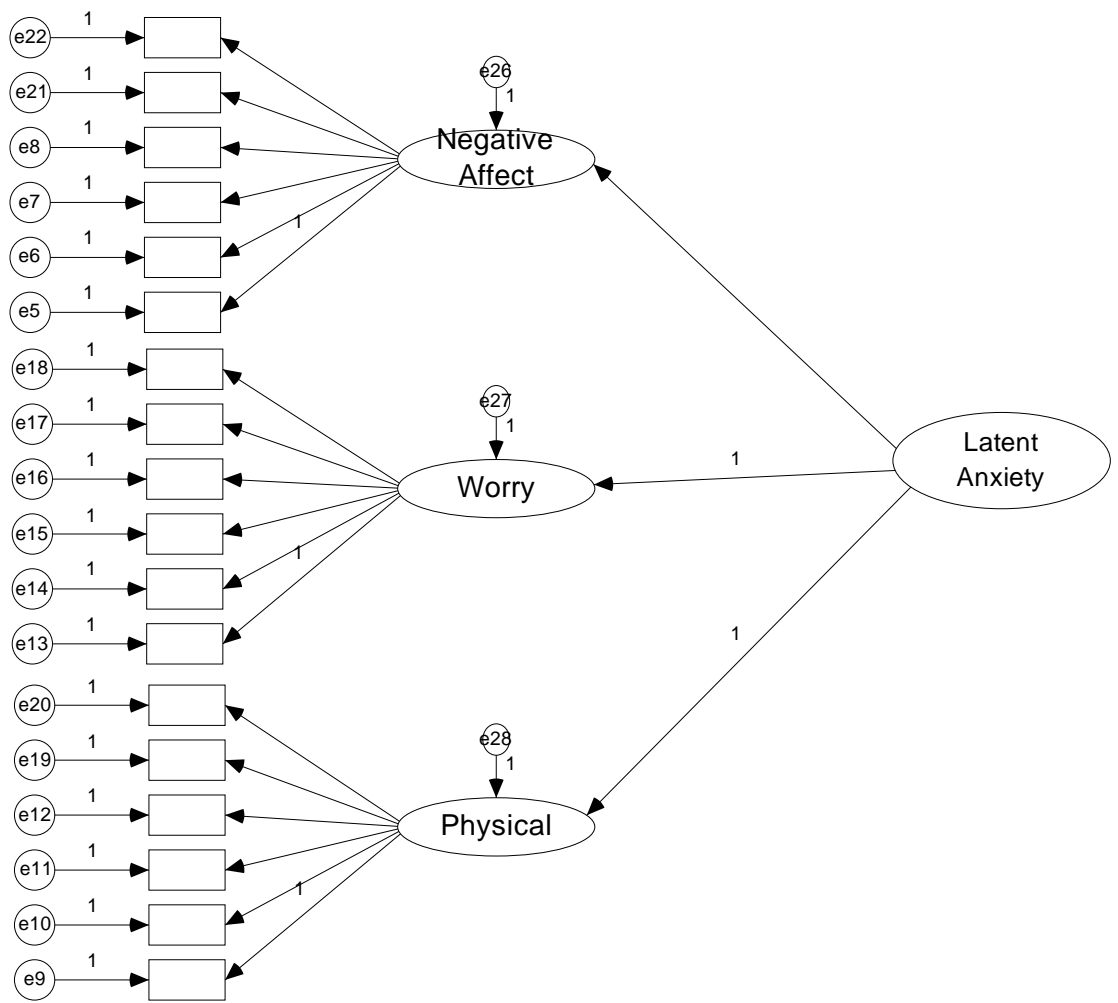
Figure 23. Hypothesised model RASE 3b. The three specific anxiety factors hypothesised in RASE 3a represented by a higher order factor of latent anxiety.
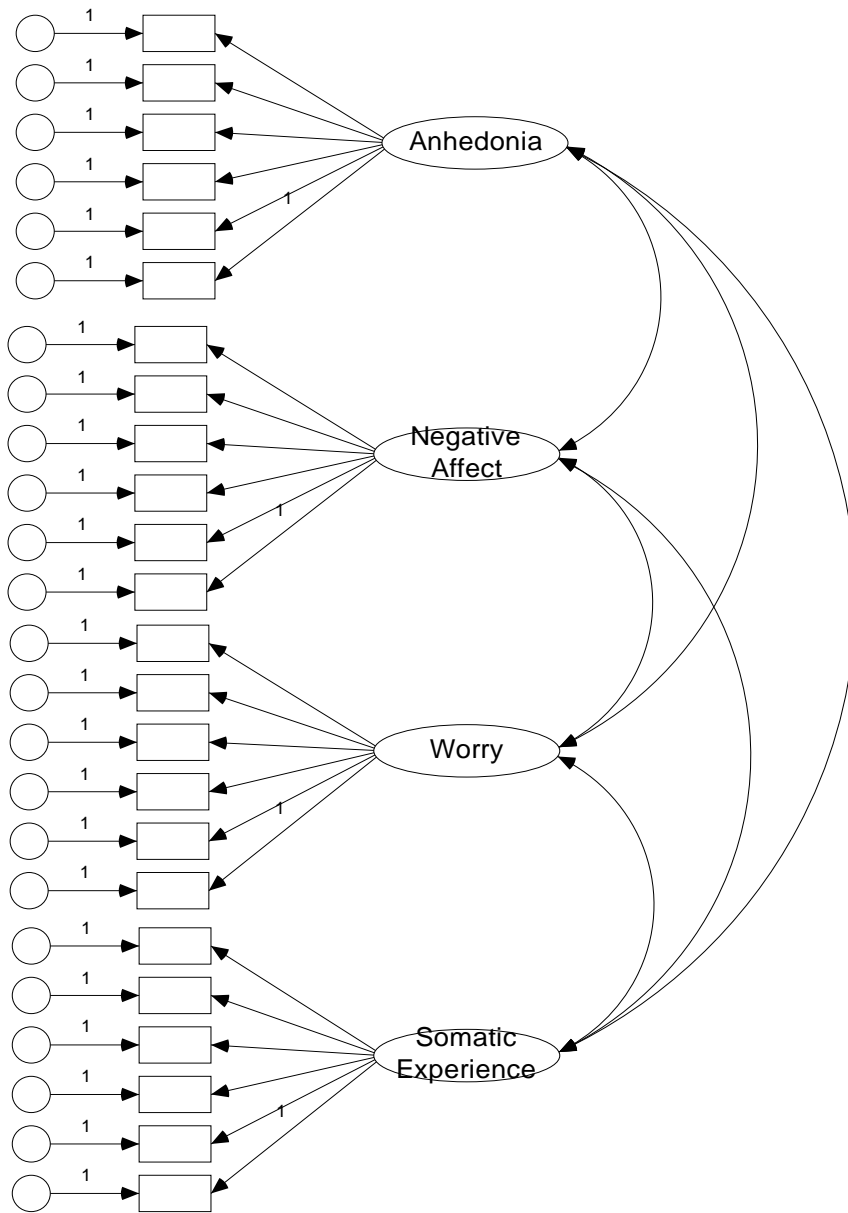
Figure 24. Hypothesised structural model RASE4a. An extension of the Triparitite model (RASE3a) to include the specific worry factor hypothesised in RASE3a model.
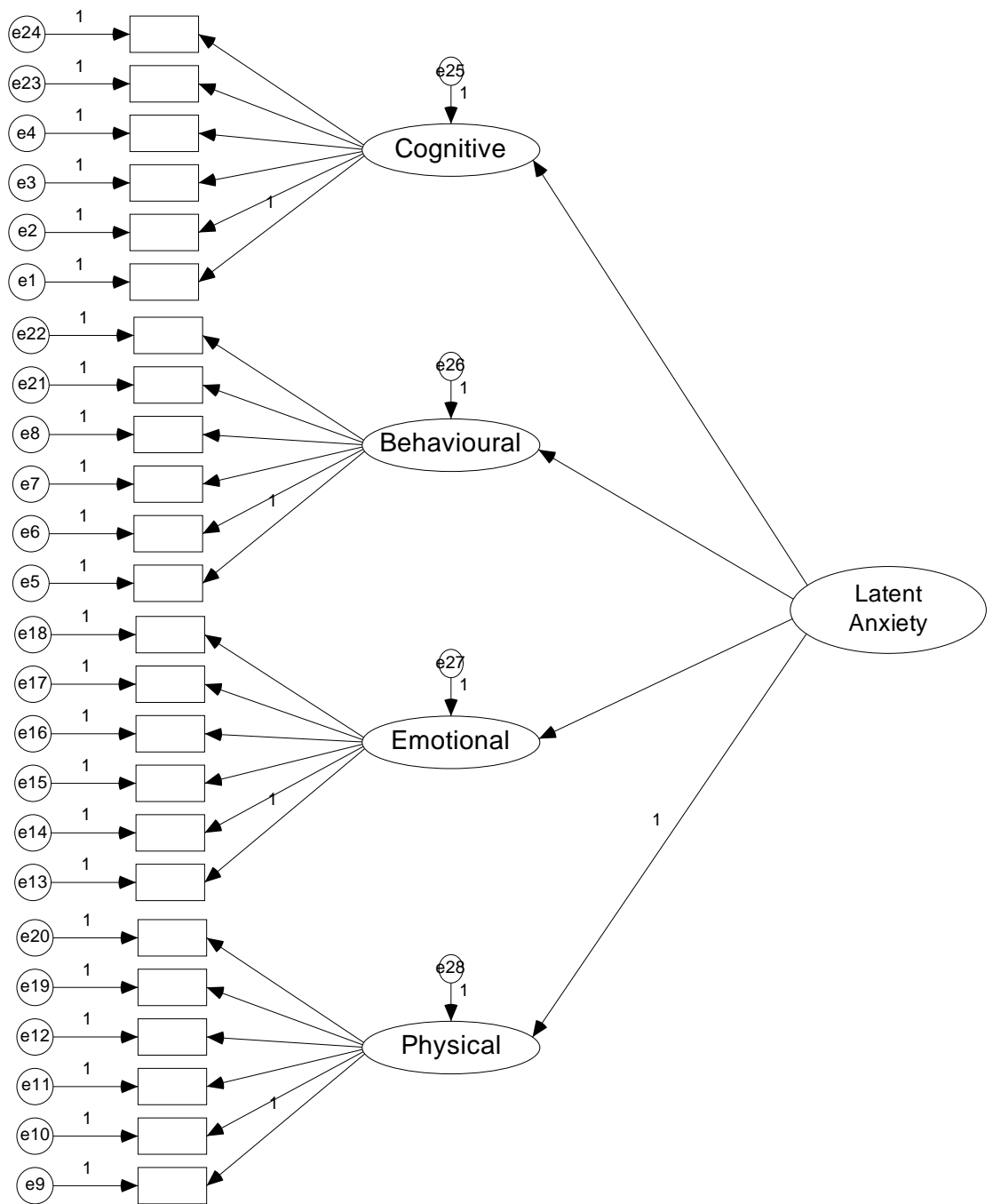
Figure 53. Hypothesised structural model RASE4b. The four factor model proposed in RASE4a was represented by a higher order factor
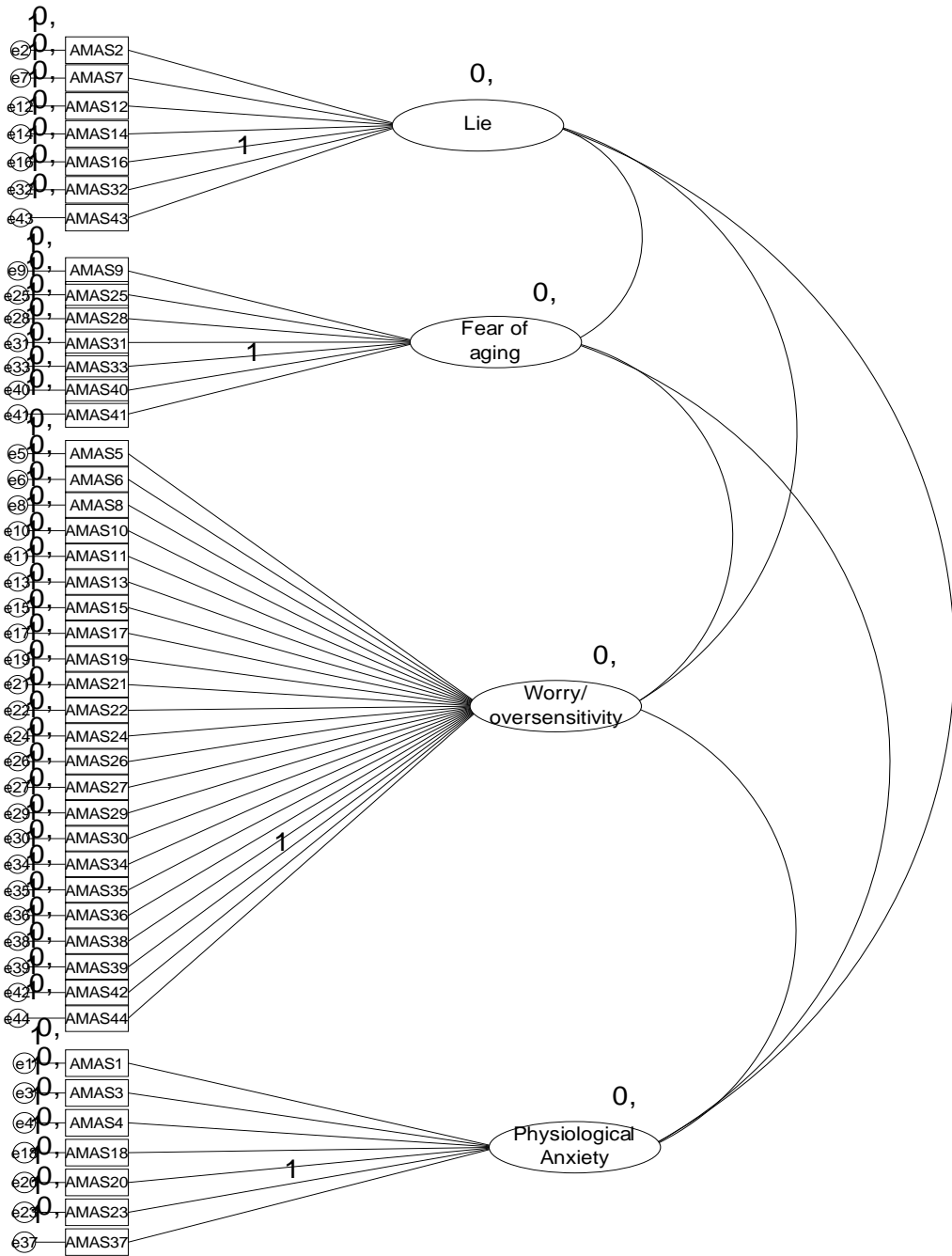
Figure 26. Factor structure of the AMAS-E found in previous EFA studies (Lowe & Reynolds, 2000, 2006). A correlated four factor structure (worry, fear of aging, physiological anxiety, lie) reported by Lowe and Reynolds (2000, 2006) using the complete published item set.
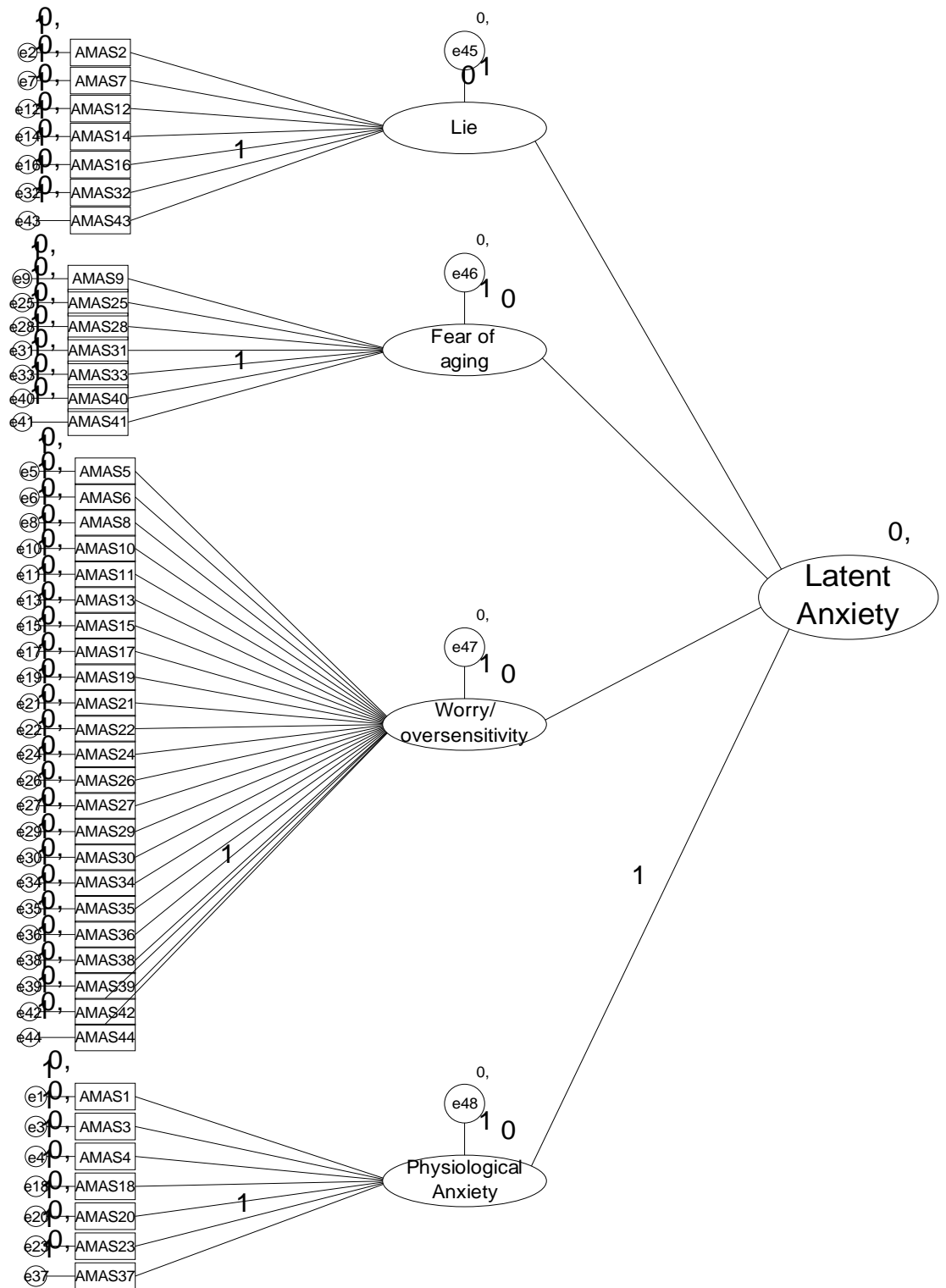
Figure 27. Hypothesised alternative higher order factor structure for the AMAS-E.
The same four factors as AMAS1a were hypothesised to be explained by a second
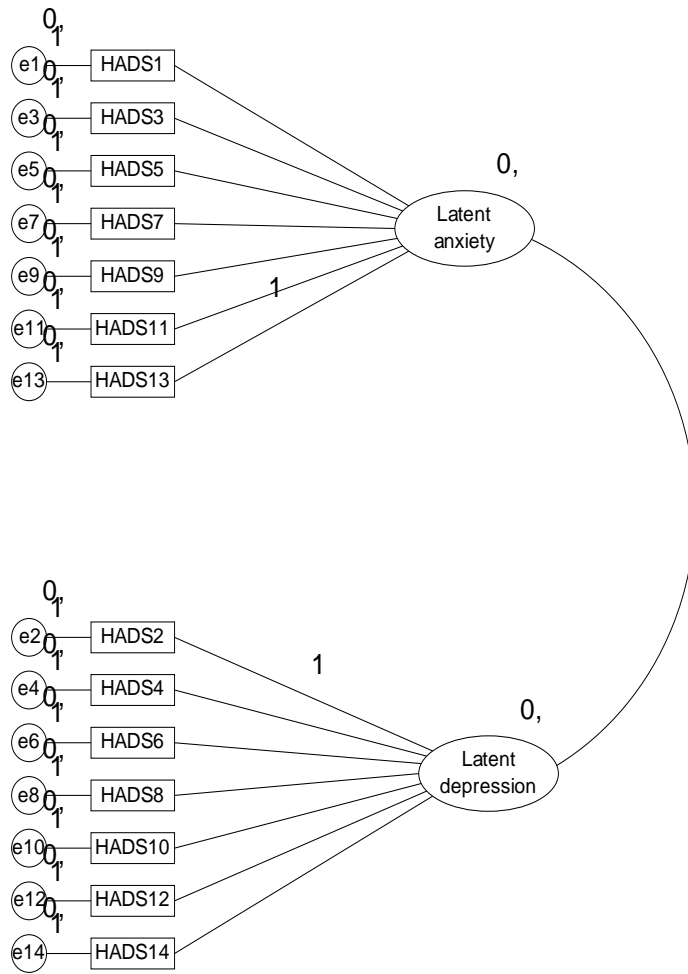order factor, latent anxiety.

Figure 28. HADS1 model. Two correlated factors - anxiety and depression - as per the factor structure reported by Moorey et al., (1991) and proposed by Zigmond and Snaith (1983).
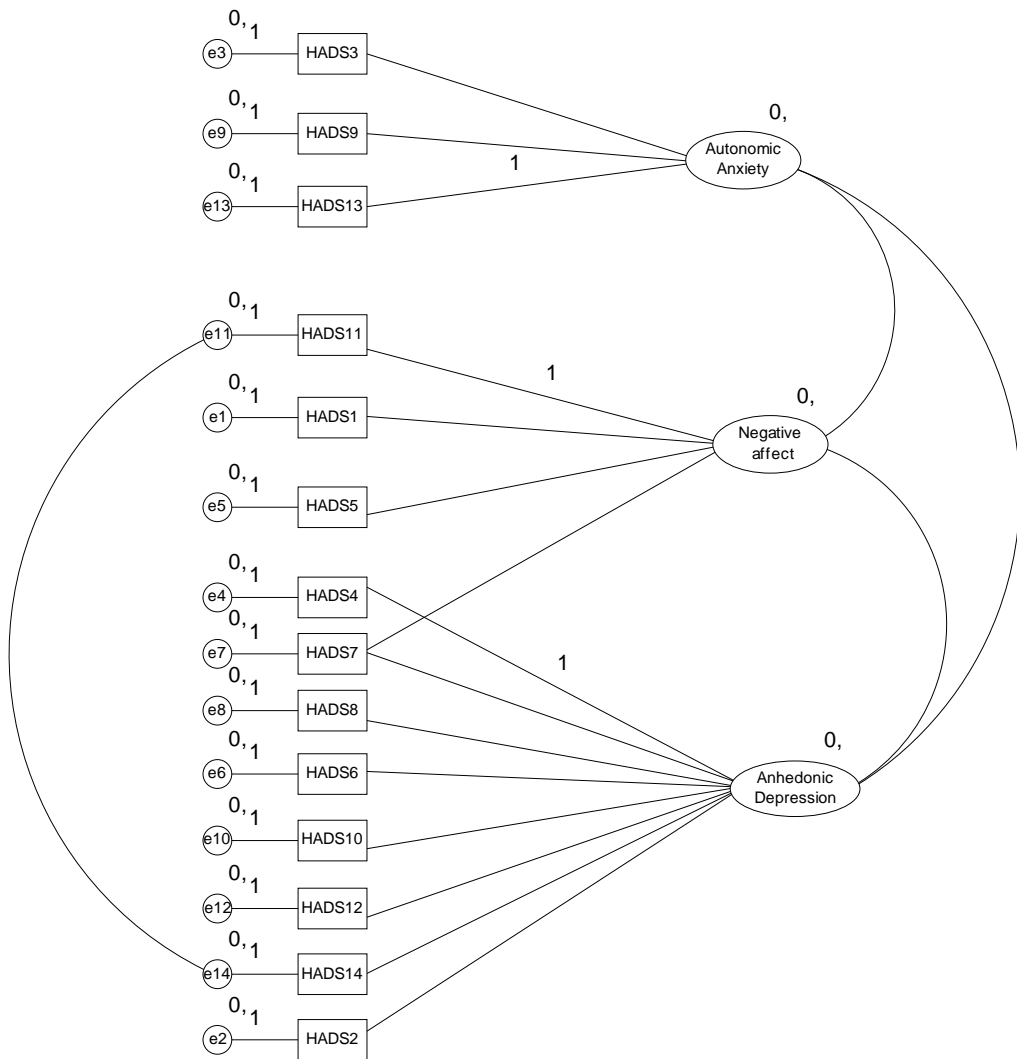
Figure 29. HADS2 model. Hypothesised that scores on the HADS were represented by three correlated factors (negative affect, anhedonic depression, and autonomic anxiety), consistent with the Triparitite model of anxiety and replicating the model proposed by Dunbar et al. (2000). Dunbar et al. considered item seven to load onto negative affect and anhedonic depression, and specified that the error of items 11 and 14 to covary.
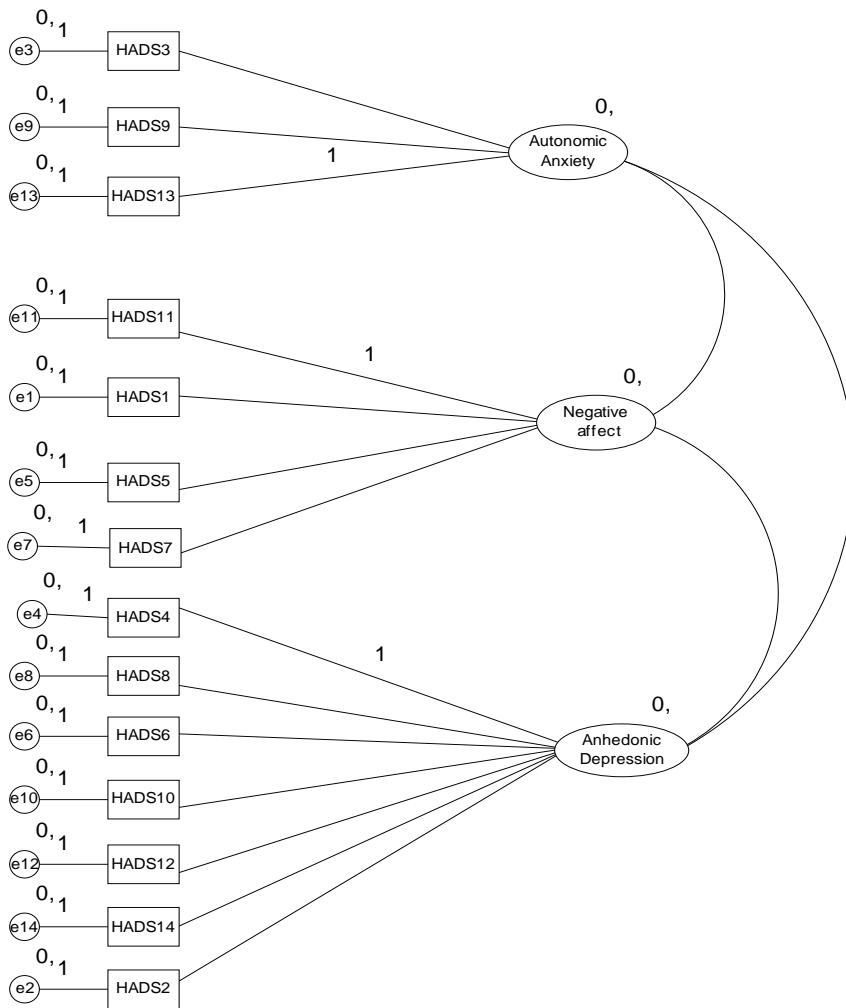
Figure 30. Hypothesised tripartite structure of the HADS without correlated errors and dual loadings.

Appendix I

Permission to Reprint Questionnaires in Thesis

Permission for AMAS-E

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Permission for HADS

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Thanks for that. I have found the original.

Providing the copy in your thesis is not photocopied this will be
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Margaret

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Yes I did, but I don't have the order number as I don't keep those
records.
It would be two years ago now, and under the surname "sandham".
Through Massey University, Albany, Auckland New Zealand. I will
have a search through my old files and see what I can find.

 Dear Margaret

Did you purchase a Licence for HADS and if so can you let me know the Order No or Invoice No

Thanks
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Dear GL Assessment,
I have recently completed my doctoral thesis in anxiety in older adults, and part of the study used the HADS. Can I please print a copy to include in the appendix of the thesis.
Regards,
Margaret Roberts (nee Sandham)

References

American Educational Research Association. (1999). *Standards for educational and psychological testing/ American Educational Research Association, American Psychological Association, National Council on Measurement in Education.* Washington Author.

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental health disorders* (4th ed.). Washington DC: Author.

American Psychiatric Association. (2000). *Diagnostic criteria from DSM-IV-TR.* Arlington: American Psychiatric Association.

American Psychiatric Association. (2009). Taking symptoms to new dimensions. *Psychiatric News, 44*(8), 9.

Arbuckle, J. L. (2006). Amos (Version 17.0) [Computer Program]. Chicago: SPSS.

Ayers, C. R., Sorrell, J. T., Thorp, S. R., & Wetherell, J. L. (2007). Evidence based psychological treatments for late-life anxiety. *Psychology and Aging, 22*, 8-17.

Barlow, D. H. (2002a). *Anxiety and its disorders: the nature and treatment of anxiety and panic* (2nd ed.). London: Guilford Press.

Barlow, D. H. (2002b). The origins of anxious apprehension, anxiety disorders, and related emotional disorders. In D. H. Barlow (Ed.), *Anxiety and its disorders: The nature and treatment of anxiety and panic* (2nd ed.). New York: Guilford Press.

Beck, A. T. (2005). The current state of cognitive therapy: A 40-year retrospective. *Archives of General Psychiatry, 62*, 953-959.

Beck, A. T., Brown, G. K., Steer, R. A., & Weissman, A. N. (1991). Factor analysis of the dysfunctional attitudes scale in a clinical population. *Psychological Assessment, 3*, 478.

Beck, A. T., Emery, G., & Greenberg, R. L. (1985). *Anxiety disorders and phobias: a cognitive perspective.* New York: Basic Books.

Beck, A. T., Steer, R. A., & Brown, G. K. (1996). *Manual for the Beck Depression Inventory-II.* San Antonio TX: Psychological Corporation.

Beck, A. T., Steer, R. A., & Garbin, M. A. (1988). Psychometric properties of the Beck Depression Inventory: Twenty-five years of evaluation. *Clinical Psychology Review, 8*, 77-100.

Beck, J. G., & Averill, P. M. (2004). Older Adults. In R. G. Heimberg, C. L. Turk & D. S. Mennin (Eds.), *Generalized anxiety disorder: Advances in research and practice.* New York: Guilford Press.

Beck, J. G., Novy, D. M., Diefenbach, G. J., Stanley, M. A., Averill, P. M., & Swann, A. C. (2003). Differentiating anxiety and depression in older adults with generalized anxiety disorder. *Psychological Assessment, 15*(2), 184-192.

Beck, J. G., Stanley, M. A., & Zebb, B. J. (1995). Psychometric properties of the Penn State Worry Questionnaire in older adults. *Journal of Clinical Geropsychology, 34*, 33-42.

Beck, J. G., Stanley, M. A., & Zebb, B. J. (1996). Characteristics of generalized anxiety disorder in older adults: A descriptive study. *Behavior Research and Therapy, 34*, 225-234.

Bjelland, I., Dahl, A. A., Haug, T. T., & Neckelmann, D. (2002). The validity of the Hospital Anxiety and Depression Scale: An updated literature review. *Journal of Psychosomatic Research, 52*, 69-77.

Blazer, D. G. (1997). Generalized anxiety disorder and panic disorder in the elderly: A review. *Harvard Review of Psychiatry, 5*, 18-27.

Borkovec, T. D., Hazlett-Stevens, H., & Diaz, M. L. (1999). The role of positive beliefs about worry in generalised anxiety disorder and its treatment. *Clinical Psychology Review, 6*, 126-138.

Boston, A. F., & Merrick, P. L. (2010). Health anxiety among older people: An exploratory study of health anxiety and safety behaviours in a cohort of older adults in New Zealand. *International Psychogeriatrics, 22*, 549-558.

Bourgault-Fagnou, M. D., & Hadjistravropoulos, H. D. (2009). Understanding health anxiety among community dwelling seniors with varying degrees of frailty. *Aging and Mental Health, 13*, 226-237.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*, 77-101.

Brenes, G. A. (2006). Age differences in the presentation of anxiety. *Aging & Mental Health, 10*, 298-302.

Brown, T. A. (2003). Confirmatory factor analysis of the Penn State Worry Questionnaire: Multiple factors or method effects? *Behaviour Research and Therapy, 41*, 1411-1426.

Brown, T. A. (2006). *Confirmatory factor analysis for applied research*. London: The Guilford Press.

Brown, T. A., & Barlow, D. H. (2002). Classification of anxiety and mood disorders. In D. H. Barlow (Ed.), *Anxiety and its disorders: The nature and treatment of anxiety and panic* (2nd ed., pp. 292-327). New York: Guilford Press.

Brown, T. A., Campbell, L. A., Lehman, C. L., Grisham, G. R., & Mancill, R. B. (2001). Current and lifetime comorbidity of the DSM-IV anxiety and mood disorders in a large clinical sample. *Journal of Abnormal Psychology, 110*, 585-599.

Brown, T. A., Chorpita, B. F., & Barlow, D. H. (1998). Structural relationships among dimensions of the DSM-IV anxiety and mood disorders and dimensions of negative affect, positive affect, and autonomic arousal. *Journal of Abnormal Psychology, 107*, 179-192.

Brown, T. A., Di Nardo, P. A., Lehman, C. L., & Campbell, L. A. (2004). Reliability of DSM-IV anxiety and mood disorders: Implications for classification of emotional disorders. *Journal of Abnormal Psychology, 110*, 49-58.

Bryant, C., Jackson, H., & Ames, D. (2009). Depression and anxiety in medically unwell older adults: Prevalence and short-term course. *International Psychogeriatrics, 21*, 754-763.

Buckendahl, C. W., & Plake, B. S. (2006). Evaluating tests. In S. M. Downing & T. M. Haladyna (Eds.), *Handbook of test development*. New Jersey: Lawrence Erlbaum.

Burns, D. D., & Eidelson, R. J. (1998). Why are depression and anxiety correlated? A test of the triparite model. *Journal of Consulting and Clinical Psychology, 66*, 461-473.

Butler, A. C., Chapman, J. E., Forman, E. M., & Beck, A. T. (2006). The empirical status of cognitive-behavioural therapy: A review of meta-analyses. *Clinical Psychology Review, 26*, 17-31.

Byrne, B. (2001). *Structural equation modeling with AMOS: Basic concepts, applications and programming*. New Jersey: Lawrence Erlbaum Associates.

Calleo, J., Stanley, M. A., Greisinger, A., Wehmanen, O., Johnson, M., Novy, D. M., et al. (2009). Generalised anxiety disorder in older medical patients: Diagnostic recognition, mental health management, and service utilisation. *Journal of Clinical Psychology in Medical Settings, 16*, 178-185.

Cheung, G. (2006). Concurrent validity of the Geriatric Anxiety Inventory in late-life depression. *International Psychogeriatrics, 19*(2), 333-335.

Cheung, G. W., & Rensvold, R. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance *Structural Equation Modelling, 9*, 233-255.

Christensen, H., Form, A. F., Mackinnon, A. J., Korten, A. E., Jacomb, P. A., Henderson, A. S., et al. (1999). Age differences in depression and anxiety symptoms: A structural equation modelling analysis of data from a general population sample. *Psychological Medicine, 29*, 325-339.

Cicchetti, D. V. (1994). Guidelines, criteria, and rules of thumb for evaluating normed and standardized assessment instruments in psychology. *Psychological Assessment, 6*, 284-290.

Clark, D. A., & Beck, A. T. (2010). *Cognitive therapy of anxiety disorders: Science and practice*. New York: Guilford Press.

Clark, L. A., Steer, R. A., & Beck, A. T. (1994). Common and specific dimensions of self-reported anxiety and depression. Implications for the cognitive and tripartite models. *Journal of Abnormal Psychology, 103*, 645-654.

Clark, L. A., & Watson, D. (1991). Tripartite model of anxiety and depression: Psychometric evidence and taxonomic implications. *Journal of Abnormal Psychology, 100*, 316-336.

Code of Ethics Review Group. (2002). *Code of ethics for psychologists working in Aotearoa/New Zealand*. Wellington: New Zealand Psychological Society.

Cohen, C. I., Magai, C., Yaffee, R., & Walcott-Brown, L. (2006). The prevalence of anxiety and associated factors in a multiracial sample of older adults. *Psychiatric Services, 57*, 1719-1725.

Cole, J. O. (1991). Anxiety in the elderly: Research issues. In C. Salzman & B. D. Lebowitz (Eds.), *Anxiety in the elderly: Treatment and research*. New York: Springer.

Cotton, E. H. (2007). *The understanding and experience of anxiety in older adults caring for partners with stroke.* Massey University, Albany, New Zealand

Cox, B. J., Cohen, E., & Direnfeld, D. M. (1996). Does the Beck Anxiety Inventory measure anything other than panic attack symptoms? *Behaviour Research and Therapy, 34*, 949-954.

Crittendon, J., & Hopko, D. R. (2006). Assessing worry in older and younger adults: psychometric properties of an abbreviated Penn State Worry Questionnaire (PSWQ-A). *Anxiety Disorders, 20*, 1036-1054.

De Beurs, E., Beekman, A., Geerlings, S., Deeg, D., Dyck, V., & Tilburg, V. (2001). On becoming depressed or anxious in later life: Similar vulnerability factors but different effects of stressful life events. *British Journal of Psychiatry, 179*, 426-431.

de Beurs, E., Wilson, K. A., Chambless, D. L., Goldstien, A. J., & Feske, U. (1997). Convergent and divergent validity of the Beck Anxiety Inventory for patients with panic disorder and agoraphobia. *Depression and Anxiety, 6*, 140-146.

Dennis, R. E., Boddington, S. J. A., & Funnell, N. J. (2007). Self-report measures of anxiety: Are they suitable for older adults? *Aging and mental health, 11*, 668-677.

Desmond, D. M., & MacLachlan, M. (2005). The factor structure of the Hospital Anxiety and Depression scale in older individuals with acquired amputations: A comparison of four models using confirmatory factor analysis. *International Journal of Geriatric Psychiatry, 20*, 344-349.

Diefenbach, G., Tolin, D. F., Meunier, S. A., & Gilliam, C. A. (2009). Assessment of anxiety in older home care recipients. *The Gerontologist, 49*, 141-153.

Diefenbach, G. J., Hopko, D. R., Feigon, S., Stanley, M. A., Novy, D. M., Beck, J. G., et al. (2003). 'Minor GAD': Characteristics of subsyndromal GAD in older adults. *Behavior Research and Therapy, 41*, 481-487.

Diefenbach, G. J., Stanley, M. A., & Beck, J. G. (2001). Worry content reported by older adults with and without generalized anxiety disorder. *Aging & Mental Health, 5*(3), 269-274.

Dunbar, M., Ford, G., Hunt, K., & Der, G. (2000). A confirmatory factor analysis of the Hospital Anxiety and Depression scale: Comparing empirically and theoretically derived structures. *British Journal of Clinical Psychology, 39*, 79-94.

Endler, N. S., & Kocovski, N. L. (2001). State and trait anxiety revisited. *Anxiety Disorders, 15*, 231-245.

Fan, X., Thompson, B., & Wang, L. (1999). Effects of sample size, estimation methods, and model specification on structural equation modeling fit indexes. *Structural Equation Modelling, 6*, 56-83.

Feild, A. (2005). *Discovering statistics with SPSS* (2nd ed.). London: Sage.

Flint, A. (2005). Anxiety and its disorders in late life: Moving the field forward. *American Journal of Psychiatry, 13*, 3-6.

Freeston, M. H., Rheaume, J., Letarte, H., Dugas, H., & Ladoucer, R. (1994). Why do people worry? *Personality and Individual Differences, 17*, 791-802.

Fuentes, K., & Cox, B. J. (2000). Assessment of anxiety in older adults: A community based survey and comparison with younger adults. *Behavior Research and Therapy, 38*, 297-309.

Gale, C. R., Allerhand, M., Sayer, A. A., Cooper, C., Dennison, E. M., Starr, J. M., et al. (2010). The structure of the Hospital Anxiety and Depression Scale in four cohorts of community-based, healthy older people: the HALCyon program. *International Psychogeriatrics, 22*, 559-571.

Goldberg, D., Bridges, K., Duncan-Jones, P., & Grayson, D. (1988). Detecting anxiety and depression in medical settings. *British Medical Journal, 297*, 897-899.

Greenberger, D., & Padesky, C., A. (1995). *Mind over mood: Change how you feel by changing the way you think*. New York: Guilford Press.

Groth-Marnet, G. (2003). *Handbook of psychological assessment* (4th ed.). New York: Wiley.

Gum, A. M., King-Kallimanis, B., & Kohn, R. (2009). Prevalence of mood, anxiety, and substance-abuse disorders for older Americans in the National Comorbidity Survey Replication. *American Journal of Geriatric Psychiatry, 17*, 769-781.

Gurian, B. S., & Miner, J. H. (1991). Clinical presentation of anxiety in the elderly. In C. Salzman & B. D. Lebowitz (Eds.), *Anxiety in the elderly: Treatment and research* (pp. 31-43). New York: Springer.

Hamilton, M. (1959). The assessment of anxiety states by rating. *British Journal of Medical Psychology, 32*, 50-55.

Hendriks, G. J., Oude Voshaar, R. C., Keijsers, G. P. J., Hoogduin, C. A. L., & van Balkom, A. J. L. M. (2008). Cognitive-behavioural therapy for late-life anxiety disorders: A systematic review and meta-analysis. *Acta Psychiatrica Scandinavica, 117*, 403-411.

Hersen, M., & van Hasselt, V. B. (1993). Behavioral assessment of anxiety in older adults: Some comments. *Behavior Modification, 17*, 99-112.

Heun, R., Papassotiropoulos, A., & Ptok, U. (2000). Subthreshold depressive and anxiety disorders in the elderly. *European Psychiatry, 15*, 173-182.

Hilliard, K. M., & Iwamasa, G. Y. (2001). The conceptualization of anxiety: an exploratory study of Japanese American older adults. *Journal of Clinical Geropsychology, 7*, 53-65.

Hopko, D. R., Bourland, S. L., Stanley, M. A., Beck, J. G., Novy, D. M., Averill, P. M., et al. (2000). Generalized anxiety disoder in older adults: Examining the relation between clinican severity ratings and patient self-report measures. *Depression and Anxiety, 12*, 217-225.

Hopko, D. R., Stanley, M. A., Reas, D. L., Wetherell, J. L., Beck, J. G., Novy, D. M., et al. (2003). Assessing worry in older adults: Confirmatory factor analysis of the Penn State Worry Questionnaire and psychometric properties of an abbreviated model. *Psychological Assessment, 15*, 1040-1059.

Hu, L., & Bentler, P. M. (1998). Fit indices in covariance structure modeling: Sensitivity to underparameterized model misspecification. *Psychological Methods, 3*, 424-453.

Hu, L., & Bentler, P. M. (1999). Heirachical confirmatory factor analysis of the revised personal style inventory: Evidence for the multidimensionality problem for perfectionism. *Educational and Psychology Measurement, 61*, 421-432.

Huen, R., Papassotiropoulos, A., & Ptok, U. (2000). Subthreshold depressive and anxiety disorder in the elderly. *European Psychiatry, 15*, 173-182.

Hunt, C., Issakidis, C., & Andrews, G. (2002). DSM-IV generalized anxiety disorder in the Australian National Survey of Mental Health and Well-Being. *Psychological Medicine, 32*, 649-659.

Hunt, C., Slade, T., & Andrews, G. (2004). Generalised anxiety disorder and major depressive disorder comorbidity in the National Survey of Mental Health and Well-Being. *Depression and Anxiety, 20*, 23-31.

Hunt, S., Wisocki, P., & Yanko, J. (2003). Worry and use of coping strategies among older and younger adults. *Anxiety Disorders, 17*, 547-560.

Iwamasa, G. Y. (2001). The conceptualization of anxiety: An exploratory study of Japanese American older adults. *Journal of Clinical Geropsychology, 7*, 53-65.

Johntson, M., Pollard, B., & Hennessey, P. (2000). Construct validation of the Hospital Anxiety and Depression Scale with clinical populations. *Journal of Psychosomatic Research, 48*, 579-584.

Kabacoff, R. I., Segal, D. L., Hersen, M., & Van Hasselt, V. B. (1997). Psychometric properties and diagnostic utility of the Beck Anxiety Inventory and the State-Trait Anxiety Inventory with older psychiatric outpatients. *Journal of Anxiety Disorders, 11*(1), 33-47.

Kemper, S., Herman, R. E., & Lian, C. H. (2003). The costs of doing two things at once for young and older adults: Talking while walking, finger tapping, and ignoting speech or noise. *Psychology and Aging, 18*, 181-192.

Kendell, R., & Jablensky, A. (2003). Distinguishing between the validity and utility of psychiatric diagnoses. *American Journal of Psychiatry, 160*, 4-12.

Khan, N., Wilkinson, T. J., & Keeling, S. (2006). Reasons for changing alcohol use among older people in New Zealand. *Australasian Journal on Ageing, 25*, 97-100.

Kline, T. J. (2005). *Psychological testing: A practical approach to design and evaluation*. California: Sage.

Knight, B. G., & Poon, C. Y. M. (2008). The socio-cultural context in understanding older adults: Contextual adult lifespan theory for adapting psychotherapy. In R. Woods & L. Clare (Eds.), *Handbook of the clinical psychology of ageing* (pp. 439-456). West Sussex: Wiley.

Knight, R. G., McMahon, C., Skeaff, M., & Green, T. (2008). Normative data for persons over 65 on the Penn State Worry Questionnaire. *New Zealand Journal of Psychology, 37*, 4-9.

Kogan, J. N., Edelstein, B. A., & McKee, D. R. (2000). Assessment of anxiety in older adults: Current status. *Journal of Anxiety Disorders, 14*, 109-132.

Krueger, R. F., Watson, D., & Barlow, D. H. (2005). Introduction to the special section: toward a dimensionally based taxonomy of psychopathology. *Journal of Abnormal Psychology, 114*, 491-493.

Kvaal, K., Ulstein, I., Nordhus, I. H., & Engedal, K. (2005). The Speilberger State-Trait Anxiety Inventory (STAI): The state scale in detecting mental disorders in geriatric patients. *International Journal of Geriatric Psychiatry, 20*, 629-634.

Lenze, E. J., Karp, J. F., Mulsant, B. H., Blank, S., Shear, K., Houck, P. R., et al. (2005). Somatic symptoms in late-life anxiety: Treatment issues. *Journal of Geriatric Psychiatry and Neurology, 18*, 89-96.

Levenson, R., Carstensen, L., Friesen, W., & Ekman, P. (1991). Emotion, physiology, and expression in old age. *Psychology and Aging, 6*, 28–35.

Levitt, E. E. (1968). *The psychology of anxiety*. London: Paladin.

Levy, B., Conway, K., Brommelhoff, J., & Merikengas, K. (2003). Intergenerational differences in the reporting of elders' anxiety. *Journal of mental health and aging, 9*, 233-241.

Light, L. L. (Ed.). (2000). *Memory changes in adulthood*. Washington DC: American Psychological Association.

Lindesay, J., Baillon, S., Brugha, T., Dennis, M., Araya, R., & Meltzer, H. (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.

Lowe, P. A., & Reynolds, C. R. (2000). Exploratory analyses of the latent structure of anxiety among older adults. *Education and Psychological Measurement, 60*(1), 100-116.

Lowe, P. A., & Reynolds, C. R. (2006). Examination of the psychometric properties of the Adult Manifest Anxiety Scale- Elderly Version scores. *Education and Psychological Measurement, 66*, 93-115.

MacCallum, R. C., Widaman, K. F., Zhang, S., & Hong, S. (1999). Sample size in factor analysis. *Psychological Methods, 4*, 84-99.

Meeks, S., Woodruff-Borden, J., & Depp, C. A. (2003). Structural differentiation of self-reported depression and anxiety in late life. *Anxiety Disorders, 17*, 627-646.

Messick, S. L. (1989). Meaning and values in test validation: The science and ethics of assessment. *Educational Researcher, 18*, 5-11.

Meyer, T. J., Miller, M. L., Metzger, R. L., & Borkovec, T. D. (1990). Development and validation of the Penn State Worry Questionnaire. *Behavior Research and Therapy, 28*, 487-495.

Ministry of Health. (2007). Suicide facts 2007 [Electronic Version]. Retrieved 9 July 2010.

Mohlman, J., de Jesus, M., Gorenstein, E. E., Kleber, J. M., Gorman, J. M., & Papp, L. A. (2004). Distinguishing generalized anxiety disorder, panic disorder, and mixed anxiety states in older treatment-seeking adults. *Anxiety Disorders, 18*, 275-290.

Moorey, S., Greer, S., Watson, M., Gorman, C., Rowden, L., Tunmore, R., et al. (1991). The factor structure and factor stability of the Hospital Anxiety and Depression Scale in patients with cancer. *British Journal of Psychiatry, 158*, 255-259.

Morin, C. M., Landreville, P., Colecchi, C., McDonald, K., Stone, J., & Ling, W. (1999). The Beck Anxiety Inventory: Psychometric properties with older adults. *Journal of Clinical Geropsychology, 5*(1), 19-29.

Neiss, M. B., Leigland, L. A., Carlson, N. E., & Janowsky, J. S. (2003). Age related differences in perception and awareness of emotion. *Neurobiology and Aging, 24*, 285-295.

Nuevo, R., Mackintosh, M., Gatz, M., Montorio, I., & Wetherell, J. L. (2007). A test of the measurement invariance of a brief version of the Penn State Worry Questionnaire between American and Spanish older adults. *International Psychogeriatrics, 19*, 89-104.

Nuevo, R., Montorio, I., & Borkovec, T. D. (2004). A test of the role of metaworry in the prediction of worry severity in an elderly sample. *Journal of Behaviour Therapy and Experimental Psychology, 35*, 209-218.

Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric Theory*. New York: McGraw-Hill.

Oakley Browne, M. A., Wells, J. E., & Scott, K. M. (Eds.). (2006). *Te Rau Hinengaro: The New Zealand Mental Health Survey*. Wellington: Ministry of Health.

Ong, A., & Bergeman, C. S. (2004). Emotional complexity in later life. *Journal of Gerontology, 59*, 117-122.

Owram, D. (1997). *Born at the right time*. Toronto: University of Toronto Press.

Pachana, N. A., Byrne, G. J., Siddle, H., Koloski, N., Harley, E., & Arnold, E. (2007). Development and validation of the Geriatric Anxiety Inventory. *International Psychogeriatrics, 19*, 103-114.

Padesky, C. A., & Greenberger, D. (1995). *Clinician's guide to mind over mood*. New York: Guilford Press.

Pallesen, S., Nordhus, I. H., Kvale, G., Havik, O. E., Nielsen, G. H., Johnsen, B. H., et al. (2002). Psychological characteristics of elderly insomniacs. *Scandinavian Journal of Psychology, 42*, 425-432.

Palmer, B., Jeste, D. V., & Sheikh, J. I. (1997). Anxiety disorders in the elderly: DSM-IV and other barriers to diagnosis and treatment. *Journal of Affective Disorders, 46*, 183-190.

Patton, M. Q. (1990). *Qualitative evaluation and research methods* (2nd ed.). London: Sage.

Person, D. C., & Borkovec, T. D. (1995). *Anxiety disorders among the elderly: Patterns and issues.* Paper presented at the 103rd Annual Meeting of the American Psychological Association.

Purdon, C., & Harrington, J. (2006). Worry in psychopathology. In G. C. L. Davey & A. Wells (Eds.), *Worry and its psychological disorders* (pp. 41-50). Sussex: Wiley.

Ready, R. E., Carvalho, J. O., & Weinberger. (2008). Emotional complexity in younger, midlife, and older adults. *Psychology and Aging, 23*(4), 928-933.

Reynolds, C. R., Richmond, B. O., & Lowe, P. A. (2003). *The Adult Manifest Anxiety Scale-Elderly Version (AMAS-E)*. Los Angeles: Western Psychological Services.

Roemer, L., Orsillo, S. M., & Barlow, D. H. (2002). Generalised anxiety disorder. In D. H. Barlow (Ed.), *Anxiety and its disorders: The nature and treatment of anxiety and panic* (2nd ed., pp. 477-515). New York: The Guilford Press.

Ruscio, A. M., Lane, M., Roy-Byrne, P., Stang, P. E., Stein, D. J., Wittchen, H., et al. (2005). Should excessive worry be required for a diagnosis of generalized anxiety disorder? Results from the US National Comorbidity Survey Replication. *Psychological Medicine, 35*, 1761-1772.

Salkovskis, P. M. (1996). 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. 48-74). London: Guilford Press.

Schuman, H., & Scott, J. (1989). Generations and collective memories. *American Sociological Review, 54*, 359-381.

Schwarz, N. (1999). Self-reports: How the questions shape the answers. *American Psychologist, 54*, 93-105.

Shamoian, C. A. (1991). What is anxiety in the elderly? In C. Salzman & B. D. Lebowitz (Eds.), *Anxiety in the elderly: Treatment and research*. New York: Springer.

Shapiro, A. M., Roberts, J. E., & Beck, J. G. (1999). Differentiating symptoms of anxiety and depression in older adults: distinct cognitive and affective profiles. *Cognitive Therapy and Research, 23*, 53-74.

Sheehan, B., & Banerjee, S. (1999). Review: Somatization in the elderly. *International Journal of Geriatric Psychiatry, 14*, 1044-1049.

Sheikh, J. I. (1991). Anxiety rating scales for the elderly. In C. Salzman & B. D. Lebowitz (Eds.), *Anxiety in the elderly: Treatment and research*. New York: Springer.

Sheikh, J. I., & Yesavage, J. A. (1986). The Geriatric Depression Scale (GDS): Recent evidence and development of a shorter version. In T. L. Brink (Ed.), *Clinical Gerontology: A guide to assessment and intervention* (pp. 165-173). New York: The Haworth Press.

Sinoff, G., Ore, L., Zlotogorsky, D., & Tamir, A. (1999). Short anxiety screening test: A brief instrument for detecting anxiety in the elderly. *International Journal of Geriatric Psychiatry, 12*, 1062-1071.

Sinoff, G., Ore, L., Zlotorgorsky, D., & Tamir, A. (1999). Short Anxiety Screening Test: A brief instrument for detecting anxiety in the elderly. *International Journal of Geriatric Psychiatry, 14*, 1062-1071.

Spielberger. (1970). The State Trait Anxiety Inventory.

Spielberger, C. D. (1966). The effects of anxiety on complex learning and academic achievement. In C. D. Spielberger (Ed.), *Anxiety and behaviour* (pp. 361-398). New York: Academic Press.

Spinhoven, P. H., Ormel, J., Sloekers, P. P. A., Kempen, G. I. J. M., & Speckens, A. E. M. (1997). A validation study of the hospital anxiety and depression scale (HADS) in different groups of Dutch subjects. *Psychological Medicine, 27*, 363-370.

SPSS Inc. SPSS for Windows, Rel. 17. 0. 0. 2008 [Computer Program]. Chicago: SPSS Inc.

Stanley, M. A., & Beck, J. G. (1998). Anxiety disorders. In M. Hersen & V. B. van Hasselt (Eds.), *Handbook of clinical geropsychology* (pp. 217-235). New York: Plenum Press.

Stanley, M. A., & Beck, J. G. (2000). Anxiety disorders. *Clinical Psychology Review, 20*, 731-754.

Stanley, M. A., Beck, J. G., & Zebb, B. J. (1996). Psychometric properties of four anxiety measures in older adults. *Behavior Research and Therapy, 34*(10), 827-836.

Stanley, M. A., Novy, D. M., Bourland, S. L., Beck, J. G., & Averill, P. M. (2001). Assessing older adults with generalized anxiety: A replication and extension. *Behavior Research and Therapy, 39*, 221-235.

Statistics New Zealand. (2007). New Zealands 65+ population: A statistical volume 2007 [Electronic Version]. Retrieved 31 July 2008 from http://www.stats.govt.nz/NR/rdonlyres/2618D769-A4DF-403D-99BF-5FDE42C68EE3/0/nzs65pluspopulationreport1.pdf.

Tallis, F., Eysenck, M., & Mathews, A. (1992). A questionnaire for the measurement of nonpathological worry. *Personality and Individual Differences, 13*, 161-168.

Trollor, J. N., Anderson, T. M., Sachdev, P. S., Brodaty, H., & Andrews, G. (2007). Age shall not weary them: Mental health in the middle-aged and the elderly. *Australian and New Zealand Journal of Psychiatry, 41*, 581-589.

Turnbull, J. M. (1989). Anxiety and physical illness in the elderly. *Journal of Clinical Psychiatry, 50*, 40-45.

Vogele, C., & von Leupoldt, A. (2008). Mental disorders in chronic obstructive pulmonary disease. *Respiratory medicine, 102*, 764-773.

Watson, D. (2005). Rethinking the mood and anxiety disorders: A quantitative hierachical model for DSM-V. *Journal of Abnormal Psychology, 114*, 522-536.

Watson, D., Clark, L. A., Weber, K., Assenheimer, J. S., Strauss, M. E., & McCormick, R. A. (1995). Testing a tripartite model II. Exploring the symptom structure of anxiety and depression in student, adult, and patient samples. *Journal of Abnormal Psychology, 104*, 15-25.

Webb, S. A., Diefenbach, G., Wagener, P., Novy, D. M., Kunik, M., Rhoades, H. M., et al. (2008). Comparison of self-report measures for identifying late-life generalised anxiety disorder in primary care. *Journal of Geriatric Psychology, 21*, 223-231.

Wells, A. (1997). *Cognitive therapy of anxiety disorders: A practice manual and conceptual guide*. New York: John Wiley & Sons.

Wells, A. (2004). A cognitive model of GAD. In R. G. Heimberg, C. L. Turk & D. S. Mennin (Eds.), *Generalized Anxiety Disorder*. New York Guilford.

Wells, A. (2005). The metacognitive model of GAD: Assessment of meta-worry and relationship with DSM-IV Generalized Anxiety Disorder. *Cognitive Therapy and Research, 29*, 107-121.

Wetherell, J. L., & Arean, P. A. (1997). Psychometric evaluation of the Beck Anxiety Inventory with older medical patients. *Psychological Assessment, 9*(2), 136-144.

Wetherell, J. L., Birchler, G. D., Ramsdell, J., & Unutzer, J. (2007). Screening for generalised anxiety disorder in geriatric primary care patients. *International Journal of Geriatric Psychiatry, 22*, 115-123.

Wetherell, J. L., & Gatz, M. (2005). The Beck Anxiety Inventory in older adults with generalised anxiety disorder. *Journal of Psychopathology and Behavioural Assessment, 27*, 17-24.

Wetherell, J. L., Le Roux, H., & Gatz, M. (2003). DSM-IV criteria for Generalized Anxiety Disorder in older adults: distinguishing the worried from the well. *Psychology and Aging, 18*, 622-627.

Widiger, T. A., & Samuel, D. B. (2005). Diagnostic categories or dimensions? A question for the *Diagnostic and Statistical Manual of Mental Disorders- Fifth Edition. Journal of Abnormal Psychology, 114*, 494-504.

Wilk, J. E., West, J. C., Narrow, W. E., Marcus, S., Rubio-Stipec, M., Rae, D. S., et al. (2006). Comorbidity patterns in routine psychiatric practice: is there evidence of underdetection and underdiagnosis? *Comprehensive Psychiatry, 47*, 258-264.

Wisocki, P. (1988). Worry as a phenomenon relevant to the elderly. *Behavior Therapy, 19*, 369-379.

Wisocki, P. A., Handen, B., & Morse, C. K. (1986). The worry scale as a measure of anxiety among homebound and community active elderly. *Behaviour Therapist, 5*, 91-95.

Wolitzky-Taylor, K. B., Castriotta, N., Lenze, E. J., Stanley, M. A., & Craske, M. G. (2010). Anxiety disorders in older adults: A comprehensive review. *Depression and Anxiety, 27*, 190-211.

Woods, B. (2008). Assessing mood, wellbeing, and quality of life. In R. Woods & L. Clare (Eds.), *Handbook of the clinical psychology of ageing* (pp. 415-427). West Sussex: Wiley.

Zigmond, A. S., & Snaith, R. P. (1983). The Hospital Anxiety and Depression Scale. *Acta Psychiatrica Scandinavica, 67*, 361-370.