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**Attachment to God as a Source of Struggle and Strength:  
Exploring the Association Between Christians' Relationship with God  
and Their Emotional Wellbeing**

**A dissertation presented in partial fulfilment of the requirements for  
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## **Abstract**

Research has highlighted the significant implications of spirituality for mental health and therapy. However, a key facet of spirituality yet to receive adequate research attention is people's experience of their relationship with God. One useful theoretical framework recently applied to this relationship is attachment theory. Research suggests that many people experience their relationship with God as an attachment bond, and that styles of attachment to God (ATG) may have implications for mental health similar to human attachment. However, few studies have directly investigated the relationship between ATG and mental health, and limitations of these studies make it difficult to draw conclusions. The present study provides a more rigorous exploration of this relationship through the use of a cross-lagged research design, advanced statistical modelling, and investigation of potential moderators (gender and negative events). A convenience sample of 531 Christian adults was surveyed at two time points approximately four months apart. ATG was measured on two dimensions: ATG-avoidance (avoidance of intimacy with/dependence on God) and ATG-anxiety (preoccupations and fears regarding God's rejection). Higher levels of baseline ATG-anxiety predicted poorer emotional wellbeing at Time 2, after controlling for baseline emotional wellbeing. This effect was stronger amongst participants experiencing a high level of negative events. Findings also indicate a potential mechanism for this effect. Specifically, ATG-anxiety was associated with a tendency to appraise negative events as indicating God's abandonment/punishment. These appraisals mediated the relationship between ATG-anxiety and emotional wellbeing. In contrast, low levels of ATG-anxiety buffered the effects of negative events. The effects of ATG-anxiety were significant only amongst males, contrary to hypotheses. ATG-avoidance did not show hypothesised effects on emotional wellbeing in either gender. Possible limitations of the ATG-avoidance measure were noted, and may have influenced findings. Suggestions were made as to how future studies might address this potential measurement issue and other limitations of the study. Findings indicate that ATG theory may have useful therapeutic applications, as proposed by previous researchers. Specifically, the ATG framework may be useful for conceptualising clients' relationship with God and its effects on mental health, although establishing this will ultimately require testing in clinical samples.

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## SECTION I: INTRODUCTION

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### CHAPTER ONE



Recent decades have witnessed a growing interest in the relationship between religion/spirituality and mental health. A number of factors appear to have contributed to these developments, including a cultural shift toward greater acknowledgement of the spiritual dimension (Killmer, 2002; Moberg, 2002), and research demonstrating a significant relationship between religion/spirituality and mental health (Dew et al., 2008; Haber, Jacob, & Spangler, 2007; Koenig, 1998a). There has also been a growing recognition of the need to address religion/spirituality in clinical and psychotherapeutic settings to provide more comprehensive and culturally sensitive treatment (Eck, 2002; Fallot, 2007; Richards & Bergin, 1997; Yarhouse, 2003).

Although difficult concepts to define, 'religion' generally refers to an organised system of beliefs and practices through which people manifest faith and devotion to the transcendent, and 'spirituality' refers to beliefs and behaviours that reflect a search for transcendence, meaning and relationship to the sacred (Koenig, McCullough, & Larson, 2001; Miller & Thoresen, 2003; Myers, 2000; Seybold & Hill, 2001). Although spirituality may be viewed as a broader, more personal and subjective construct compared with religion (Walsh, 1999b), the concepts are closely intertwined (Moberg, 2002). Both typically involve a relationship with the sacred and a search for ultimate meaning, purpose and value (Fallot, 2001). Some academics suggest that religion and spirituality may be inseparable, and caution that attempts to extricate these constructs may lead to unnecessary and harmful polarization (Helminiak, 2001; Pargament, 1997; Zinnbauer, Pargament, & Scott, 1999). On this basis the terms are used interchangeably in this thesis.

The term 'mental health' has also been defined and operationalised in multiple ways by different researchers (Gross & Muñoz, 1995; Hackney & Sanders, 2003) and is used in this thesis in its broadest sense, encompassing most common definitions. Thus the term extends beyond merely the absence of negative psychological states (e.g., depression, guilt, mental illness) to also include positive states of mental well-being in which individuals are able to experience satisfying relationships and positive

affect, to work productively and creatively and to cope with normal life stressors (Gross & Muñoz, 1995; Hackney & Sanders, 2003; World Health Organisation, 2005).

The current chapter introduces the thesis' topic and provides an overview of forthcoming chapters that review relevant literature. Chapter 2 opens with a brief review of findings regarding the relationship between spirituality and mental health. Although qualitative and quantitative research indicate a relationship between spirituality and mental health, this relationship depends on a number of factors, including the type of spiritual variable measured (e.g., Hackney & Sanders, 2003; Payne, Bergin, Bielema, & Jenkins, 1991; T. B. Smith, McCullough, & Poll, 2003). While some variables (e.g., general religious affiliation) appear to be only weakly and indirectly related to mental health, others predict positive mental health outcomes more robustly (e.g., faith-based systems of meaning/purpose), while others are linked with adverse mental health outcomes (e.g., negative religious coping methods). Chapter 3 notes the multifaceted nature of spirituality and the need to identify which aspects are most salient to mental health and therapy. Past research has often focused on variables such as religious affiliation and frequency of church attendance (e.g., Dew et al., 2008; Koenig, McCullough, & Larson, 2001). However, there is increasing recognition that such variables do not adequately capture the heart or complexity of the spiritual domain, and may not be the aspects most salient to mental health (Ano & Vasconcelles, 2005; Wortmann & Park, 2008). What is typically considered to lie at the heart of spirituality, particularly for monotheistic religions such as Christianity (the focus of this study), is people's experience of their relationship with God (Edwards & Hall, 2003; W. R. Miller & Thoresen, 2003; Seybold & Hill, 2001). Given preliminary evidence for the salience of people's experience of their relationship with God (ERG) to mental health and therapy, it seems important to deepen our understanding of the relationship between ERG and mental health. This understanding may benefit therapists and other health care professionals who want to be more sensitive to clients' spiritual needs and to have a sound understanding of the role of spiritual factors in clients' mental health (Proctor & McLean, 2009). Research will also deepen our understanding of the relationship between spirituality and mental health in the general population.

A sound theoretical framework is needed in order to guide research on the relationship between ERG and mental health, and also to promote inclusion of ERG into therapy. Such a framework should provide a basis for conceptualising ERG,

hypothesising specific relationships between ERG and mental health, and hypothesising potential mechanisms underlying this relationship. Chapter 4 introduces one theoretical framework which stands out as particularly suitable for this purpose: attachment to God (ATG) theory. This theory was selected on the basis of a number of important characteristics and benefits, discussed in Chapter 4. These benefits include its grounding in a highly-established theoretical framework (human attachment theory), its successful application within the psychology of religion and spirituality, and its relevance and suitability for therapeutic application. A brief overview of attachment theory is provided in Chapter 4, followed by a discussion of the application of this theory to a relationship with God. Evidence indicates that many people relate to God in ways that are consistent with an attachment relationship (e.g., Kirkpatrick, 1992). The growing body of theoretical and empirical research that has explored ATG and its implications is examined in Chapters 4 and 5. Chapter 4 also discusses the recent movement toward conceptualising attachment style from a dimensional rather than categorical perspective. Evidence suggests that two dimensions underpin attachment: *anxiety about abandonment* and *avoidance of intimacy* (Brennan, Clark, & Shaver, 1998). In the context of ATG, anxiety about abandonment reflects the extent to which one's relationship with God is marked by preoccupation and anxiety about one's lovability to God, and fears of potential rejection by God (R. Beck & McDonald, 2004). Avoidance of intimacy reflects a resistance toward emotional intimacy with God and dependence on God, and a preference for self-reliance (R. Beck & McDonald, 2004).

Chapter 5 explores the relationship between attachment and mental health. A large body of empirical evidence links secure attachment in human relationships with indicators of better mental health, and insecure attachment with more adverse mental health outcomes. After briefly reviewing this research, Chapter 5 moves on to focus on the relationship between ATG and mental health. Research in this area is relatively sparse and findings are too mixed to draw firm conclusions. Furthermore, the research conducted to date has considerable limitations. One particular problem is the lack of prospective research and failure to control for potentially important covariates. Because of these limitations, inferences cannot be made regarding the causal direction of the relationship between ATG and mental health. Despite theory suggesting that ATG influences mental health, there is as yet no evidence for this causal effect. Other limitations of prior research are also described, including problems relating to

measurement of ATG and the failure to assess potential moderators of the ATG-mental health relationship. Trans-disciplinary research, discussed in Chapter 5, suggests that gender and negative events may moderate the relationship between ATG and mental health. Specifically, some evidence exists to suggest that the relationship between ATG and mental health may be stronger amongst (a) females compared with males, and (b) those experiencing a higher level of negative events (e.g., Bickel et al., 1998; Desrosiers & Miller, 2007; Maton, 1989). However, no published research has yet directly tested these propositions.

Chapter 6 discusses a potentially important mechanism that may underlie the ATG-mental health relationship. The effect of human attachment style on mental health is thought to occur via a range of mechanisms, but perhaps most saliently through shaping individuals' characteristic responses to adversity (Mikulincer & Florian, 1995; Mikulincer, Florian, & Weller, 1993). Specifically, secure attachment promotes adaptive coping strategies while insecure attachment (attachment anxiety or avoidance) is linked to less adaptive methods of coping (S. Johnson, 2004; Mikulincer et al., 1993; Slade, 1999; Ungerer & McMahon, 2005). This mechanism for an effect of human attachment style on mental health has been explored in two related but distinctive ways. Firstly, studies have demonstrated that the relationship between attachment and mental health is mediated by coping style (i.e., attachment style predicts coping style which in turn predicts mental health; e.g., Birnbaum, Orr, Mikulincer, & Florian, 1997; Merlo & Lakey, 2007). Secondly, studies have demonstrated that attachment style moderates the impact of negative events on mental health. Specifically, secure attachment has been shown to act as a protective factor that buffers the detrimental effects of negative events, while insecure attachment acts as a risk factor that intensifies these detrimental effects (e.g., Hammen et al., 1995; Salo, Qouta, & Punamaki, 2005).

Theorists have proposed that ATG may influence mental health through similar mechanisms. Specifically, individuals' style of ATG may affect mental health through influencing the ways in which they draw on their relationship with God when coping with negative events (Belavich & Pargament, 2002; L. B. Cooper, Bruce, Harman, & Boccaccini, 2009; Proctor, Miner, Dowson, & Devenish, 2009). If this is the case, then it may be hypothesised that (a) the relationship between ATG and mental health is mediated by religious coping style, and (b) ATG style moderates the impact of negative events on mental health. To date there has been little examination of these

propositions, and limitations of those studies preclude conclusions from being formed. Exploration of these hypotheses would provide useful information regarding the mechanisms by which ATG may influence mental health, and insight as to whether ATG functions in a psychologically similar way to human attachment.

### **Aims of the Present Study**

As noted, there is evidence for the salience of ERG to mental health and therapy, and the usefulness of the ATG framework for conceptualising and assessing ERG. However, the body of research on ATG and mental health is still relatively small, and existing research is undermined by a number of limitations. This study sought to extend current knowledge on the ATG-mental health relationship, redressing some prior limitations. Specifically, the relationship between ATG and mental health was examined using a two-wave cross-lagged panel design, to allow exploration of the likely causal direction of this relationship. The potential moderating effects of gender and negative events in this relationship were also addressed. Finally, the study sought to explore potential mechanisms for the ATG-mental health relationship, through investigating whether (a) religious coping mediates the relationship between ATG and mental health, and (b) ATG moderates the impact of negative events on mental health. Prior to this study, these issues had received very little research attention. Specific aims and hypotheses of the current study are described in more detail in Chapter 7. Chapter 7 also presents the area of mental health which was the focus of the present study, namely, emotional wellbeing. The term ‘emotional wellbeing’ is used in the present study to refer to the affective component of mental health, encompassing both negative affective states such as depression, anxiety and distress, and positive affective states such as happiness. Specific variables used to assess positive and negative states of emotional wellbeing in the current study, and the rationale for their selection, are outlined in Chapter 7.

### **Significance of the Present Study**

This thesis has the potential to make a number of important contributions to the literature. Firstly, the study will contribute to the body of literature on the relationship between spirituality and mental health. There are increasing calls for research to move beyond examining whether a relationship between generalised indicators of spirituality and mental health exists. Instead, what is needed at this stage is research exploring

which specific forms of spirituality exert positive and negative effects on mental health, and the mechanisms through which effects may occur (e.g., Haber et al., 2007; Hill, Sarazin, Atkinson, Cousineau, & Hsu, 2003; Koenig, 2000). This study seeks to respond to this call, by suggesting that the quality of individuals' ATG may be one important factor that determines whether their faith constitutes a source of struggle or strength.

The main contribution of this thesis lies in the way its findings may extend current empirical and theoretical understanding of the ATG-mental health relationship. To date, little research has specifically focused on this relationship, and the studies conducted have been limited in a number of respects. This thesis will help to clarify the nature of relationship between ATG and mental health, particularly with regard to whether there is evidence to indicate the causal direction of this relationship. Of equal importance is the exploration of potential moderating factors and mechanisms for this relationship. In examining such factors, the thesis will help to deepen our understanding of how (and under what conditions) ATG contributes to mental health, and thus also whether ATG functions in a similar way to human attachment relationships.

The use of an advanced statistical procedure (structural equation modelling, SEM) also enhances the contribution of the present study. This statistical technique allows for complex modelling of relationships, and in particular has the advantage of modelling constructs as latent variables (free of error variance) rather than relying solely on observed scores. This affords a more accurate examination of the ATG-mental health relationship than has been provided in most previous research. The use of SEM also provides a powerful way to explore evidence for a relationship between ATG and mental health in *both* causal directions, that is, to test whether ATG can predict subsequent levels of mental health, and whether mental health can predict subsequent levels of ATG. The possibility that mental health may influence ATG has never before been taken into account and tested.

An important contribution of this thesis is to the literature on assessment of ATG. Although many measures of ATG have been developed, few assess the two dimensions currently thought to best represent underlying attachment style (i.e., attachment anxiety and avoidance). At the time the present study was conducted, two scales assessing these dimensions were available. The items from these scales were combined in order to assess ATG in the present study. An examination of the validity

of the combined scale highlighted a number of salient limitations regarding current measurement of ATG, and led to the development of an improved measure. The need for further development of this and other ATG measures is described, with reference to specific areas that require addressing in order to enhance validity. Improved measurement of ATG is vital in enhancing our capacity to build on current knowledge regarding the ATG-mental health relationship.

The thesis will also make a contribution to the religious coping literature. Interest in religious coping, including its relationship with mental health, has been growing rapidly (Ano & Vasconcelles, 2005; Belavich & Pargament, 2002; Pargament, 1997). However, what is currently lacking is a clear understanding of what determines individuals' choice of specific positive and negative religious coping strategies (Belavich & Pargament, 2002). ATG is thought to provide a theoretical basis for predicting and explaining individual differences in choice of religious coping (Belavich & Pargament, 2002). This thesis will contribute to our understanding of the relationship between ATG, religious coping, and emotional wellbeing.

Through contributing to the growing literature on the relationship between spirituality and mental health, this thesis has the potential to assist those working with religious individuals (particularly Christians) in the field of mental health, whether in clinical or pastoral roles. Potential therapeutic applications of ATG are beginning to be discussed and developed (e.g., Miner, 2008, July; Moriarty, 2006; Moriarty, Hoffman, & Grimes, 2007; Proctor & McLean, 2009). Exploring evidence for an effect of ATG on mental health is important given that many applications of ATG theory assume such an effect exists, despite the current lack of empirical evidence. Other findings of this thesis also have the potential to inform development of therapeutic applications of ATG, although all such applications should be considered tentative until confirmed in clinical samples. These include findings regarding the potential mechanisms by which ATG may influence mental health, and the conditions under which the ATG-mental health relationship becomes most salient.

### **Rationale for the Use of a Christian Sample**

The choice to use a Christian sample for the current study was determined by several factors. Although the world is becoming increasingly religiously diverse, with the result that therapists must be able to work with clients of a wide range of religions and spiritualities, it was simply not feasible or wise to include multiple religious

groups in this study. Religious groups differ across a range of theological and doctrinal areas in addition to outward practices. These differences extend to fundamental beliefs such as whether there is a God or some other divine being, the number of gods, and the nature of God (Batson, Schoenrade, & Ventis, 1993; Spilka, Hood, Hunsberger, & Gorsuch, 2003). There is no doubt that the way people experience important aspects of their faith, including their relationship with God, is significantly shaped by such factors. Even monotheistic religions such as Christianity, Islam and Judaism have distinct disparities in their understandings of the nature of God (A. B. Cohen, 2002; Dubow, Pargament, Boxer, & Tarakeshwar, 2000; Miner, 2007). This has consequences for how members of these traditions conceptualise God, the importance they place on a personal connection with God, how they use their relationship with God in coping, and the influence of their ERG on their mental health (Granqvist, Ivarsson, Broberg, & Hagekull, 2007; Koenig, 1995; Monteiro, 2005; Tarakeshwar, Pargament, & Mahoney, 2003). These differences also have implications regarding appropriate measurement of spiritual variables in each faith group (Kelly, 1995b; Moberg, 2002). Given that the relationship between clients' ERG and their mental health may differ across religious groups, it is necessary to avoid adopting such a broad focus that the applicability of findings to any particular group is questionable. While focusing on one religious tradition limits the generalisability of findings, this is less problematic than generating inaccurate findings as a result of summing responses of members from inherently different traditions (Moberg, 2002).

One factor contributing to the selection of a Christian sample for the current study was the author's familiarity with the tradition at a personal level. This confers both advantages and disadvantages. For example, whilst a personal understanding and experience of Christianity facilitates a deeper understanding of a number of constructs relevant to the study, it also has the potential to lead to biases in interpreting the literature and study findings. A conscious endeavour was made to remain aware of potential biases, and supervision provided a context in which to consider a range of interpretations. Biases are however not unique to the religious individual; a non-religious viewpoint can also lead to biased expectations regarding research findings in this field (W. R. Miller, 1990). Another factor that influenced the choice of a Christian sample is that Christians comprise the largest religious group in the world and the largest group of religious clients encountered in Western countries (Encyclopaedia Britannica, 2007; Koenig, 1998a). Christians are currently the dominant religious

group in New Zealand, with over half of the population in the most recent census describing themselves as Christian (New Zealand Statistics, 2006). Given this, therapists working in New Zealand (and in much of the world) can expect to work with a substantial number of Christian clients over the course of their practice. The greater number of Christians in New Zealand also makes it significantly easier to locate a sample of Christians relative to members of other religious traditions.

A final factor influencing the choice of a Christian sample relates to the fact that psychological research on the relationship between spirituality and mental health to date has predominantly been conducted within a Judeo-Christian framework, using Christian samples (Gannoway, 1996; Kirkpatrick & Shaver, 1992; Ripley, Worthington, & Berry, 2001; Spilka et al., 2003). Consequently, much of the available literature that informed the present study is most relevant to this religious group. More importantly, theory and research on ATG has been developed and applied predominantly within a Judeo-Christian framework (e.g., R. Beck & McDonald, 2004; Bonab, Miner, & Proctor, 2009; Kirkpatrick, 1992; Miner, Bonab, & Proctor, 2009). Only recently has ATG been examined in relation to other faith traditions such as Islam (Bonab et al., 2009; Miner et al., 2009). These studies reveal that Muslims' relationship with Allah can also be conceptualised as an attachment relationship (Bonab et al., 2009). However, there are some fundamental theological differences between Christian and Islamic spirituality which translate into differences in experiences and manifestations of this relationship (Miner et al., 2009). Such differences need to be taken into account when theorising and assessing ATG, and in the context of therapy (Miner et al., 2009). ATG measures grounded in Christian theology and intended for use with Christian samples are inappropriate for assessing ATG in other faith traditions (Miner et al., 2009). The findings of this thesis are thus directly relevant only to the Christian experience of spirituality and mental health. However, they may prompt questions regarding the generalisability of findings to other faith traditions, leading to formal investigation in such groups.



## SECTION II: LITERATURE REVIEW

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### CHAPTER TWO

#### **The Relationship Between Spirituality and Mental Health**



Psychology was initially considered the study of the soul; the term ‘psyche’ from which psychology derives its name is the Greek word referring to the soul (Vande Kemp, 1996). Despite these roots, the twentieth century saw the gradual separation of psychology and religion, and an uneasy relationship developed (Walsh, 1999a). The emergence of the scientific paradigm as the dominant epistemology in psychology brought with it scepticism toward faith-based belief systems (Hill et al., 2003; W. R. Miller, 2005). Psychology developed an underlying “naturalistic-atheistic” worldview, assuming human nature could be wholly explained through natural processes, and excluding reference to the supernatural (Richards & Bergin, 2004). Additionally, a number of prominent theorists and therapists including Freud, Leuba, Skinner and Ellis expressed negative views of religion, labelling it pathological, exploitive, irrational, dangerous, and an impediment to achieving emotional health (Freud, 1961; Kelly, 1995a; Skinner, 1953; Walsh, 1999a). Such views promoted the exclusion of spirituality from psychological research and from the theory and practice of psychotherapy (Awara & Fasey, 2008; Fallot, 1997).

However, in contrast to the past conflict and separation between the fields of religion and psychology, suspicion and concern now appear to be abating (Spilka et al., 2003). The past few decades have shown encouraging signs of progress in integrating the spiritual domain into therapy and the wider field of mental health. The 21<sup>st</sup> century has been predicted to hold great promise for increased understanding and cooperation between members of these fields (Koenig, 2000). The growing interest in the relationship between spirituality and mental health is reflected in the rapid increase in research on this topic (Blanch, 2007; Larson & Larson, 2003; Richards & Bergin, 2004). One review identified 850 studies exploring this relationship in the twentieth century (Koenig et al., 2001), and many more studies have been published since. Progress is also reflected in the increase in books and training programs focused on integration of spirituality into clinical practice (Fortin & Barnett, 2004; Foskett,

Marriott, & Wilson-Rudd, 2004), and the increasing number of journals focused on integration of the fields of religion and mental health (e.g., the Journal for the Scientific Study of Religion, the Journal of Religion and Health, the International Journal for Psychology of Religion, the Journal of Psychology and Theology and the Journal of Psychology and Christianity). A number of professional groups and societies have been established with the aim of promoting integration of religion into mental health research and therapy, for example the Society for the Scientific Study of Religion, the National Academy of Religion and Mental Health, the American Foundation of Religion and Psychiatry, the American Association of Christian Counselors, the Christian Association for Psychological Studies, the Religious Research Association and APA division 36: Psychology of Religion. APA-accredited degrees focusing on spiritual integration have been developed (Vande Kemp, 1996), and the field of psychiatry has formally expanded the bio-psycho-social model of illness to include the spiritual dimension, endorsing the bio-psycho-social-*spiritual* model (Blanch, 2007). The addition of a Religious or Spiritual Problem category to the latest Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) is another encouraging sign (Lukoff, Lu, & Turner, 1992).

### **Reasons for the Current Interest in the Spiritual Domain**

The renewed interest in the spiritual domain is likely to be due to a number of factors. To begin with, the significant cultural shift occurring in many countries is slowly replacing a materialist, positivist perspective of human beings with a more holistic perspective (Culliford, 2002; Killmer, 2002). People are increasingly viewed as having a spiritual dimension, with universal needs for meaning and transcendence (Emblem & Pesut, 2001). It is also recognised that valid empirical research can be conducted on spiritual variables, as with many other unobservable phenomena (Moberg, 2002). Such views create the climate for greater integration of spirituality and mental health. Secondly, many early studies of spirituality and mental health found significant, and typically positive, relationships (e.g., see Koenig, 1998a, for a review of early research findings). Such findings help to cast doubt on the negative views espoused by Freud and other prominent theorists. The shifting attitude about the relationship between spirituality and mental health seems to have renewed interest in further exploration of this relationship. Given that mental health is an issue of great importance to populations all over the world (both clinical and non-clinical), there has

long existed a significant interest and investment into identifying factors that may contribute to mental health. The recognition of spirituality as one such variable is likely to have naturally promoted research interest.

### **The significance of spirituality in therapeutic practice**

A more recent impetus for interest in spirituality within the field of mental health is the growing recognition of the importance of attending to clients' spiritual needs in therapy. This recognition stems in part from research findings indicating that spirituality is related to mental health. For mental health practitioners, an accurate understanding of the factors influencing clients' mental health (particularly their presenting problems) is vital to effective therapy intervention (Meier, 2003). Such an understanding provides the basis for developing a comprehensive case formulation, which is then used to guide a myriad of treatment decisions. Accurate identification of those factors influencing clients' mental health not only promotes more integrated and effective intervention but can also enhance the therapeutic relationship and increase clients' confidence in their therapist and positive expectations of change (Meier, 2003). Conceptualisations must therefore consider a wide range of factors known to potentially exert a positive or negative influence on mental health (P. Berman, 1997; Carr & McNulty, 2006). Given evidence that spiritual variables may influence mental health, assessment of the spiritual domain and incorporation into the conceptualisation is viewed as important for developing comprehensive and holistic interventions (Awara & Fasey, 2008; Proctor & McLean, 2009).

An additional reason driving the increased demand to attend to spirituality in therapy is the view that it constitutes an important 'cultural' variable. There is a growing recognition that therapy must be both relevant and sensitive to clients' culture, and cultural competence is now an ethical requirement within most mental health professions (Fallot, 2007; Sue, Bingham, Porche-Burke, & Vasquez, 1999). Culture permeates human experience in ways that are highly relevant to therapy, for example affecting help-seeking preferences, understandings of mental illness, patterns of interaction with the therapist, and expectations for therapy (Goedde, 2000; Ridley, Li, & Hill, 1998). Thus, cultural factors need to be taken into account both to establish more effective treatment plans and to promote collaborative therapeutic relationships and maximal client engagement. Spirituality is viewed as a key cultural dimension, influencing people's foundational values, their sense of identity, purpose, worth and

significance and their view of mental health (Bussema & Bussema, 2000; Miller, 1997; Wilson & Moran, 1998). As such, spirituality can have important implications for formulating appropriate goals and approaches for intervention (W. R. Miller, 1990; Proctor, 2009).

The significance of the spiritual domain to many individuals is reflected in clients' views that therapists need to receive training relating to spirituality (Pieper & van Uden, 1996) and should be aware of this domain and take it into account in interventions (Belaire & Young, 2002; Belaire, Young, & Elder, 2005; D'Souza, 2002; Dougherty & Worthington, 1982). A number of studies have surveyed mental health clients regarding their spiritual needs and preferences in therapy. These indicate that while the spiritual domain is not universally viewed as relevant, it is relevant to at least a substantial minority - if not a majority - of clients. For example, 42% of a sample of over 700 clients in the Netherlands reported having questions concerning spiritual issues when they entered therapy (Pieper & van Uden, 1996). Another survey ( $N = 74$ ) found 55% of clients expressed a desire to discuss spiritual issues in counselling (Rose, Westefeld, & Ansley, 2001), while 88% of psychiatric inpatients in another sample ( $N = 51$ ) reported three or more current spiritual needs (Fitchett, Burton, & Sivan, 1997). The proportion of clients viewing spirituality as important has been estimated to be around 80% in American populations (Eck, 2002). Non-clinical populations seem to hold similar views; for example, 80% of respondents in surveys of residents in Wisconsin and Florida believed religious values were an important topic in counselling (Privette, Quackenbos, & Bundrick, 1994; Quackenbos, Privette, & Klentz, 1985). Some clients view the spiritual and psychological domains as inseparable (Cutland, 2000; Martinez, Smith, & Barlow, 2007). They find it frustrating to have to fragment these aspects of their lives by bringing psychological issues into therapy while leaving spiritual issues for discussions with people in 'religious' professions (Griffith, 1999). Such clients feel that therapy must address spiritual issues in order to be holistic, comprehensive and meaningful to them (Martinez et al., 2007).

A desire to have the spiritual dimension incorporated into therapy is likely to be a major reason why many Christians show a preference to receive counselling from trained religious clergy or religiously similar therapists (Abe-Kim, Gong, & Takeuchi, 2004; Belaire & Young, 2002; Belaire et al., 2005; Dougherty & Worthington, 1982; Mitchell & Baker, 2000; Ripley et al., 2001) and why many Christian communities under-utilise mental health services (Matlock-Hetzel, 2005). Some conservative

Christians fear that mental health practitioners will discount, belittle or simply fail to understand their beliefs (Cutland, 2000; Macmin & Foskett, 2004; McMinn, Chaddock, Edwards, Lim, & Campbell, 1998; Mitchell & Baker, 2000). While these fears may often be unwarranted, there *are* important distinctions between the worldviews typically underlying modern psychology and those of major religions. These include views on deity and spirituality, human nature, the purpose of life, morality, death, and the importance of self-fulfilment and personal autonomy versus selflessness and dependence on God (Koenig, 2000; Propst, Ostrom, Watkins, & Dean, 1992; Richards & Bergin, 2004). It is important for mental health practitioners to recognise that the naturalistic-atheistic worldview underlying psychology may be culturally and spiritually insensitive for large numbers of clients (Richards & Bergin, 2004).

In recognition of its importance to so many, attending to the spiritual domain is now considered an essential component of effective counselling (Richards & Bergin, 1997; Shafranske & Malony, 1996). Ethical principles of many mental health organisations make it clear that practitioners must be aware of and respect this aspect of culture, giving it active consideration in assessment and treatment (Eck, 2002; Fallot, 2007; Proctor & McLean, 2009; Shafranske & Malony, 1996; Yarhouse, 2003). A thorough assessment of spiritual factors demonstrates sensitivity and respect toward the client, and is likely to result in treatment plans that are more comprehensive and more consistent with clients' preferences (Koenig, 1998a). This has the potential to increase compliance with the intervention, lead to more successful therapeutic outcomes and strengthen the therapeutic relationship (Goedde, 2000; Proctor, 2009; Richards & Bergin, 2000; Wong-McDonald, 2007).

## **Research Findings on the Relationship Between Spirituality and Mental Health**

### **The broad picture: Reviews of the literature**

Findings of empirical studies relating spirituality and mental health have been summarised within a number of literature reviews and meta-analyses. While there is significant variability in findings across individual studies, the overall pattern indicates a tendency toward spiritual variables exerting a positive effect on mental health (Dew et al., 2008; Haber et al., 2007; Larson & Larson, 2003). The most comprehensive review was conducted by Koenig et al. (2001) who systematically reviewed all

published and unpublished quantitative research conducted in the twentieth century exploring the relationship between spirituality and physical or mental health. Over 800 studies examining the association between spirituality and mental health were located (see Koenig and Larson, 2001, for a summary of findings). Spiritual variables included organisational religious activities (e.g., attendance at religious services), non-organisational religious activities (e.g., personal prayer), self-rated religiosity, intrinsic and extrinsic religiosity, spiritual wellbeing, religious coping, religious belief and experience, and denominational affiliation. Findings of the review were grouped according to mental health variable. A clear majority of studies found a positive relationship between spirituality and well-being (e.g., happiness, life-satisfaction, positive affect), and a negative relationship between spirituality and depressive symptoms, suicide, and the use/abuse of alcohol and illicit drugs. Findings were slightly more mixed with regard to anxiety (50% of studies found spirituality predicted lower anxiety, but 14% found spirituality predicted higher anxiety) and self-esteem (55% of studies reported positive associations, 10% reported negative or mixed relationships).

Other reviews tend to concur with these findings, reporting that most spiritual variables are associated with better mental health in a majority of studies (e.g., Chitwood, Weiss, & Leukefeld, 2008; Dew et al., 2008; Gartner, 1996; Larson & Larson, 2003; Larson et al., 1992; Payne et al., 1991). Several reviews have also noted that relationships tend to differ according to the mental health variable measured (e.g., Dew et al., 2008; Gartner, 1996; Payne et al., 1991). Authors (e.g., Payne et al., 1991) have also suggested that ambiguous findings in some studies may be due to the multifaceted nature of spirituality, which needs to be taken into account by examining more tightly defined spiritual variables.

The empirical summaries provided by meta-analytic reviews indicate an overall weak but positive effect of spirituality on mental health. One meta-analysis examined the association between spirituality and mental health in 35 published studies (Hackney & Sanders, 2003). A second examined the association between spirituality and depressive symptoms in 147 published and unpublished studies (T. B. Smith et al., 2003). The overall mean effect size was identical ( $r = .10$ ) in both, indicating a weak but significant positive relationship. In both studies effect sizes differed according to types of spiritual variables measured. For example,  $r$ s ranged from  $-.03$  to  $r = .32$  in

Hackney and Smith's meta-analysis, and from -.14 to .20 the meta-analysis by Smith et al.

A salient limitation of the research on spirituality and mental health is the preponderance of cross-sectional designs, which prevent conclusions from being drawn regarding the direction of the relationship. However, an increasing number of prospective studies are being conducted, helping to shed some light on this issue. Koenig et al. (2001) identified a number of prospective studies in their review, with key findings summarised by Koenig and Larson (2001). The majority of prospective studies reported that spirituality predicted higher subsequent levels of wellbeing (10 of 12 studies) and lower levels of depression (15 of 22 studies), anxiety (4 of 5 studies), and alcohol use/abuse (8 of 9 studies). A recent review of research in adolescent samples (Dew et al., 2008) indicated that spirituality predicted lower levels of substance abuse at subsequent time points (5 of 7 prospective studies). However, evidence was more mixed with regard to delinquency/behavioural problems; studies were roughly equally divided as to whether spirituality predicted reduced or increased behavioural problems over time. Only four prospective studies examined the relationship with depression and one with anxiety, and these showed mixed findings.

### **A more in-depth picture: The positive and negative effects of spirituality**

Overall, reviews indicate a small but significant association between spirituality and (better) mental health. However, while review studies are excellent for summarising overall findings, they tend to obscure differences in the effects of various forms of spiritual variables. In doing so, such findings may paint an overly rosy view. While some aspects of spirituality promote wellbeing, wholeness and growth, others are more likely to promote distress, pain and harm (C. V. Johnson, 2005).

Qualitative and quantitative studies reveal the potential negative effect spirituality can have on mental health. Many published case studies have described clients suffering from problems of a spiritual nature (Lukoff, Lu, & Turner, 1998), and surveys indicate that such problems may not be a rare occurrence. A survey of male residents in inner-city chemical dependency treatment centres in the US ( $N = 200$ ) found 83% of the residents reported at least one spiritual problem (Carroll, McGinley, & Mack, 2000). Common problems reported in this sample were feelings of guilt, loss of faith, missing the comfort previously offered by spirituality, and fear of God's judgment after death. In a sample of over 5,000 university students, 25% reported that

spiritual concerns currently caused them distress (C. V. Johnson & Hayes, 2003). In another student sample ( $N = 3,493$ ), 16% of the sample currently felt greatly unsettled regarding spiritual matters, and 21% reported frequent spiritual struggles relating to understanding “evil, suffering, and death” (Bryant & Astin, 2008, p. 12). Empirical research also attests to the powerful negative effects that spiritual problems may have on mental health. Spiritual struggles have been linked with greater anxiety, depression and negative affect, as well as lower positive affect, self-esteem, happiness and life satisfaction in a number of studies (e.g., Boscaglia, Clarke, Jobling, & Quinn, 2005; Bryant & Astin, 2008; Ellison, 1991; Exline, Yali, & Lobel, 1999; Galek, Krause, Ellison, Kudler, & Flannelly, 2007; Koenig, Pargament, & Nielsen, 1998; Krause, Ingersoll-Dayton, Ellison, & Wulff, 1999; Pargament, Koenig, & Perez, 2000; Pargament et al., 2003). Meta-analyses also link spiritual struggles with higher levels of general negative adjustment (Ano & Vasconcelles, 2005) and depressive symptoms (T. B. Smith et al., 2003).

Although research reveals the potentially negative and damaging effects of spirituality, this appears to be outweighed by the frequency of positive reports. People frequently describe the positive influence of spirituality on their mental health, particularly as a resource for assisting in coping with a wide range of difficult and painful situations/events (Kirov, Kemp, Kirov, & David, 1998; Rogers, Poey, Reger, Tepper, & Coleman, 2002; Tepper, Rogers, Coleman, & Malony, 2001). People report using spirituality to cope with situations/events such as sexual assault (Frazier, Tashiro, Berman, Steger, & Long, 2004), widowhood (Harvey, Barnes, & Greenwood, 1987; Siegel & Kuykendall, 1990), raising a child with a disability (Friedrich, Cohen, & Wilturner, 1988), the death of a child (McIntosh, Silver, & Wortman, 1993), mental illness (Kirov et al., 1998), cancer (Yates, Chalmer, St. James, Follensbee, & McKegney, 1981), arthritis (Abraido-Lanza, Vasquez, & Echeverria, 2004), heart surgery (Ai, Dunkle, Peterson, & Bolling, 1998; Saudia, Kinney, Borwn, & Young-Ward, 1991), radiotherapy (Becker et al., 2006) and kidney transplants (Tix & Frazier, 1998). The proportions of people who use spirituality as a coping mechanism are often surprisingly high. For example, in surveys of patients with medical or mental illness over 50% (and sometimes upwards of 80%) of the sample report using spirituality to help them cope (e.g., Ayele, Mulligan, Gheorghiu, & Reyes-Ortiz, 1999; Fitchett et al., 1997; M. King, Speck, & Thomas, 1999; Kirov et al., 1998; Koenig, 1998b; Rogers et al., 2002; Tepper et al., 2001). Furthermore, religious methods of coping have been

linked with better mental health. In the meta-analyses described previously, positive methods of religious coping (e.g., turning to God and other church members for support) were associated with lower levels of negative adjustment and higher levels of positive adjustment (Ano & Vasconcelles, 2005), and with lower levels of depressive symptoms (T. B. Smith et al., 2003). Spirituality is believed to provide a particularly powerful coping resource because it deals with the intangible, offering an alternative source of answers to natural explanations that may prove inadequate (Dull & Skokan, 1995; Fredrickson, 2002; Idler, 2004; McIntosh et al., 1993; T. B. Smith et al., 2003).

Research also indicates that spirituality can play an important role in recovery from mental illness, for example through providing comfort, peace, and a sense of purpose (E. F. Bussema & Bussema, 2007). This is backed by a number of prospective studies. Spirituality has been found to predict faster remission of depression in two samples of depressed medically ill elderly patients (Koenig, 2007; Koenig, George, & Peterson, 1998), and a community-based sample of 177 elderly people in the Netherlands (Braam, Beekman, Deeg, Smit, & van Tilburg, 1997). Spirituality has also been found to predict better outcomes over time in drug and alcohol rehabilitation programs in a number of samples (Avants, Warburton, & Margolin, 2001; B. S. Brown, O'Grady, & Battjes, 2004; Craig, Krishna, & Poniarski, 1997), and shorter lengths of hospitalisation among a sample of Canadian psychiatric inpatients (Baetz, Larson, Marcoux, Bowen, & Griffin, 2002). Many of these studies controlled for multiple variables that might have accounted for the significant prospective relationships found (e.g., Avants et al., 2001; Koenig, 2007; Koenig, George et al., 1998). Such findings are not unanimous however; some studies have found no impact of spiritual variables on recovery from mental health problems (e.g., R. C. Harris et al., 1995; Pargament, Koenig, Tarakeshwar, & Hahn, 2004).

### **Summary and Implications**

Increasingly it is being recognised that provision of quality mental health care entails consideration of the spiritual domain. Researchers and practitioners alike are seeking to better understand the nature of the relationship between spirituality and mental health. Within the therapeutic context, an accurate understanding of this relationship will facilitate clinicians in effectively addressing spirituality in therapeutic assessment and intervention. This may promote more comprehensive treatment plans and enable therapists to respond with greater sensitivity and respect to clients who

adhere to a spiritual world view (Awara & Fasey, 2008; Proctor & McLean, 2009). This has the potential to increase client engagement and strengthen the therapeutic alliance (Goedde, 2000; Proctor, 2009; Richards & Bergin, 2000; Wong-McDonald, 2007).

Reviews suggest that, on average, spiritual variables are associated with improved mental health. However, individual studies indicate that the relationship is more complex than what is captured by reviews. Whereas some spiritual variables predict better mental health or faster recovery from mental illness, others appear to compromise mental health. In order to integrate the spiritual domain into therapeutic assessment and practice, therapists must be able to identify those spiritual factors that adversely affect mental health, as well as factors that facilitate positive change and coping (Goedde, 2000; Richards & Bergin, 2000). At present, many therapists feel uncertain and lack confidence about engaging with their clients' spiritual needs and experiences (Chirban, 2001; Foskett et al., 2004). This may be partially due to a lack of training. One survey reported less than 25% of counsellor education programs provided substantial coverage of spirituality (Kelly, 1994). A survey of clinical psychologists ( $N = 409$ ) revealed only 5% had received substantial coverage of spirituality in their training (Shafranske & Malony, 1990). Two-thirds of this sample agreed that "Psychologists, in general, do not possess the knowledge or skills to assist individuals in their religious or spiritual development" (p. 75) and only one third of the sample felt competent to counsel clients regarding spiritual issues.

Mental health practitioners may also feel confused and overwhelmed by the endless variety of spiritual expressions, beliefs and practices (Fallot, 2007). Practitioners have a limited amount of time with clients and cannot be expected to comprehensively assess the entire range of spiritual variables that might affect mental health. It is therefore important for future studies to identify and focus on those spiritual variables that are most salient to mental health and to therapy. This will guide practitioners in terms of assessment selection, hopefully leading to more comprehensive, holistic and culturally sensitive therapy. It will also assist in the development of training programs that address the spiritual domain in mental health care. Such studies have the potential to deepen current understanding about how spirituality relates to mental health in non-clinical populations also. The next chapter discusses this issue further and proposes one particularly important aspect of

spirituality that is of clinical and non-clinical interest, namely, people's experience of their relationship with God.

## CHAPTER THREE

### The Importance of People's Experience of Their Relationship with God



Spirituality is a diverse, multidimensional construct, spanning a range of spiritual beliefs, attitudes, values, experiences, behaviours and coping methods (Krause, 2002; Richards et al., 2005). Some of these variables have received more research attention than others with regard to their relationship with mental health. Commonly assessed variables include basic spiritual beliefs (e.g., belief in God), religious or denominational affiliation, and behaviours such as frequency of church attendance or prayer (e.g., Dew et al., 2008; Koenig et al., 2001; T. B. Smith et al., 2003). These generalised indicators of spirituality have been criticised because they do not capture the complexity of the spiritual domain or provide significant information regarding the operation of spirituality in individuals' daily life (Ano & Vasconcelles, 2005; Wortmann & Park, 2008).

As noted in the previous chapter, spirituality can exert both powerful positive or negative influences on mental health. Simple measures such as religious affiliation or belief in God do not effectively capture the aspects of spirituality that people describe as exerting a strong influence on their mental health. While these indicators do show a relationship with mental health, this is thought to be through indirect mechanisms (e.g., through the social support provided by one's religious community (Ellison, 1991), while more personal, subjective spiritual variables may exert more powerful and direct effects on mental health (Fabricatore, Handal, & Fenzel, 2000). It is quite possible to attend church regularly and firmly believe in the existence of God yet experience one's spirituality as a largely negative influence, for example because of a continual sense of spiritual guilt or anger toward God. This is not to infer that generalised indicators of spirituality such as belief in God or membership with a particular religious community are unimportant; such variables provide useful insights and are valuable to explore in therapy (e.g., Anandarajah & Hight, 2001; Hodge, 2004; Richards & Bergin, 1997). However, they are inadequate on their own (Hill et al., 2003; Rosmarin, Krumrei, & Andersson, 2009), contributing little toward a meaningful understanding of how spirituality influences functioning (Haber et al., 2007). These

variables do not provide sufficient information to enable effective integration of spirituality into therapeutic assessment and intervention (Aten & Worthington, 2009). There is a need to move beyond these simplistic, generalised indicators of spirituality and to consider specific aspects of spirituality that play a more central role in influencing individuals' daily functioning and mental health.

### **Reasons to Focus on People's Experience of their Relationship with God**

A number of aspects of spirituality have been identified as salient to mental health and therapy, including social relationships within religious communities and faith-based systems of meaning/purpose. These variables have a strong theoretical and empirical research base suggesting their relevance to mental health (e.g., Ellison, 1991, 1994; George, Ellison, & Larson, 2002; Idler & George, 1998; C. L. Park, 2007). Another aspect of spirituality that stands out as salient but has received less research attention is people's experience of their relationship with God. This term is hereafter referred to using the acronym ERG, and is intended to include all dimensions of this experience, including the cognitive, affective, behavioural and spiritual aspects constituting people's experience of their relationship with God. Some researchers have suggested that ERG may be "central to the protective qualities of personal religiousness" (L. Miller, Weissman, Gur, & Greenwald, 2002, p. 91). The importance of ERG is indicated firstly by the fact that a relationship with God is considered by many to lie at the heart of spirituality (e.g., Edwards & Hall, 2003; W. R. Miller & Thoresen, 2003; Seybold & Hill, 2001), and secondly by evidence suggesting the important impact ERG may have on mental health (e.g., Desrosiers & Miller, 2007; Fiala, Bjorck, & Gorsuch, 2002; Gall, Basque, Damasceno-Scott, & Vardy, 2007; Koenig, George, & Titus, 2004).

### **The heart of spirituality: Relationship with God**

Generalised spiritual indicators such as religious affiliation do not capture the *heart* of spirituality. For therapists striving to be culturally sensitive toward religious clients, simply assessing church attendance or belief in God will be inadequate. This level of assessment is unlikely to provide sufficient information regarding a client's spiritual needs, and may suggest to the client that their therapist does not fully understand the most central aspects of their spiritual experience. For Christians, a personal relationship with God is generally considered to lie at the heart of their

religious beliefs, experiences and practices (Chen, 2005; Edwards & Hall, 2003; Granqvist & Kirkpatrick, 2008; McGrath, 1994; Olthuis, 2006; D. B. Simpson, Newman, & Fuqua, 2008; Wong-McDonald & Gorsuch, 2004). Indeed, a common idiom among Christians states that Christianity is a relationship, not a religion (Hill & Hall, 2002). Many Christians emphasise the significant difference between cognitive *knowledge about God* and active *experience of a relationship with God*; peripheral knowledge of God may be viewed as dry and empty when disconnected from an intimate relationship (Wanak, 2004). The centrality of an intimate relationship with God in the Christian faith is also reflected in scripture, in which God is depicted as desiring personal relationship with humans (Miner et al., 2009; Proctor, Miner, McLean, Devenish, & Ghobary-Bonab, in press). For example, Jesus stated that the “greatest commandment” relates neither to external behaviours nor rules, but rather to relationship: “Love the Lord your God with all your heart and with all your soul and with all your mind. This is the first and greatest commandment.” (Matthew 22:37-38)<sup>1</sup>.

The importance of ERG is not specific to Christians of course. A relationship with the transcendent/divine is key to most religions (Kelly, 1995b), especially monotheistic traditions (Bonab et al., 2009; Kirkpatrick, 1999), and is central to many conceptions of spirituality in general (Edwards & Hall, 2003; W. R. Miller & Thoresen, 2003; Myers, 2000; Seybold & Hill, 2001). When a national Gallup sample was asked to choose from four options which best described their view of ‘faith’, the most frequent response was “a relationship with God”, as opposed to a set of beliefs, church/synagogue membership or finding meaning in life (Gallup and Jones, 1989, as cited in Kirkpatrick, 1999). More than half of the sample stated that deepening their relationship with God was at least ‘very important’ to them.

Research in clinical samples highlights the importance of a relationship with God to many mental health clients. For example, in a survey of the spiritual needs of 51 psychiatric inpatients, 84% of the sample expressed a need to know ‘God’s presence’ (Fitchett et al., 1997). This was in fact the most frequently mentioned spiritual need in this sample. In a qualitative study of 12 Christian current or former mental health clients (Cutland, 2000), a number described their relationship with God as the most important part of their lives, and felt that growing closer to God was even more important to them than being free from psychological distress. To date the

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<sup>1</sup> All quotes from the Bible are taken from the New International Version

importance of addressing individuals' ERG within therapeutic settings has not been explored among a New Zealand sample, and thus was considered in the current study. Participants indicated a strong desire for their relationship with God to be considered if they were to receive counselling. Whether this finding would hold for clinical samples is unknown; however, of the current sample (comprising 536 Christians predominantly residing in New Zealand), 76.7% agreed or strongly agreed with the statement, "It would be important to me that my relationship with God was strengthened through counselling". An even greater proportion of the sample (87.4%) reported that they would feel comfortable discussing their relationship with God in counselling. In contrast, only 4.5% felt that they would prefer their relationship with God to be left out of counselling.

### **Evidence suggesting ERG affects mental health**

As intrinsically relational beings, our relationships – particularly with those closest to us – tend to exert a powerful influence on our mental health. This effect can be very positive, increasing wellbeing and resilience and reducing distress, psychopathology and even mortality (Argyle & Martin, 1991; Clarkin & Levy, 2004; Diener, 1984; Diener, Suh, Lucas, & Smith, 1999; Hooley & Teasdale, 1989; Horwitz, McLaughlin, & White, 1998; Owen, 2005). A classic study by A. Campbell, Converse, and Rodgers (1976) revealed that the domains of life contributing most highly to overall life satisfaction were social relationships: firstly family life and marriage (those relationships generally considered to be our closest and most intimate), followed by friendships. Conversely, close relationships have also been found to adversely affect mental health, with negative relational elements at times exerting a stronger detrimental effect on mental health relative to the benefits of positive relational elements (Horwitz et al., 1998; Schuster, Kessler, & Aseltine, 1990). In recognition of the impact of relationships on mental health, significant emphasis is placed on assessing and treating relational difficulties in therapy. Indeed, a number of therapies (e.g., Interpersonal Therapy) have relational variables as their central focus.

Given that the dynamics and processes underlying people's relationship with God are thought to be similar to those underlying human relationships (T. W. Hall & Edwards, 1996; Leffel, 2007; D. B. Simpson et al., 2008), and given the centrality of this relationship to many people, a relationship with God may also influence mental health. As such, this relationship may also be of relevance to therapy. Some

researchers have noted the potential positive impact of a relationship with God on mental health (e.g., Burkhardt, 1994; Gall, 2000; Gaskins & Forte, 1995; Highfield, 1992; L. Miller et al., 2002), while others have noted its potential negative impact (Pargament, Magyar-Russell, & Murray-Swank, 2005; Pargament et al., 2003). Qualitative research provides evidence for both positions. For example, when individuals are asked to describe which aspects of their faith are a source of comfort/strength, features of their relationship with God are frequently mentioned. Qualitative studies investigating the role of spirituality in coping with mental illness (E. F. Bussema & Bussema, 2007), cancer (Feher & Maly, 1999; Holt et al., 2009) and childhood sexual abuse (Glaister & Abel, 2001; Valentine & Feinauer, 1993) have revealed the potential benefits of relationship with God. In one study exploring how 33 elderly women used spirituality to cope with cancer (Feher & Maly, 1999), most descriptions centred around respondents' relationship with God. Respondents described their relationship with God as a powerful source of emotional support, for example due to a sense of God's love, protection, care and presence. In a qualitative study of previously suicidal adolescents, a number described the importance of their relationship with God in overcoming suicidality (Bostik & Everall, 2007) - this despite the study's intended focus on human relationships.

Conversely, qualitative studies also find that individuals describe their relationship with God as a source of distress. In a study of spiritual struggles experienced by university students ( $N = 127$ ), many participants described difficulties in their relationship with God. Major themes included a sense of being distant from God or abandoned or punished by God, often within the context of negative events (Desai, 2006). Interviews with 12 therapists who had addressed clients' spiritual problems during therapy indicated that the most prevalent problems centred around clients' relationships with God, for example, fears of God's rejection (C. V. Johnson, 2005). Another difficulty commonly reported by mental health clients (e.g., K. E. Bussema & Bussema, 2000; Erdner, Andersson, Magnusson, & Lutzen, 2009; Griffith, 1999; C. V. Johnson, 2005; Martinez et al., 2007; Reinertsen, 1993) and non-clinical populations (e.g., Bryant & Astin, 2008; Desai, 2006) involves feelings of anger, disappointment or resentment toward God. For example, a qualitative study of people with long-term mental illness revealed participants felt deeply disappointed with God for having "failed them when they most needed Him, at the most difficult points of their lives" (Erdner et al., 2009, p. 57). The potentially damaging effect of these

spiritual struggles was highlighted in interviews with cancer patients (Mako, Galek, & Poppito, 2006). A number of participants in this study described how struggles in their relationship with God were accompanied by feelings of despair, anxiety and isolation. Further evidence was provided by an empirical, prospective study of 596 older medical inpatients (Pargament, Koenig, Tarakeshwar, & Hahn, 2001). In this study, a sense of being abandoned or unloved by God predicted mortality over the subsequent two years, even after accounting for a range of variables that might have explained this relationship (e.g., baseline mental health, physical health and demographics).

*Empirical comparisons of the effects of ERG versus generalised indicators of spirituality*

A number of empirical studies have explored the relationship between mental health and a range of spiritual variables, including one or more measures of ERG. Though there are exceptions (e.g., R. C. Harris et al., 1995; Pollner, 1989; Poloma & Pendleton, 1990), most studies have found ERG measures to show stronger associations with mental health than those shown by generalised indicators of spirituality (Desrosiers & Miller, 2007; Fiala et al., 2002; Gall et al., 2007; Kirkpatrick & Shaver, 1992; Koenig et al., 2004; Loewenthal, MacLeod, Goldblatt, Lubitsh, & Valentine, 2000; P. E. Murphy et al., 2000; Pargament, Ensing, Falgout, & Olsen, 1990; Peacock & Poloma, 1999). Generalised indicators of spirituality measured in these studies included religious affiliation, belief in God, frequency of attendance at religious services, frequency of prayer and other private religious practices, doctrinal orthodoxy, and self-reported religiosity/spirituality.

These findings are corroborated by the two meta-analyses that have compared the effects of a range of spiritual variables on mental health. Hackney and Sanders (2003) assessed the relationships between mental health and three categories of spiritual variables: *personal devotion* (measures such as devotional intensity, attachment to God and intrinsic religious motivation), *institutional religiosity* (social and behavioral variables such as frequency of church attendance and prayer), and *ideological religious variables* (religious beliefs and attitudes). Of these categories, *personal devotion* relates most closely to ERG. Higher levels of personal devotion were significantly associated with higher levels of life satisfaction, wellbeing and self-actualisation, and lower levels of distress. Mean effect sizes showed that of the three categories of spiritual variables, personal devotion measures were most strongly

associated with all mental health variables assessed. Similarly, another meta-analysis revealed that the spiritual variables demonstrating the strongest relationships with depressive symptoms were those that related most closely to ERG (T. B. Smith et al., 2003). These variables included religious well-being (e.g., personal feelings of connectedness to God) and God concept (the extent to which people held positive images of God). In contrast, generalised indicators of spirituality (e.g., frequency of prayer, attendance at religious services, belief in God and perceived importance of religion) showed weaker relationships with depressive symptoms.

### **Summary and Implications**

Spirituality is a complex, multidimensional construct. There is a need to identify which aspects of spirituality are most salient to mental health, and thus likely to be of greatest relevance to therapy. One aspect that stands out as salient is ERG, as indicated by the following:

- (i) A relationship with God lies at the heart of many religions and spiritualities, including Christianity.
- (ii) Many people describe that, of all aspects of their spirituality, their relationship with God has a particularly salient influence on their mental health. The salience of ERG is reported by individuals from clinical and non-clinical populations, and the effects on mental health described by these individuals are both positive and negative.
- (iii) A number of empirical studies and two meta-analyses indicate that spiritual variables specifically related to ERG may show a stronger link with mental health compared with generalised indicators of spirituality.

Given the centrality of a personal relationship with God in Christian spirituality, therapists will benefit from a sound understanding of this aspect of Christian clients' lives. The significant influence of relationships on mental health has long been recognised, and therapists routinely explore the relational domain in therapy. Many therapeutic approaches explicitly target relationship changes as a focus of treatment and a means to improving mental health. Given that many Christians describe their relationship with God as one of their most important relationships, and that this relationship may significantly impact mental health, an understanding of this area of clients' lives may offer important therapeutic benefit. This understanding may assist therapists in identifying specific ways in which clients' spirituality is affecting

their mental health, and enable them to provide more culturally sensitive and appropriate care.

It is important to note that ERG will not affect the mental health of all individuals who adhere to a religious worldview, nor be an area of importance for all religious clients. Yet research suggests that clients' ERG is likely to be salient for at least a substantial proportion of those who identify as religious or spiritual. Effective work with these clients may be promoted by an understanding of the ERG-mental health relationship grounded in sound theoretical and empirical research. The next chapter presents ATG theory as a viable framework for conceptualising ERG and exploring the relationship between ERG and mental health.

## CHAPTER FOUR

### **Attachment to God as a Conceptual Framework for Christians’ Experience of Their Relationship with God**



The preceding chapter outlined the need for deepening our understanding of people’s experience of their relationship with God (ERG) and how ERG relates with mental health. While historically this has been a neglected area of research, more recently this oversight is being addressed (H. J. Chen, 2005; Hill et al., 2003; Proctor et al., in press). In the past, ERG has been conceptualised and measured in various ways, for example in terms of positive and negative images of God (Benson & Spilka, 1973), perceived abandonment or alienation from God (Exline et al., 1999; Phillips, Pargament, Lynn, & Crossley, 2004), awareness of God’s presence (T. W. Hall & Edwards, 1996), and positive and negative feelings toward God (Murken, 1998). While these variables have contributed important information regarding the ERG-mental health relationship, most lack a firm theoretical basis.

#### **The Importance of a Theoretical Framework for Research on ERG**

A sound theoretical framework is important for providing a basis from which ERG can be conceptualised and understood, and from which specific relationships between ERG and mental health can be hypothesised. Such a framework will also guide hypotheses regarding potential mechanisms underlying the ERG-mental health relationship. This framework would have the potential to assist the integration of ERG into therapy, for example, by theorizing the meaning of ERG in clients’ lives and the nature of its effect on mental health (Pargament, Murray-Swank, & Tarakeshwar, 2005; Proctor & McLean, 2009). Finally, a sound theoretical framework would also aid systematic integration of research findings on ERG (Spilka et al., 2003).

Such a framework would assist in addressing a range of important questions such as:

- i. What constitutes a *positive* or *healthy* relationship with God, that is, what form of ERG is likely to promote resilience and wellbeing?
- ii. What constitutes a *negative* or *unhealthy* relationship with God, that is, what form of ERG is likely to lower resilience and produce distress?

- iii. Why are relationships of these forms healthy or unhealthy?
- iv. Via what mechanisms do these forms of relationship impact mental health?

Given the centrality of a relationship with God to Christian spirituality, surprisingly few theoretical models have been used to explore this concept (Hill & Hall, 2002). However, one theoretical framework that is increasingly being employed for exploring ERG is attachment theory (Hill & Hall, 2002). Theory and empirical research have established that a relationship with God (particularly within the Christian tradition) can be meaningfully conceptualised as an attachment relationship. While no single perspective will be able to fully capture ERG or the ways in which ERG influences functioning, attachment theory offers a systematic, coherent theoretical framework with great potential for advancing our understanding of this area (Hill & Hall, 2002; J. A. Simpson, 2002).

There are a number of important benefits associated with conceptualising ERG from an attachment framework. Most saliently, an attachment perspective on relationships has a solid, empirically verified theoretical basis. Since the publication of Bowlby's seminal work over 30 years ago, attachment theory has been enormously influential and currently represents one of the most comprehensive psychological theories (Rholes & Simpson, 2004). Attachment theory addresses important questions such as what constitutes healthy and unhealthy relationships, and the mechanisms by which relationships influence mental health. Furthermore, attachment theory now represents one of the major theories applied within the psychology of religion and spirituality (Spilka et al., 2003). Additionally, an attachment to God (ATG) framework is believed to have important potential therapeutic applications. Benefits of this framework will be discussed in more detail following a description of human attachment theory and its application to people's relationship with God.

### **Overview of Human Attachment Theory**

Attachment theory was initially formulated by John Bowlby (Bowlby, 1969, 1973) and extended by Mary Ainsworth (Ainsworth, Blehar, Waters, & Wall, 1978). The theory originates from the mid-20<sup>th</sup> century, with Bowlby's studies of the impact of disruptions in the mother-infant relationship on infants' distress, and future development of psychopathology (Meyer & Pilkonis, 2005). Bowlby described how mothers who responded appropriately and sensitively to their infant's distress signals provided a 'safe haven' and 'secure base' for the infant, thus assisting regulation of

distress/affect. Bowlby theorised that humans possess an innate predisposition to use attachment behaviours (e.g., searching for, visually tracking, and moving toward caregivers) to promote physical proximity to primary caregivers, in order to gain protection from danger and maintain ‘felt security’ (Rholes & Simpson, 2004).

Not all close relationships constitute attachment bonds. Four criteria for an attachment bond were described by Ainsworth (1985). The first criterion, ‘proximity seeking’, refers to the drive to maintain proximity with the attachment figure. Infants use a range of behaviours to promote proximity, for example, crying and raising their arms when distressed, and clinging to the caregiver. Secondly, the attachment figure is (ideally) experienced as providing a ‘haven of safety’. Attachment figures do this by responding sensitively and appropriately to signals of distress and needs for comfort, in such a way that restores the sense of security (B. C. Feeney & Collins, 2004). Thirdly, attachment figures provide a ‘secure base’ from which to explore. This function encompasses aspects of the safe haven function but also involves promoting autonomy and exploration of one’s environment in times of novelty and low stress (Ainsworth et al., 1978; Crowell & Treboux, 1995; Slade, 1999). In infancy, attachment figures do this by encouraging the child to explore their physical environment with increasing levels of independence. Over time, the focus of this exploration changes, and includes the exploration of one’s cognitive and emotional world (J. P. Allen et al., 2003; B. C. Feeney & Collins, 2004). The fourth criterion of an attachment relationship is ‘separation distress’, the emotional response (anxiety/grief) experienced upon separation from one’s attachment figure.

### **Attachment style classifications**

Ainsworth’s criteria describe the ideal features of an attachment relationship. In reality, many infants form attachment bonds with insensitive or abusive parents (Main, 1996). The extent to which individuals experience attachment figures as a haven of safety and secure base differs dramatically, as does the extent to which individuals demonstrate proximity-seeking behaviours and experience separation distress.

Ainsworth differentiated three types of attachment relationships according to the ways in which infants responded to separations and reunions with caregivers (assessed using the “Strange Situation” protocol). A *secure* attachment relationship was indicated when an infant freely explored in the mother's presence, showed moderate levels of anxiety upon separation, and was easily comforted upon reunion. An *insecure-*

*avoidant* attachment relationship was indicated by the infant's low level of interest in the mother and lack of display of strong affect during both separation and reunion. An *insecure-ambivalent* attachment relationship was indicated when an infant displayed excessive anxiety, distress and anger during separation, and difficulty in being comforted upon reunion. A fourth group of infants who did not appear to use any clear and coherent strategy to get their attachment needs met by their caregiver was later identified (Main & Solomon, 1990) and labeled *disorganized-disoriented*.

Individual differences in attachment style are influenced by the way in which caregivers respond to their infant's needs (Goldberg, 1997). Where caregivers are available and respond sensitively and consistently to their infant's needs and distress signals, the infant derives the necessary sense of security and confidence to explore freely in the caregiver's presence. By reading infants' distress cues accurately and comforting them effectively, caregivers provide a safe-haven and secure base, leading to the development of a secure attachment bond (Rholes & Simpson, 2004; Slade, 1999). When attachment figures are inaccessible or unresponsive, children typically go through a stage of 'protest', displaying mounting levels of anger and distress aimed at eliciting attention and responsiveness from the attachment figure (Starky, 1999). If caregivers are inconsistently responsive, infants use such protest behaviours frequently, because they learn that attention is unpredictable and can be ensured only with a great deal of effort. The infant with an insecure-ambivalent attachment therefore shows limited exploration due to their preoccupation with their caregiver, becomes highly distressed upon separation, and is difficult to comfort (Goldberg, 1997). If caregivers are consistently unresponsive and emotionally unavailable, the infant moves from the 'protest' stage into the stages of despair and detachment, in which they take little interest in the attachment figure and increasingly rely on themselves to meet emotional needs (Starky, 1999). This process of detachment forms the basis of the insecure-avoidant attachment style. Because their protests are unsuccessful in eliciting the care they need, these infants limit expression of their attachment needs to avoid potential rejection, appearing precociously independent and rarely displaying distress upon separation (Goldberg, 1997).

### **Attachment in adulthood**

Although Bowlby focused his theorising on infant-caregiver bonds, he contended that attachment relationships are a feature of every stage of life, and that

attachment processes continue to exert a powerful influence on functioning throughout the lifespan (Granqvist & Kirkpatrick, 2008; Hazan & Shaver, 1987). Hazan and Shaver's seminal paper on attachment in adulthood (Hazan & Shaver, 1987), and the numerous studies that followed, demonstrated that attachment styles and dynamics in childhood have strong parallels in adult romantic and peer relationships (Kirkpatrick, 1998). Although attachment patterns are manifested in slightly different and more complex ways in adulthood compared with infancy, they share many of the properties of childhood attachment relationships (Starky, 1999; R. S. Weiss, 1991). The infant attachment styles appear to have meaningful parallels in adult romantic relationships. The 'secure' adult attachment style, paralleling the secure infant-parent attachment relationship, is characterised by comfort with intimacy in close relationships, willingness to depend on others, and low fears of abandonment or rejection (Bartholomew & Horowitz, 1991; Hazan & Shaver, 1987). Securely attached adults have more positive beliefs and expectations about relationships and show greater trust, intimacy and commitment in their close relationships (Bartholomew & Horowitz, 1991; Collins & Read, 1990; Kirkpatrick & Davis, 1994; Mikulincer & Erev, 1991; J. A. Simpson, 1990).

The 'preoccupied' or 'anxious-ambivalent' adult attachment style parallels the 'insecure-ambivalent' infant-parent attachment relationship. This style is characterized by a desire for intimacy coupled with preoccupations and anxieties about abandonment and rejection (Bartholomew & Horowitz, 1991; Hazan & Shaver, 1987). Adults with a preoccupied attachment style tend to exhibit jealousy, possessiveness, clinginess and emotional instability in relationships, to mistrust their partners and feel they show insufficient commitment, and to be anxious about their partner's love for them (Hazan & Shaver, 1987; Hazan & Shaver, 1994; L. E. Park, Crocker, & Mickelson, 2004).

The 'dismissing' adult attachment style parallels the 'insecure-avoidant' infant-parent attachment style and is characterized by avoidance of intimate relationships and a strong need and preference for feelings of independence and self-sufficiency (Bartholomew & Horowitz, 1991). Close relationships are avoided and attachment needs suppressed to minimise chances of rejection, given past experiences of attachment figures as unreliable and unresponsive (Bartholomew & Shaver, 1998; Collins, Guichard, Ford, & Feeney, 2004). Adults with a dismissing attachment style tend to have less intimate relationships and show reduced interest in developing such relationships, seek less support from others, disclose less in their relationships, come

across as more cold and hostile, and place high value on self-reliance (Hazan & Shaver, 1994; L. E. Park et al., 2004).

The 'fearful' adult attachment style parallels the 'disorganized-disoriented' infant-parent attachment style. Like the dismissing attachment style, the fearful attachment style is characterised by discomfort with close relationships due to fears of being hurt and rejected (Bartholomew & Horowitz, 1991; Bartholomew & Shaver, 1998; Collins et al., 2004; Hazan & Shaver, 1987). However, while dismissing individuals minimise attachment needs and deny distress, fearful individuals feel (and may acknowledge) a desire for close relationships and a sense of distress associated with such relationships (Bartholomew & Horowitz, 1991; Granqvist & Kirkpatrick, 2008). Adults with a fearful-avoidant attachment style tend to be more self-reliant, emotionally detached and distrustful of others, to show less affection and self-disclosure, seek less support from others, and to have less intimate relationships (Bartholomew & Horowitz, 1991; Klohnen & Bera, 1998; Lopez & Brennan, 2000; Mikulincer & Erev, 1991).

### **Attachment to God**

Following demonstration that adult relationships can fulfil many of the same functions as the infant-caregiver attachment relationship, Kirkpatrick (1992) persuasively argued that individuals' relationship with God also fulfils attachment functions. Clearly, there are important differences between God and human attachment figures. Perhaps the most salient of these in terms of implications for attachment is God's non-physical nature. Considering that attachment bonds initially develop in infancy based on physical interaction with a human being, it might seem implausible that an attachment relationship could be formed with a non-observable deity. In responding to this concern, Kirkpatrick (1999) cites Bretherton's (1987) discussion of how children develop a cognitive capacity to maintain a sense of attachment in the absence of concrete interaction. Attachment researchers have described how people form internal mental representations of attachment figures which assist in regulating distress even when the figure is physically absent (Mikulincer & Shaver, 2004). These mental symbols or images allow people to maintain a sense of closeness when the attachment figure is absent, and motivate the use of attachment behaviours to sustain the relationship (Cicirelli, 2004). These same cognitive processes and capacities may also be used to develop and maintain attachment to God (Kirkpatrick, 1998, 1999;

Proctor et al., 2009). Indeed, research provides plentiful evidence demonstrating that many people relate with God in ways that are consistent with an attachment relationship (e.g., R. Beck, 2006b; Birgegard & Granqvist, 2004; Granqvist, 2003; Granqvist & Hagekull, 2000; Granqvist & Kirkpatrick, 2004; Granqvist, Ljungdahl, & Dickie, 2007; Kirkpatrick, 1997; Proctor, 2006).

Many people perceive God as a personal being who is available and responsive to their needs and desires a loving relationship with them (V. W. Harris, Marshall, & Schvaneveldt, 2008; Kirkpatrick, 1998; Miner, 2007; Miner et al., 2009; Olthuis, 2006). Such a view characterises God in terms descriptive of a secure attachment figure, and is pivotal to a number of religions, including Christianity (V. W. Harris, Marshall et al., 2008; Kirkpatrick, 1998). Descriptors of God and Jesus by Christian children and adults in qualitative studies are indicative of a secure attachment figure, for example: father, helper, personal friend, primary caregiver, protector, provider, encourager, one who will never abandon them and who loves unconditionally (Piedmont, Williams, & Ciarrocchi, 1997; Proctor et al., in press; Thackeray, 2001).

Based on interviews with religious converts, C. Ullman (1989) concluded that the process of conversion, which she initially hypothesized to predominantly involve a change in ideology, in fact was better described as a process of forming an attachment bond and falling in love. Similarly, interviews with Mormon participants revealed that many described deep feelings of love and intimacy toward and from God (Owen, 2005). Participants' descriptions of God were typically relational, based not on cognitive perception but on their experience of this relationship. Most participants described their relationship with God as very important; some viewed this as the most important aspect of their life. Many themes identified were consistent with a view of God as a secure attachment figure, for example, referring to God as 'father' and describing God's attentiveness, trustworthiness and intervention in their lives. Another qualitative study specifically utilised an attachment framework to analyse the content of interviews with Christians about their relationships with God (Proctor, 2006; Proctor et al., in press). Narratives were filled with attachment-relevant themes indicating that participants experienced their relationship with God in ways closely resembling a human attachment relationship. From a theological standpoint, it has also been argued that the relationship between believers and God portrayed in Christian scripture concurs with an attachment perspective (Miner et al., 2009).

## **Ainsworth's criteria as applied to ATG**

Ainsworth's criteria for an attachment bond have been demonstrated to apply to attachment relationships with God (Kirkpatrick, 1992). First, despite a view of God as omnipresent in Christianity and most theistic religions, religious individuals often show proximity-seeking behaviours to help them feel closer to God. Religious behaviours potentially motivated by this desire include attending church and other 'sacred' places, wearing crosses and other symbols to remind one of God's presence, and reading scripture and other religious texts (V. W. Harris, Marshall et al., 2008; Kirkpatrick, 1999). Many Christian scriptures promote a sense of proximity to God given the recurrent theme of God's continuous presence and availability (Killmer, 2002). Undoubtedly the most important and frequent attachment behaviour for Christians, though, is prayer (V. W. Harris, Marshall et al., 2008). Prayer can heighten individuals' sense of God's closeness and availability, providing reassurance of his presence (Killmer, 2002; Kirkpatrick, 1992).

Second, God is noted to function as a haven of safety for many believers. The situations described by Bowlby as activating the attachment system and eliciting safe-haven seeking behaviour (e.g., frightening environmental events, illness, injury, and separation from attachment figures) are also situations in which people tend to turn to God (Granqvist & Kirkpatrick, 2008; Kirkpatrick, 1999). These responses indicate the safe-haven function of this relationship. Indeed, turning to God has been noted to be one of the most common methods of coping with negative events (Ai, Dunkle, Peterson, & Bolling, 1998; Pargament, 1997). Prayer is a common method for seeking God's presence and help during difficult times, and can provide a strong sense of God as a safe-haven and secure-base (V. W. Harris, Marshall et al., 2008). Christian scripture frequently refers to the safe haven function of a relationship with God. For example, there are numerous reassurances that God will not abandon people in their suffering but rather sustain and comfort them (V. W. Harris, Marshall et al., 2008; Olthuis, 2006; Proctor et al., in press). Scriptures describe God as, "our refuge and strength, an ever-present help in trouble" (Psalm 46:1), one who "upholds all those who fall" (Psalm 145:14); and the "everlasting arms" beneath us (Deuteronomy 33:27). Other scripture explicitly encourages believers to give their anxieties and burdens to God and trust him to sustain them (e.g., Psalm 55:22, Philippians 4:6-7, 1 Peter 5:7). Such themes are also reflected in qualitative research. For example,

interviews with people diagnosed with a major mental illness revealed how God was repeatedly referred to in ‘safe-haven’ terms, for example as a continuous protector, refuge and haven (Fallot, 1997). In another study, participants frequently described safe haven experiences such as experiencing God as available in times of need (Proctor et al., in press). Studies indicate that children may also perceive God as serving a safe haven function (Eshleman, Dickie, Merasco, Shepard, & Johnson, 1999; Tamminen, 1994).

Third, a relationship with God is often experienced as providing a secure base. Christians frequently describe how their sense of God’s presence and nearness fosters confidence (Killmer, 2002). Many of God’s qualities, including his omnipresence, omnipotence and unconditional love, make him the ideal secure base (Kirkpatrick, 1999). Believers may experience God as a source of support and strength which empowers them to explore their external environment and internal emotional world, to face challenges and seize opportunities for growth (R. Beck, 2006b; Perez, Little, & Henrich, 2009; Proctor, 2006; Proctor et al., in press). One client’s description of her view of God (Griffith, 1999) captures the secure base dynamic: “Like an Olympic coach who does not model my task for me, but delights in my potential and pushes me to it” (p. 214). This facet is also alluded to by the frequently-quoted scripture, “I can do everything through him [*Christ*] who gives me strength.” (Philippians 4:13). Indeed, many references from Christian scripture and other religious texts portray God as a secure base for believers (V. W. Harris, Marshall et al., 2008). Another manifestation of the secure base dynamic may be a greater willingness to engage in theological ‘exploration’ of one’s faith (R. Beck, 2006b). Beck argued that securely attached Christians are less likely to fear that God will be disappointed or angry if they question or alter their theological beliefs, because their ATG provides them with a secure base for this exploration. This hypothesis was supported, in that those with a more secure ATG were found to invest more effort into theological exploration and to experience this process as less distressing (R. Beck, 2006b).

The fourth and final criterion of an attachment relationship, separation distress, is more difficult to apply to people’s relationship with God. Given that God is viewed as omnipresent, people do not experience separations from God in the same way as they do with human partners, nor face the threat of losing God to death (Kirkpatrick, 1999; Miner, 2007). Perhaps the closest parallel is the experience of feeling far from God, having lost a former ‘sense of God’s presence’. This can cause significant

distress; indeed, this experience is commonly referred to as “the dark night of the soul” (Granqvist & Kirkpatrick, 2008; Miner, 2007). A number of items in measures of ATG have indexed separation distress, for example, “I would feel upset if I sense that God is far from me”, “I cannot bear to think of life without God” (Sim & Loh, 2003), and “I would experience grief if I knew that I could never get in touch with God again” (Granqvist & Hagekull, 1999). Respondents’ endorsement of such items, and the items’ empirical relationship with other facets of ATG, suggest that separation distress is a valid feature of a relationship with God. It is also interesting to note that eternal separation from God is considered by most Christians to be the essence of hell (Kirkpatrick, 1999).

### **Styles of ATG**

The preceding discussion highlighted the fact that many believers experience God as a haven of safety and a secure base, characteristics of a secure attachment figure. This should not be taken to indicate that all individuals experience a secure ATG. For instance, when a community sample ( $N = 213$ ) were asked to describe which attachment style best characterised their relationship with God, the majority of respondents (70%) endorsed the secure description; however, a number endorsed the preoccupied (23%) and avoidant (7%) descriptions (Kirkpatrick & Shaver, 1992). Similarly, approximately 25% of participants reported an insecure ATG in a sample of Catholic priests, nuns and seminarians; this proportion rose to over 50% in a sample of lay Catholics (Cassibba, Granqvist, Costantini, & Gatto, 2008).

Qualitative studies likewise reveal that some individuals experience an insecure ATG. In a qualitative study drawing explicitly on attachment theory (Proctor, 2006; Proctor et al., in press), Christians’ descriptions of their ERG showed evidence of preoccupied and dismissing ATG (the fearful/disorganised attachment style was not examined), in addition to secure ATG. Indicators of preoccupied ATG included views of God as inconsistent in his responsiveness, fears that God might withdraw support and protection, anxieties regarding God’s trustworthiness and uncertainty regarding one’s worthiness of God’s love. These individuals engaged in proximity-seeking behaviours driven by a desire to know God’s protection and love, yet lacked a consistent experience of God as a safe haven or secure base. They typically attributed God’s inconsistency to their personal unworthiness. Similar descriptions have been reported in other qualitative studies (e.g., Griffith, 1999; Owen, 2005). For example,

one mental health client described God as “a strict old grandfather, angry with my continual wrongdoing, who has finally turned his back on me.” (Griffith, 1999, p. 214). Indicators of the dismissing-avoidant pattern were also evident in the qualitative study by Proctor et al. These included perceptions of God as distant, inaccessible, unresponsive and/or disinterested in the individual; expressions of cynicism toward God; disinterest in God and devaluation of one’s relationship with God; and preferring to remain independent from God.

Potential explanations have been proposed for why some Christians experience an insecure ATG despite the majority reporting a generally secure ATG. One explanation is provided by the ‘correspondence hypothesis’, which postulates that individuals’ ATG style tends to mirror their human attachment style (e.g., R. Beck & McDonald, 2004; Granqvist, 1998). The correspondence hypothesis is based on the idea of internal working models (Granqvist, 2002). Internal working models are cognitive representations of past attachment relationships which serve to guide future expectations and styles in attachment relationships (Collins, 1996). According to the correspondence hypothesis, people’s styles of attachment in new relationships tend to mirror prior experiences, and thus attachment styles tend to be consistent across bonds with a range of attachment figures, including caregivers, romantic partners, and God (A. McDonald, Beck, Allison, & Norsworthy, 2005). Empirical research provides support for the correspondence hypothesis. First, views and behaviours toward God are often consistent with individuals’ human attachment style (e.g., Birgegard & Granqvist, 2004; De Roos, Miedema, & Ledema, 2001; Granqvist, Ivarsson, Broberg, & Hagekull, 2007; Kirkpatrick & Shaver, 1992). More direct support is provided by the positive and significant correlations found between ATG style and (a) general adult attachment style (R. Beck & McDonald, 2004; Rowatt & Kirkpatrick, 2002), (b) adult attachment style in relationships with romantic partners (R. Beck & McDonald, 2004; H. J. Chen, 2005; Kelley, 2003), and (c) retrospective ratings of styles of attachment to parents (A. McDonald et al., 2005; Reinert, 2005; Sim & Loh, 2003). Thus, some Christians may develop an insecure style of ATG based on their experience of insecure human attachment relationships. However, it is important to note that the size of correlations between ATG and human attachment style tend to be moderate, indicating that while ATG shows some tendency to mirror the style of human attachment relationships this is not necessarily the case.

A second factor that may lead to the development of insecure ATG relates to what individuals are taught regarding God, for example within the church environment or by parents (De Roos, Iedema, & Miedema, 2001; Miner, 2007; Rizzuto, 1979). In a comprehensive study of relationship patterns between God and humans described in the Bible, Popp et al. (2003) concluded that while God was most often portrayed as a secure attachment figure, a substantial minority of narratives indicated hurtful, controlling and destructive interactions between God and people. Scripture at times depicts God as angry, punishing, and jealous of anything that competes for the love and devotion of his people (Kirkpatrick, 1995; Starky, 1999). Some churches emphasise such views, and in this way religious socialisation and education may contribute to the development of insecure ATG amongst their members (Pargament, Magyar-Russell et al., 2005; Starky, 1999). The attitudes and behaviours of religious leaders and congregation members may also influence people's view of God. For example, insecure ATG may be promoted by judgemental attitudes that lead people to feel ashamed and spiritually inadequate (Moriarty, 2006) and by religious leaders' threats of punishment/abandonment (Starky, 1999).

### **Dimensions Underlying Attachment Style: Anxiety and Avoidance**

There are few psychological phenomena that are truly categorical, and attachment style is no exception. When asked to rate the *extent* to which different attachment styles describe them, people typically rate several styles as applicable to them to varying degrees. This suggests that one or more continuous dimensions may underlie attachment styles, and that measurement systems reflecting these distinctions may capture individual differences more accurately than categorical measures (Stein et al., 2002). In support of this, taxometric methods indicate that dimensional models are more consistent with individual differences in adult attachment styles than categorical models (Fraley & Waller, 1998). Many now argue in favour of using a dimensional rather than categorical conceptualisation of attachment style, both for psychometric and conceptual reasons (e.g, Bartholomew & Horowitz, 1991; Brennan et al., 1998; Fraley & Waller, 1998; Stein et al., 2002).

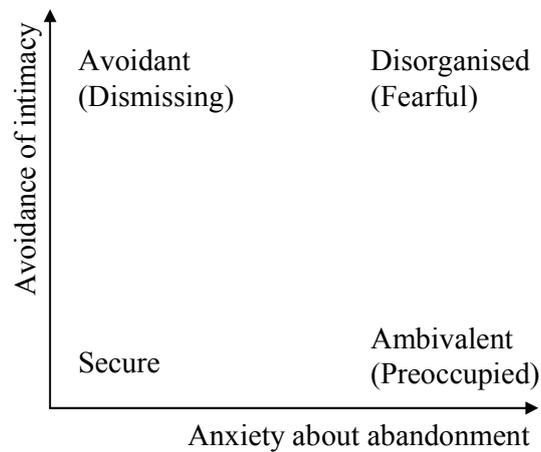
In order to identify the dimensions that best represent individual differences in adult attachment style, Brennan, Clark, and Shaver (1998) administered over 320 items representing virtually every available adult attachment measure to a large sample. Factor analyses indicated that individual attachment differences were best represented

by a two-dimensional space. The dimensions were termed *Anxiety about Abandonment* and *Avoidance of Intimacy*. The anxiety dimension is characterised by fear and preoccupation concerning rejection or abandonment by attachment figures, and distress/angry protest when they are perceived as unavailable or unresponsive (Fraley & Shaver, 2000; Wei, Russell, Mallinckrodt, & Vogel, 2007). The avoidance dimension is characterised by discomfort with (and a tendency to avoid) interpersonal dependency and intimacy, and an excessive need for self-reliance (Brennan et al., 1998; Fraley & Shaver, 2000; Lopez, Mitchell, & Gormley, 2002; Wei et al., 2007). Hypothesised relationships between these two dimensions and other measures of attachment, relational and personality variables have been substantiated (Bartholomew & Horowitz, 1991; Fuendeling, 1998; Griffin & Bartholomew, 1994b; J. A. Simpson, Rholes, & Phillips, 1996). Alternate interpretations of the two dimensions have also been suggested, the most prominent of these being the dimensions of ‘views of self’ and ‘views of other’ (Bartholomew & Horowitz, 1991). In this model, secure attachment is defined by positive models of self and others, preoccupied by a negative self model and a positive other model, dismissing by a positive self model and negative other model and fearful by a negative self model and negative other model. However, while this model has been adopted by a number of researchers (Fraley, Davis, & Shaver, 1998), it has also received substantial criticism (e.g., see Fraley and Shaver, 2000, for a discussion of these issues). For example, research suggests that preoccupied individuals typically do not show the positive model of others predicted by Bartholomew and Horowitz’ model. Instead, preoccupied individuals tend to hold negative views of others, for example doubting their trustworthiness and suspecting negative intentions (Collins & Read, 1990; Hazan & Shaver, 1987). Additionally, the content of items used to assess the self and other dimensions appears more consistent with the avoidance vs. anxiety conceptualization (Fraley & Shaver, 2000).

The dimensions of anxiety and avoidance define a two-dimensional space from which categorical attachment styles can be derived where necessary. In this two-dimensional space, the region of low anxiety and avoidance represents secure attachment, the region of high anxiety and low avoidance represents preoccupied attachment, the region of high avoidance and low anxiety represents dismissing attachment, and the region where both anxiety and avoidance are high represents fearful attachment. This is shown diagrammatically in Figure 1. Given that the dimensional view appears to apply to infant attachment styles as well as to adult

attachment styles (Brennan et al., 1998), both infant and adult attachment style labels are shown on the diagram.

Although this two-dimensional system is being adopted by an increasing number of researchers, it is important to note that other systems of measuring and labelling attachment dimensions are also used. For example, some scales (e.g., the Relationship Style Questionnaire (Griffin & Bartholomew, 1994a) and Relationships Questionnaire (Bartholomew & Horowitz, 1991) provide dimensional measurement of



*Figure 1.* Attachment style dimensions and categories. Names of infant attachment styles appear first, names of adult attachment styles are in brackets.

the four attachment styles, leading to ratings of the degree to which people show ‘secure’, ‘preoccupied’, ‘dismissing’ and ‘fearful’ attachment styles. Even within research using the dimensions of anxiety and avoidance, some authors describe these dimensions as both indexing ‘attachment security’. Defining attachment security in terms of low levels of anxiety or avoidance is not entirely sound conceptually, given that in the two-dimensional model the quadrant representing the ‘secure’ attachment style is defined by low levels of *both* anxiety and avoidance, rather than existing as a dimension. Discussions relating to the present study thus discuss secure attachment as a category. However, because many studies still discuss (and sometimes measure) the degree of attachment ‘security’, this term appears in the thesis when referring to such research.

## **Attachment dimensions with respect to ATG**

The movement toward conceptualising attachment styles in terms of anxiety and avoidance dimensions has also influenced ATG research (e.g., R. Beck, 2006a, 2006b; R. Beck & McDonald, 2004; Rowatt & Kirkpatrick, 2002). Descriptions of ATG-anxiety and avoidance parallel those found in the human attachment literature. Specifically, ATG-anxiety has been described as reflecting preoccupation and anxiety about one's lovability to God, fears of potential rejection by God, jealousy at God's apparent preferential treatment of others and angry protest in response to perceptions of being rejected or overlooked by God (R. Beck, 2006a; R. Beck & McDonald, 2004). The avoidance dimension reflects themes such as resistance toward emotional intimacy with God/dependence on God, a reluctance to engage in deep communication with God, and a preference to rely on oneself (R. Beck, 2006a; R. Beck & McDonald, 2004). Both dimensions show predicted relationships with a number of relevant measures. For example, ATG-anxiety correlates positively with measures tapping fears of God's rejection and a sense of disappointment and frustration with God (R. Beck, 2006a; Reinert, 2005). ATG-anxiety is also associated with perceptions of God as less loving and more controlling (Rowatt & Kirkpatrick, 2002) and lower religious wellbeing (R. Beck & McDonald, 2004). Higher ATG-avoidance is associated with lower levels of awareness of God's presence and communication (R. Beck, 2006a; Reinert, 2005), religious wellbeing (R. Beck & McDonald, 2004), intrinsic religious orientation (Joules, 2007; Rowatt & Kirkpatrick, 2002), willingness to work through difficult experiences with God (R. Beck, 2006a), sense of fulfillment from prayer (Joules, 2007) and loving images of God (Rowatt & Kirkpatrick, 2002). ATG-avoidance is also associated with a view of God as more controlling (Rowatt & Kirkpatrick, 2002) and with higher levels of disappointment with God (Reinert, 2005).

### **Limitations and Benefits of ATG Theory as a Conceptual Framework**

ATG theory has a number of benefits that guided the choice to select this framework for conceptualising ERG in the present study. Before discussing these benefits however, it is important to acknowledge limitations of the ATG framework. First, ATG theory is relatively new, and research on many aspects of ATG - including its relationship with mental health - is still in its infancy. Second, no single framework is able to capture all salient aspects of ERG. Other aspects of ERG not explicitly discussed within the attachment framework may also influence mental health, for

example, the ‘maturity’ of people’s relationship with God and how effectively it is integrated into their life. Additionally, individuals’ ERG is multi-dimensional, and some of the ways in which people relate to God are not well-captured by the ATG framework. For example, Christian scripture and other religious literature describe people relating to God as their king, judge and master. These forms of relationship are distinctive from an attachment bond, and may even present a challenge for the development of secure ATG for some individuals. Thus, people's experience of God as an attachment figure captures only a part of their overall ERG.

Third, there are important differences between attachment relationships with God versus humans, which have implications for ATG theory. As mentioned previously, a key issue is the absence of concrete physical interaction with God. Although Kirkpatrick and others have persuasively argued that this does not invalidate ATG theory, it does nonetheless have implications for the development and manifestations of ATG styles. For example, human attachment relationships are formed and maintained through experiences of concrete physical interaction, and influenced by past relational experiences. An attachment bond with God (and the degree of security of that relationship) is influenced by previous experiences in human attachment relationships, and also by factors such as cognitive perceptions of God (e.g., based on religious teachings), and spiritual experiences. The role of spiritual experiences in the development of ATG style is an important area of research that has received little attention to date (Miner, 2007, 2009). God’s non-physical nature is also likely to affect manifestations of ATG styles. For example, those with a preoccupied *human* attachment style are often overly possessive of romantic partners (Hazan & Shaver, 1987). This may be a less salient manifestation of preoccupied ATG, given God’s omnipresence and his capacity to be in relationship with all humans simultaneously. Thus, whilst the core defining features of attachment styles are similar in relationships with humans and God, there are likely to be differences in some specific manifestations. This does not, however, invalidate the theory of ATG; indeed, differences likewise exist between infant-parent attachment styles and the romantic attachment styles of adulthood.

Fourth, theory and research on ATG has been developed and applied predominantly within a Judeo-Christian framework (e.g., R. Beck & McDonald, 2004; Bonab et al., 2009; Kirkpatrick, 1992; Miner et al., 2009). Only recently has ATG been examined in relation to other faith traditions (e.g., Islam; Bonab et al., 2009; Miner et

al., 2009). These studies indicate that fundamental theological differences between faith groups may translate into differences in manifestations of ATG which need to be taken into account when theorising and assessing ATG (Miner et al., 2009). More research is required to explore the way in which ATG functions within other faith groups. Given this, consideration of ATG as a suitable framework for research and therapeutic application is limited to Christian populations in the present study.

Despite these limitations, the ATG framework has a number of salient benefits, predominantly relating to the framework's strong theoretical basis and its suitability for therapeutic application. These benefits are now discussed.

### **Strong theoretical basis**

As a conceptual framework, ATG has a firm theoretical basis, grounded in the well-established theory of human attachment. Attachment theory has attracted significant research attention, profoundly influenced society, and is considered a leading social psychological paradigm with a diverse range of applications (Birgegard & Granqvist, 2004; Fraley, 2002; Granqvist & Hagekull, 2001, 2003; Kirkpatrick, 1998). The attachment framework provides a comprehensive explanation of individual differences in relationship functioning and how such relationships are formed and maintained. Given evidence that a relationship with God can function as an attachment relationship, human attachment theory provides an excellent foundation from which to hypothesise different patterns of ERG and how such patterns may develop and function (T. W. Hall, 2007). Attachment theory is rapidly becoming a leading theory in the psychology of religion (T. W. Hall, 2007), perhaps due to its potential to meet the methodological demands necessary for integrating religion into mainstream psychology (Granqvist, 1998) and its ability to meaningfully explain many diverse aspects of religion (Kirkpatrick, 1995, 1998; Tenelshof, 2000).

Furthermore, of central significance to the present study, attachment theory is intimately intertwined with theories of psychological functioning. For instance, attachment theory offers the most thoroughly developed and best researched etiological understanding of distress of all relational theories (Schwartz & Pollard, 2004). Attachment theory provides a framework for understanding the effects of close relationships on individuals' functioning and wellbeing, and the mechanisms by which these effects occur. Theorised links between attachment and mental health have generated a plethora of research interest, and links have been confirmed in numerous

studies (as discussed in Chapter 5). Attachment theory therefore provides a foundation for hypothesising likely effects of ATG on mental health and mechanisms for these effects. Indeed, the attachment framework has been described as holding significant promise for helping to unravel the complex relationship between religion and health (Hill et al., 2003).

### **Benefits for therapeutic practice**

Another important benefit of ATG theory is its applicability to therapeutic work with Christian clients. The therapeutic applications of human attachment theory are now widely recognised (e.g., Davila & Cobb, 2004; Mikulincer, Shaver, & Pereg, 2003; Schwartz & Pollard, 2004; Ungerer & McMahon, 2005). Clients' attachment styles are considered a key factor requiring assessment and incorporation into therapeutic conceptualisations (Levy & Kelly, 2009; Lopez, 2009; Mallinckrodt, Daly, & Wang, 2009). For example, insecure attachment style may be identified as a factor that predisposed the client to the development of mental health problems and/or is serving to exacerbate current problems (Schwartz & Pollard, 2004; Ungerer & McMahon, 2005). Secure attachment may be conceptualised as a protective factor promoting faster recovery and offering positive coping mechanisms (e.g., S. Johnson, 2004; Kobak, Cassidy, & Zir, 2004; Mallinckrodt et al., 2009). One particular benefit of attachment theory for therapeutic application is that it is relevant across all therapeutic models rather than being specific to a particular theoretical orientation (Ungerer & McMahon, 2005).

Therapeutic applications of ATG theory have also been proposed and developed (Carone & Barone, 2001; L. B. Cooper et al., 2009; Gooden, Leung, & Hindman, 2000; Miner, 2008, July; Moriarty, 2006; Moriarty et al., 2007; Moriarty, Hoffman, Grimes, & Gattis, 2004, October; Proctor & McLean, 2009; Tuskenis & Sori, 2006). For example, ATG theory may provide a useful framework for conceptualising and exploring Christian clients' relationship with God and their spiritual needs, and may guide development and selection of therapeutic interventions that will be most appropriate based on clients' ATG style. The ATG framework may also provide clinicians and clients with a familiar language and useful metaphor for discussing spiritual issues, including the client's experience of God (M. T. Proctor, personal communication, December 10, 2009). Using this framework may thus promote more sensitive assessment and understanding of clients' relationship with God

(Proctor & McLean, 2009). Proctor (personal communication, December 10, 2009) further suggests that assessment tools based on an ATG framework may provide an “effective and sensitive means for tapping into clients’ relationship with God”. A number of specific features of ATG theory render it particularly suitable for application to therapeutic practice. Five such features are described here.

*(1) ATG theory is based on a familiar theoretical framework*

ATG theory is based on the framework of human attachment theory, familiar to most therapists. One barrier hindering therapists from addressing spirituality in therapy is the sense of having an inadequate understanding of this area (Fallot, 2007; Proctor & McLean, 2009). This may be due to a lack of training in the integration of spirituality into therapy and the lower religiosity of mental health practitioners compared with the general population (Bilgrave & Deluty, 2002; Proctor & McLean, 2009; Shafranske & Malony, 1990; E. L. Worthington, Jr., 1989). Thus there is a need for provision of conceptual frameworks that will assist therapists to understand the spiritual dimension of human experience, and how this relates to mental health (Fallot, 2007). While assessment of some spiritual variables may be straightforward, conceptualising clients’ experience of their relationship with God (ERG) may be more difficult, particularly for therapists with little personal familiarity with this area. Providing therapists with a clear framework based on familiar psychotherapeutic constructs is likely to ease this process and reduce feelings of insecurity (Reinertsen, 1993). Because ATG rests on the familiar framework of general attachment theory, clinicians should find it relatively easy to apply their understanding of human attachment relationships to clients’ relationship with God.

*(2) ATG theory promotes a non-pathologising view of clients’ ERG*

Working from an attachment perspective may help therapists to avoid pathologising clients’ relationship with God and other aspects of their spirituality. Some therapists hold negative views of religion (Narramore, 1992) and report negative feelings regarding past religious experiences (Shafranske & Malony, 1990). Discussing religion and spirituality with clients can thus stir up unpleasant feelings and internal conflicts for therapists (Koenig, 2004). This may lead therapists to avoid discussing spiritual issues (Griffith, 1999) and incorporating spiritual interventions into therapy (Shafranske & Malony, 1990). Clients are quick to detect nuances of

pathologising or discounting attitudes toward their relationship with God (R. Marsh & Low, 2006). An ATG framework may help therapists to discuss clients' ERG in a way that is respectful and avoids reductionism. Relationship with God is neither immature nor pathological when viewed as an attachment relationship, because attachment theory stresses the inherent need of all humans for intimate relationships that provide a sense of security (Kirkpatrick, 1995). In being relatively value-free, attachment theory may promote less biased views of clients' spirituality when it emerges in therapy, as well as less biased research. This may assist in eliminating what remains of the historical taboo in psychology toward the religious domain (Kirkpatrick, 1992).

*(3) ATG theory recognises both the positive and negative sides of ERG*

Any framework must be able to distinguish mature, healthy expressions of spirituality (e.g., those likely to promote positive mental health) from those that are immature or unhealthy (e.g., likely to promote distress) in order to provide useful guidance for therapy assessment and intervention (Kelly, 1995b; Rosmarin et al., 2009). The call to address and examine both the positive and negative aspects of spirituality has been noted not only by therapists but also by researchers (Dew et al., 2008; Larson & Larson, 2003; W. R. Miller & Thoresen, 2003). By explicitly considering both the negative and positive aspects of people's ERG, ATG theory promotes a balanced view of the potential effects of ERG on mental health.

*(4) ATG theory facilitates an experiential understanding of ERG*

In order to truly comprehend their clients' ERG, therapists need to be able to connect with clients' experience of this relationship on an emotional level (R. Marsh & Low, 2006). The lower religiosity of mental health practitioners may lead to a reduced awareness of the emotional significance and impact of ERG. Thus, another important benefit of the ATG framework is that it facilitates a connection with the client's *experience* of God. All therapists have experienced attachment relationships. As such, they have an understanding of what attachment relationships 'feel like' and of their significant implications for functioning, both in their ability to foster powerful feelings of security and also their potential to cause significant distress. This may help to reduce the misconception held by some therapists that the spiritual domain is not relevant to psychotherapy (Reinertsen, 1993) and should remain clients' private business (Koenig, 2004). Conceptualising a relationship with God as an attachment

bond may help therapists to recognise the potential significance of this relationship for their clients, and to some extent enable them to enter this central aspect of clients' inner world. This will reduce the likelihood of therapists working from a system of values and language that is disparate from their religious clients, thus increasing their capacity to develop a positive therapeutic relationship (Proctor & McLean, 2009).

*(5) ATG theory acknowledges the possibility of positive change in ERG*

Although attachment working models show a tendency toward stability, they also show potential for revision in various contexts (Rholes & Simpson, 2004). Longitudinal studies confirm the possibility of change in human attachment style over time (Davila & Sargent, 2003; Fraley, 2002). ATG is believed to function similarly to human attachment, and as such, may also tend toward stability but with the possibility of change (R. Beck, 2006a). Individuals have reported experiencing change in their relationship with God in qualitative research (e.g., K. E. Bussema & Bussema, 2000; Ingersoll-Dayton, Krause, & Morgan, 2002; Proctor, 2006). In an empirical study (Kelley, 2003), correlations between levels of ATG measured three months apart indicated some degree of instability ( $r = .74$  for ATG-security,  $r = .68$  for ATG-avoidance, and  $r = .53$  for ATG-anxiety).

Not only do human attachment styles show the potential for change, but there is also evidence to suggest that positive changes can be promoted in therapy. Bowlby himself proposed that therapy could help clients to revise insecure attachment working models (Bowlby, 1969) and that such changes should be considered a key task of therapy (Bowlby, 1988). Therapy approaches aimed at promoting the development of more secure attachment have been devised for young children (e.g., Hoffman, Marvin, Cooper, & Powell, 2006; Toth, Rogosch, Manly, & Cicchetti, 2006) and for adults (e.g., D. Diamond et al., 1999; Lawson, Barnes, Madkins, & Francois-Lamonte, 2006; Levy et al., 2006; Makinen & Johnson, 2006). Although more research is needed, initial evidence suggests that these approaches can result in positive changes in attachment style (e.g., D. Diamond et al., 1999; Hoffman et al., 2006; Lawson et al., 2006; Toth et al., 2006).

The possibility of changing ATG in therapy has also been suggested (e.g., Eckert & Kimball, 2003; Kelley, 2003; Kirkpatrick, 1995; Reinert, 2005), as has the possibility of changing related variables such as negative images of God (Cavanagh, 1992; C. V. Johnson, 2005; Neff & MacMaster, 2005; Sarot, 1995). Specific techniques

and therapy approaches for helping people to develop a more secure ATG have been proposed, some of which are in current use (e.g., Miner, 2008, July; Moriarty et al., 2007; Tuskenis & Sori, 2006). A recent unpublished study reported improvements in ATG (decreased ATG-anxiety and avoidance) following a treatment intervention focused on improving attachment to God, trialled with 26 Christian participants (Thomas, 2009). Additionally, qualitative studies and case studies have indicated that interventions which include a spiritual component can result in changes in variables relevant to ATG (e.g., development of a more positive view of God or a closer relationship with God; Goodman & Manierre, 2008; Griffith, 1999; Kleinschuster, 2004; Murray-Swank & Pargament, 2005; Tisdale, 2007; Witherspoon, 2003; Yan, 2002). A number of empirical studies also provided evidence of significant positive changes in clients' views of God and their ERG occurring over the course of spiritual and secular therapies (e.g., Arnette, Mascaro, Santana, Davis, & Kaslow, 2007; Avants, Beitel, & Margolin, 2005; Bay, Beckman, Trippi, Gunderman, & Terry, 2008; Lindgren & Coursey, 1995; Margolin et al., 2007; W. R. Miller, Forcehimes, O'Leary, & LaNoue, 2008; Sharkey, 2006; Tarakeshwar, Pearce, & Sikkema, 2005). Thus there is evidence to suggest the possibility of positive change in ATG. Working from an ATG framework in therapy should therefore promote a balance between (a) recognition that clients' deepest experience of God may show some resistance to change, and (b) realistic hope regarding the possibility of positive change in ATG.

### **Summary**

Research focused on people's experience of their relationship with God (ERG) and its impact on mental health needs to be grounded in a sound overarching theoretical framework. Such a framework is also necessary to promote effective integration of ERG into therapy. One promising theoretical framework for exploring the ERG-mental health relationship is ATG theory. ATG theory utilises the framework of human attachment theory to describe and explain the ways in which people (particularly Christians) experience their relationship with God. The relevance of attachment theory for people's ERG is suggested by theory and research demonstrating that (a) conceptions of God evince the key characteristics of an attachment figure, (b) a relationship with God meets Ainsworth's criteria for an attachment bond, (c) people show individual differences in ERG that parallel the secure and insecure human

attachment styles, and (d) the two-dimensional framework believed to best capture individual differences in human attachment style also appears applicable to ATG.

Although not without limitations, the ATG framework has important strengths and advantages that guided its selection as the most appropriate framework for the present study. Among these is the therapeutic applicability of ATG. ATG theory is based on a framework familiar to most therapists, promotes a non-pathologising view of ERG, recognises both positive and negative aspects of ERG, has potential to help therapists connect with clients' ERG on an emotional/experiential level, and acknowledges the tendency for stability in ERG combined with the possibility of positive change. These features enhance the applicability of the ATG framework for use in therapeutic settings.

The usefulness of an ATG approach in addressing clients' spiritual needs has led to the development of ATG-focused therapeutic approaches. Some of these approaches (and the rationale for their use) rest partly on the premise that ATG does indeed influence mental health. Although this proposition is supported by theory, evidence from empirical research is lacking. The relationship between ATG and mental health is the focus of the present study and of the next chapter. Specifically, Chapter 5 explores evidence for a relationship between human attachment and mental health, before turning to a review of research on ATG and mental health.

## CHAPTER FIVE

### Attachment to God and Mental Health



Interest in the relationship between ATG and mental health is growing, but as yet, little research has directly explored this relationship. In contrast, an extensive body of research has explored the relationship between human attachment and mental health. This literature provides the major source of theory and research guiding predictions relating to ATG.

#### Human Attachment and Mental Health

It has long been theorized that the quality of early relationships, particularly infant-parent relationships, exerts a strong influence on mental health across the lifespan (Atkinson & Goldberg, 2004). Bowlby (1988) provided a theoretical underpinning for this view by hypothesizing that psychological development across the lifespan is strongly influenced by variations in early attachment bonds. He proposed that attachment processes have an important influence on the development of healthy psychological functioning as well as psychopathology. Specifically, insecure attachment may be considered a risk factor for future psychopathology and secure attachment a protective factor (Davila & Levy, 2006; M. T. Greenberg, DeKlyen, Speltz, & Endriga, 1997; Sroufe, 2005). These predictions have received extensive research attention.

Numerous cross-sectional studies have examined the attachment-mental health relationship. While non-significant or mixed findings have been reported (e.g., L. S. Brown & Wright, 2003; Difilippo & Overholser, 2002; J. A. Feeney & Ryan, 1994; Shaver, Schachner, & Mikulincer, 2005), findings have predominantly linked secure attachment with better mental health and insecure attachment with poorer mental health. These relationships have been found across a wide range of sample groups (e.g., children and adults, clinical and non-clinical samples), types of attachment relationships (e.g., attachment to parents, romantic partners, general attachment style), methods of assessing attachment (e.g., self-report, interview or observation based measures), and forms of measurement (categorical styles or dimensions). For example, secure attachment has been associated with higher levels of positive mental health

variables such as wellbeing and quality of life (Birnbaum et al., 1997; Eng, Heimberg, Hart, Schneier, & Liebowitz, 2001; J. A. Feeney & Ryan, 1994), and lower levels of negative mental health variables such as anxiety and depression (e.g., Mikulincer et al., 1993; Miljkovitch, Pierrehumbert, Karmaniola, Bader, & Halfon, 2005; J. E. Roberts, Gotlib, & Kassel, 1996; Torquati & Vazsonyi, 1999), and other psychiatric symptoms (e.g., Brennan & Shaver, 1995; M. L. Cooper, Shaver, & Collins, 1998; M. T. Greenberg et al., 1997; Kobak & Sceery, 1988). Insecure attachment showed opposite relationships with these mental health variables, whether categorical attachment classifications were explored (e.g., Birnbaum et al., 1997; L. S. Brown & Wright, 2003; Cole-Detke & Kobak, 1996; Miljkovitch et al., 2005; B. Murphy & Bates, 1997), or the dimensions of attachment anxiety and avoidance were measured (e.g., Barry, Lakey, & Orehek, 2007; Carmichael & Reis, 2005; Difilippo & Overholser, 2002; Fossati et al., 2003; Lapsley, Varshney, & Aalsma, 2000; Meyer, Pilkonis, & Beevers, 2004; Muller & Lemieux, 2000; Picardi, Caroppo, Toni, Bitetti, & Di Maria, 2005; Wei, Russell, Mallinckrodt, & Zakalik, 2004; Wei, Shaffer, Young, & Zakalik, 2005).

Cross-sectional research findings on attachment and mental health have been strengthened by prospective studies. By controlling for baseline levels of mental health, these studies afford greater insight into the causal direction of the relationship. Studies have found insecure attachment in childhood to predict increased risk of developing behavioural problems/externalising symptoms (Anan & Barnett, 1999; Erickson, Sroufe, & Egeland, 1985; M. Lewis, Feiring, McGuffog, & Jaskir, 1984; Sroufe, Egeland, Carlson, & Collins, 2005), anxiety disorders (Sroufe et al., 2005), and internalising symptoms (Anan & Barnett, 1999) later in childhood and adolescence. Attachment to parents and peers also has been found to predict subsequent mental health in adolescent and young-adult samples (e.g., A. Lee & Hankin, 2009; Richman & Flaherty, 1987). Prospective studies focusing on adult attachment also provide evidence suggesting a causal impact of attachment style, although there are exceptions (e.g., Burge et al., 1997). Insecure adult attachment style has been found to predict elevated depressive symptoms (after controlling for baseline depressive symptoms) over periods of six weeks to two years (Bifulco, Moran, Ball, & Bernazzani, 2002; Hammen et al., 1995; Hankin, Kassel, & Abela, 2005; J. E. Roberts et al., 1996; J. A. Simpson, Rholes, Campbell, Tran, & Wilson, 2003; Wei, Russell, & Zakalik, 2005). Prospective studies have also demonstrated an effect of attachment anxiety/avoidance

on other mental health variables such as anxiety (Hankin et al., 2005), global mental health (Berant, Mikulincer, & Florian, 2001), and overall psychopathology (Hammen et al., 1995). Both cross-sectional and prospective studies have typically reported that relationships with mental health are weaker for attachment avoidance compared with attachment anxiety, and some prospective studies have failed to detect a significant effect of attachment avoidance (e.g., J. A. Simpson et al., 2003; Wei, Russell et al., 2005). This may be due to the inhibited expression of emotion (particularly negative emotion) characterising those with high levels of attachment avoidance (Goldberg, 1997).

### **ATG and Mental Health**

A relationship with God is believed to function as an attachment bond with psychological effects similar to those of human attachments (Bishop, 2008; L. B. Cooper et al., 2009; Granqvist & Kirkpatrick, 2008; Reinert, 2005). However, the body of research on the ATG-mental health relationship remains relatively small at present, and there is no strong empirical evidence suggesting an effect of ATG on psychological functioning. Nonetheless, some limited support for the view that ATG influences psychological functioning is provided by (a) qualitative research, (b) empirical research examining variables resembling secure and insecure ATG, and (c) a small body of research directly examining the relationship between ATG and mental health.

#### **Qualitative research**

Qualitative research suggests that those whose ERG resembles secure attachment tend to attribute positive mental health benefits to this relationship, while those with an insecure ERG describe the negative influences of this relationship (e.g., Bostik & Everall, 2007; E. F. Bussema & Bussema, 2007; Feher & Maly, 1999; C. V. Johnson, 2005; Mako et al., 2006). For example, in a qualitative study of 12 Christian current or former mental health clients (Cutland, 2000), respondents exhibiting a secure ERG described how this relationship provided them with comfort, hope, peace, a heightened sense of self-worth, and strength to face their problems and successfully pursue psychological change. Some participants described experiencing a more insecure relationship with God at various points in their lives; this relationship was seen to contribute to psychological difficulties.

## **Empirical research on constructs relevant to ATG**

A number of empirical studies have examined the relationship between constructs resembling secure or insecure ATG and mental health. Indicators of secure ATG (referred to here as “secure attachment” (SA) indicators) have been linked with significantly lower levels of depressive symptoms, anxiety, distress/negative affect, hostility and emotional burnout, and higher levels of life satisfaction, self-esteem, positive affect and other measures of positive mental health (Desrosiers & Miller, 2007; Ellison & Fan, 2008; Fabricatore et al., 2000; Fiala et al., 2002; Genia, 1996; Holland & Neimeyer, 2006; Kaczorowski, 1989; Keefe et al., 2001; Koenig et al., 2004; Lawrence, 1997; Lazar & Bjorck, 2008; Loewenthal et al., 2000; P. E. Murphy et al., 2000; Pieper, 2004; Rippentrop, Altmaier, Chen, Found, & Keffala, 2005; Tisdale et al., 1997; Underwood & Teresi, 2002). Evidence of a relationship is strengthened by (1) the diverse range of samples in which these relationships were reported (e.g., adolescent, young adult, adult and elderly samples, mental health clients, medical patients, and medical and mental health practitioners) including some large and nationally representative samples, (2) the fact that many correlations represented medium effect sizes (i.e.,  $r = .30-.49$ ; the criterion provided by J. Cohen, 1988) or even large effects (i.e., above  $.50$ ), and (3) the finding that relationships remained significant after controlling for a range of variables that could have accounted for the relationship (e.g., demographic, health-related and treatment-related variables). Although some studies have not found a relationship between SA indicators and mental health (e.g., Exline, Yali, & Sanderson, 2000; Fehring, Brennan, & Keller, 1987; Gall, 2000; S. K. Harris, Sherritt et al., 2008; Powers, Cramer, & Grubka, 2007), the overall weight of evidence suggests that a relationship does exist. One meta-analysis provided a statistical estimate of the average size of the relationship between an SA indicator and mental health. T. B. Smith et al. (2003) identified 11 studies (total  $N = 2,106$ ) measuring the association between depressive symptoms and religious wellbeing. Religious wellbeing was assessed using measures which typically tapped a close, secure relationship with God. The mean effect size ( $r$ ) was  $-.20$ , suggesting that overall, this form of ERG was associated with lower depressive symptoms.

Fewer studies have explored the relationship between indicators of insecure ATG (“IA indicators”) and mental health. Where such measures have been used, they appear to be most closely aligned with the dimension of ATG-anxiety. For instance,

the Instability subscale of the Spiritual Assessment Inventory (T. W. Hall & Edwards, 1996) assesses an ERG marked by anxiety and instability. Higher scores on this measure were associated with higher levels of distress, depression, anxiety and hostility in a sample of 181 missionaries (M. E. Hall, Edwards, & Hall, 2006). Similarly, perceptions of being abandoned by God were associated with poorer mental health (e.g., higher depression and lower life-satisfaction) in two undergraduate student samples (Exline et al., 1999; Phillips et al., 2004), and in a sample of 54 mental health clients (Exline et al., 2000).

The aforementioned findings arise from cross-sectional research, thus providing no evidence regarding the causal direction of the relationship between ATG indicators and mental health. Prospective studies, which provide more insight into causal direction, are notably sparse. In one relevant study, baseline levels of an SA indicator were unable to predict change in hopelessness over the course of a 10-week intervention, in a sample of 74 African American women (Arnette et al., 2007). In contrast, baseline SA predicted a significant reduction in depression over an eight week period in a sample of 136 adults being treated for depression (P. E. Murphy & Fitchett, 2009). An earlier study investigated the relationship between an SA indicator and emotional adjustment in a sample of 68 adolescents divided into high- and low-stress groups (Maton, 1989). In the high-stress group, baseline SA predicted significantly better emotional adjustment at time 2, controlling for pre-college depression levels and demographic variables. However, the relationship was non-significant in the low-stress group. This suggests that levels of negative events may moderate the effect of SA on mental health, an issue discussed later in the chapter.

### **Empirical studies of ATG and mental health**

A small but growing body of research has directly explored the relationship between ATG and mental health. Most research is based on cross-sectional surveys of non-clinical adult samples (e.g., university, community and elderly samples). Some of these have found significant relationships between ATG and mental health. These relationships have been in the hypothesised directions and typically of small to medium effect size (according to J. Cohen's 1988 conventions). For example, secure ATG was significantly associated with several indicators of mental health (lower loneliness/depression, lower anxiety, and higher life satisfaction) in a community sample of 213 adults (Kirkpatrick & Shaver, 1992). Effects remained significant after

controlling for adult (human) attachment style. In a sample of 235 elderly residents of Roman Catholic monasteries, ATG-security was significantly (albeit weakly) associated with lower levels of depressive symptoms after accounting for levels of stress and friendship (Bishop, 2008). ATG-security was also associated with better mental health in a sample of 646 adults residing in Australia (Proctor et al., 2009). The sample comprised members from Christian churches and the general community (46%) and university students (54%). For the church/community sample, hierarchical regression analyses showed that ATG-security was associated with significantly lower levels of depression, anxiety and interpersonal sensitivity, controlling for age, gender and parental attachment style. The unique association with hostility was non-significant however. When these analyses were repeated in the university sample, ATG-security showed a unique significant association with lower levels of hostility but not with the other mental health measures. The inclusion of control variables, large sample size, and the use of well-validated, reliable mental health measures strengthen the findings of this study. ATG-security was also associated with better mental health in a second sample of Australian adults ( $N = 116$ ; Miner, 2009). In this sample, ATG-security was associated with lower anxiety and higher existential wellbeing after controlling for parental attachment style.

The dimensions of ATG-anxiety and avoidance have also been found to show expected relationships with mental health. For example, these variables were associated with higher levels of manifest anxiety, negative affect and positive affect (controlling for the effects of socially desirable responding), in a sample of university students and adults from the community ( $N = 374$ ; Rowatt and Kirkpatrick, 2002). ATG-anxiety was significantly correlated with higher levels of depression and negative affect, and lower levels of happiness and positive affect in a sample of 204 undergraduate students (Joules, 2007). In this study, ATG-avoidance and ATG-security showed significant correlations with positive affect, but not with other mental health variables.

On the other hand, some studies have reported predominantly non-significant relationships between ATG and mental health. In a sample of adults waiting while their loved one underwent surgery ( $N = 155$ ), ATG-anxiety, avoidance and security were not significantly associated with distress (Belavich & Pargament, 2002). In another study, ATG styles (secure, preoccupied, avoidant and fearful) were not significantly related to positive or negative affect in a sample of 258 students and

church members, after accounting for the effects of impression management (H. J. Chen, 2005). Given that a number of correlations were significant before controlling for impression management, it is possible that the relationship between ATG and mental health is attributable to this response bias. However, this is in conflict with a number of findings from Rowatt and Kirkpatrick's study, which also controlled for this response bias. In an elderly sample ( $N = 109$ ), secure ATG predicted *greater* levels of fears relating to destruction of one's body after death (Cicirelli, 2004). Fears regarding the process of dying, the afterlife, and the impact of one's death on significant others were unrelated to secure ATG for the full sample (some denominational differences were found, but did not show consistent patterns). Given the highly specific nature of the mental health variables measured in Cicirelli's study, it seems unlikely that the single significant finding is indicative of a negative effect of secure ATG on general areas of mental health for elderly adults. Finally, in a sample of 241 university students in Singapore, ATG-security did not predict self-esteem, life satisfaction or negative affect after controlling for age, sex, attachment to mother and attachment to father (Sim & Loh, 2003). ATG-security did predict unique variance in optimism, but the amount of variance predicted was small.

In addition to cross-sectional studies, three studies examining the prospective relationship between ATG and mental health were identified. The earliest was an unpublished study conducted with 94 adults who had experienced the death of a loved one in the past 18 months (Kelley, 2003). Thirty-four participants responded at Time 2 (3 month follow up). Retrospective ratings of ATG (provided at Time 1) were associated with mental health at Times 1 and 2. Specifically, ATG-security was associated with lower levels of depressive symptoms and traumatic distress, while ATG-anxiety and avoidance were associated with higher levels of depressive symptoms, traumatic distress and separation distress. However, these prospective relationships did not control for baseline mental health and thus do not provide evidence for a causal effect of ATG.

In a second prospective study, baseline ATG-avoidance was associated with significantly higher shame and lower self-esteem at baseline and 8 months later, in a sample of 75 male Roman Catholic seminarians (Reinert, 2005; Time 2 relationships were provided by D. F. Reinert, personal communication, June 02, 2006). Time 1 ATG-anxiety predicted higher levels of shame at both time points, but was unrelated to self-esteem. After controlling for baseline mental health, baseline ATG-

anxiety/avoidance no longer predicted Time 2 shame/self esteem. However, this may be due partly to the mental health variables and sample used. Self-esteem and shame are considered trait-like ‘self-representations’ (Reinert, 2005) as opposed to state-like mental health variables such as emotional states. Reflecting this, these variables showed little change over the course of the study, thereby limiting the chance of ATG predicting Time 2 levels after accounting for baseline levels. The ability to detect a significant prospective effect may have been further reduced by the small sample size.

The most recent prospective study (unpublished) was conducted in a sample of 127 undergraduate university students (Desai, 2006). Baseline ATG-avoidance was correlated with lower life satisfaction and higher distress at Time 2 (four to six weeks later). Baseline ATG-security was correlated with lower distress at Time 2. However, ATG-avoidance and security were no longer significant predictors of Time 2 mental health after controlling for baseline mental health. ATG-anxiety was unrelated to mental health both cross-sectionally and prospectively. It is possible that the failure to detect prospective relationships was due to the short study interval, which may have been inadequate to capture change in life satisfaction and distress levels. Additionally, the measure of ATG used in this study as well as in Reinert’s study (namely, Rowatt and Kirkpatrick’s measure of ATG) shows potential limitations, as discussed in the next section.

### **Limitations of research on ATG and mental health**

Studies examining the relationship between ATG and mental health have produced mixed findings. Some have reported a number of significant relationships (of small to medium magnitude), indicating that secure ATG is associated with better mental health and insecure ATG with poorer mental health (Bishop, 2008; Joules, 2007; Kelley, 2003; Kirkpatrick & Shaver, 1992; Miner, 2009; Proctor et al., 2009; Rowatt & Kirkpatrick, 2002). Others have reported predominantly non-significant relationships (Belavich & Pargament, 2002; H. J. Chen, 2005; Cicirelli, 2004; Sim & Loh, 2003). Salient limitations of the research make it difficult to form overall conclusions regarding the ATG-mental health relationship. Limitations predominantly relate to the lack of prospective research, measurement and sample-related issues, and the lack of exploration of potential moderator variables.

### *Lack of prospective studies*

A salient limitation affecting research on the relationship between ATG (or related variables) and mental health is the paucity of prospective studies. It is possible that significant cross-sectional relationships between ATG and mental health are spurious, that is, accounted for by variables not included in the analysis. Although some cross-sectional studies have attempted to minimise this possibility by controlling for relevant covariates, it is unlikely that all variables with the potential to explain the relationship have been taken into account. Indeed, the difficulty of identifying all such variables is a key problem associated with cross-sectional research in general.

Variables that may to some degree account for cross-sectional relationships between ATG and mental health include social desirability bias (which predicts more positive ratings of ATG and mental health; e.g., H. J. Chen, 2005; Rowatt and Kirkpatrick, 2002), and age (older age has been linked with more secure ATG [e.g., R. Beck & McDonald, 2004; H. J. Chen, 2005; Proctor et al., 2009] and improved mental health in some studies [e.g., Diener et al., 1999; Kunzmann, Little, & Smith, 2000; E. R. Thompson, 2007]). Most cross-sectional studies have not controlled for these variables.

Perhaps the most important covariate, however, is human attachment style. As described in the previous chapter, there is evidence to suggest that styles of ATG are influenced by human attachment styles. Given that human attachment style is also known to predict mental health, this variable may account for variance in the relationship between ATG and mental health. A number of studies have controlled for human attachment style when examining the ATG-mental health relationship. Some found the relationship remained significant (Kirkpatrick & Shaver, 1992; Miner, 2009; Proctor et al., 2009), suggesting that ATG predicts unique variance in mental health. Others showed mixed findings, whereby some relationships became non-significant while others remained significant (Rowatt & Kirkpatrick, 2002; Sim & Loh, 2003). While the extent to which the ATG-mental health relationship can be accounted for by human attachment style is uncertain, it is clear that this variable needs to be taken into account. This applies to prospective as well as cross-sectional research. While covariates such as social desirability bias and age are less important in prospective research, given that they do not predict *change* in mental health (Kirkpatrick, 1998), variables such as human attachment style (which do predict change) need to be

included. Prospective research on ATG and mental health to date has not controlled for human attachment style, and future studies should do so in order to increase the validity of findings.

Even in the unlikely scenario that a study exploring the ATG-mental health relationship controlled for all relevant covariates, a second potential explanation for a significant cross-sectional relationship would remain. This is the possibility that the relationship exists because mental health ‘causes’ (or influences) ATG rather than vice versa. The possibility of mental health influencing attachment has received little explicit discussion in the human attachment literature. However, two studies provide evidence for this effect. Specifically, higher baseline depression and anxiety predicted elevated attachment anxiety and avoidance eight weeks later (controlling for baseline attachment style) in a sample of undergraduate students (Hankin et al., 2005). Similarly, higher baseline internalising symptoms predicted lower attachment security one year later (controlling for baseline attachment) in an adolescent sample (Buist, Dekovi, Meeus, & van Aken, 2004).

The possibility of mental health problems leading to negative changes in individuals’ relationship with God has also been suggested (e.g., Compton & Furman, 2005; C. V. Johnson, 2005), although not with specific reference to ATG. In a qualitative study of 12 therapists (C. V. Johnson, 2005), therapists described how spiritual problems (including problems in people’s relationship with God) could be caused by mental health problems. Mental health problems such as depression may lead people to think negatively about God, to feel more distant from God, to feel condemned by God, and to find it difficult to experience God’s love and care (Holden & Watts, 1991; Koenig, 2005; Moriarty, 2006; Pfeifer, 1994, 1996). Whether such experiences lead to changes in ATG is not known. Indeed, no empirical investigations of the impact of mental health on people’s experience of their relationship with God were able to be located. While evidence to suggest that mental health may influence ATG is limited at present, this remains a possibility and should be addressed in future studies.

#### *Measurement limitations*

Another notable limitation of studies exploring the ATG-mental health relationship relates to measurement issues. Researchers have frequently developed their own measures of ATG rather than using, testing and modifying existing

measures; indeed, many measures have been used in only one published study. Some measures (e.g., Belavich & Pargament, 2002; H. J. Chen, 2005), show questionable psychometric properties such as poor internal consistency, overly high correlations between subscales, and relationships with other measures that are inconsistent with theory. More importantly, there has been little theoretical discussion of the dimensions underlying ATG to guide development of measures. Reflecting this, ATG measures are conceptually diverse, for example measuring three ATG styles (secure, anxious, avoidant) as discrete categories (Kirkpatrick & Shaver, 1992) or dimensions (Belavich & Pargament, 2002), measuring four styles (secure, anxious, avoidant and fearful) as dimensions (H. J. Chen, 2005), or measuring attachment security as a sole dimension (Bishop, 2008; Cicirelli, 2004; Sim & Loh, 2003). A similar problem exists within the field of human attachment, which also contains a bewildering array of measures developed based on divergent conceptual frameworks (Stein et al., 2002). However, significant efforts have been made in the last decade to address this issue by determining which dimensions best capture individual variation in attachment style. As discussed in the previous chapter, the work by Brennan, Clark, and Shaver (1998) and subsequent studies (e.g., Fraley, Waller, & Brennan, 2000) represents the most comprehensive and systematic attempt to identify the dimensions underlying attachment style. This work led to the identification of two dimensions, labelled attachment anxiety and avoidance, which are measured using the Experiences in Close Relationships Scale (ECR; Brennan et al., 1998) and its revised version (the ECR-R; Fraley et al., 2000). As discussed, individual differences in ATG style may be best represented by the same two dimensions. Thus it would be beneficial to base measures on this theoretical framework.

At the time the present study was conducted, two published measures of ATG had been developed based on the anxiety/avoidance framework: an unnamed measure developed by Rowatt and Kirkpatrick (2002) and the *Attachment to God Inventory* (AGI; R. Beck & McDonald, 2004). Rowatt and Kirkpatrick's measure focuses largely on views of God's responsiveness, rather than on the core features of avoidance of intimacy (discomfort with and avoidance of closeness and dependency) or anxiety about abandonment (preoccupation and anxiety regarding rejection/abandonment by God). The emphasis on views of God rather than on the believer's emotional and psychological experience of the relationship is a problem common to other ATG measures also (e.g., Belavich & Pargament, 2002; Kirkpatrick & Shaver, 1992). While

it is possible that views of God's responsiveness *do* relate to the internal experiences that characterise attachment anxiety and avoidance, this has not been established. Even if the items from Rowatt and Kirkpatrick's measure are relevant, they capture a very limited aspect of the anxiety/avoidance dimensions and may be inadequate as measures of these dimensions on their own. This may be one reason for some of the non-significant relationships between ATG and mental health found in studies using this scale, as well as the other scales with similar content. The AGI has been developed more recently and was based on the ECR. This scale appears to have superior content validity to Rowatt and Kirkpatrick's measure (as discussed in Chapter 7 and subsequent chapters), and may be a better option for future research.

### *Sampling limitations*

Another limitation of empirical research on ATG and mental health relates to the samples used. First, while cross-sectional studies have had adequate sample sizes, two of the three prospective studies (Kelley, 2003; Reinert, 2005) had fairly small samples which may have led to insufficient power to detect significant relationships. Second, some studies have included participants from a mixture of religious faiths, as well as non-religious individuals (e.g., Desai, 2006; Joules, 2007; Kirkpatrick & Shaver, 1992; Sim & Loh, 2003). Researchers have noted that members of different religious traditions may hold divergent conceptions of spiritual variables, rendering it necessary to develop unique measures for each group (e.g., Berry, 2005; Moberg, 2002). The ATG framework has been strongly influenced by Christian conceptualisations of a relationship with God (R. Beck & McDonald, 2004; Kirkpatrick, 1992; Miner et al., 2009), and measures have predominantly been developed from a Christian framework and tested on Christian samples. Items may thus be less meaningful, or carry a different meaning, for individuals who are non-religious or of a different religious faith (Bonab et al., 2009; Miner et al., 2009). Without formal testing, it is impossible to ascertain what scores 'mean' for participants of different religious traditions, and whether scores can be meaningfully aggregated across groups. Until ATG measures have been developed and validated for use in non-Christian samples it is advisable to limit samples to Christian participants.

### *The need to examine potential moderating variables*

Mixed or inconsistent findings regarding the relationship between constructs can signal the (undetected) presence of moderating variables (Baron & Kenny, 1986). A moderator is a variable that alters the size or direction of relationship between two other variables (Baron & Kenny, 1986). Identifying moderator variables can thus help to explain why significant effects are found in certain samples but not others. Trans-disciplinary research indicates two possible moderating variables in the ATG-mental health relationship: negative events and gender. Investigating the moderating effects of these variables may not only help to resolve the mixed findings of past research, but also make an important contribution toward developing our understanding of the ATG-mental health relationship.

#### Negative events

Times of distress or perceived threat activate the human attachment system (Mikulincer & Florian, 1998; Torquati & Vazsonyi, 1999). Under such conditions people draw more strongly on the coping appraisals and strategies characteristic of their attachment style (discussed in the following chapter), thus increasing the impact of attachment style on mental health. For example, in times of adversity, the positive expectations, beliefs and coping strategies associated with secure attachment become more salient, as do the negative beliefs and coping strategies associated with insecure attachment. A number of studies provide evidence that attachment style exerts a stronger effect on mental health under the presence of more severe negative events, that is, negative events with the potential for greater negative life impact (M. Lewis et al., 1984; Mikulincer et al., 1993; Mikulincer, Horesh, Eilati, & Kotler, 1999; Solomon, Ginzburg, Mikulincer, Neria, & Ohry, 1998). For example, insecure attachment has been found to show a stronger association with (poorer) mental health amongst former prisoners of war compared with a control group of veterans (Solomon et al., 1998), amongst those living in areas of Iraq experiencing missile attacks versus those living in areas that did not experience attacks (Mikulincer et al., 1993), and amongst Israeli Jewish persons living in an area under high threat of terrorist attack versus those living in lower threat areas (Mikulincer et al., 1999).

Negative events are likely to activate ATG in addition to the human attachment system. In times of adversity people are more likely to draw on their relationship with God given their greater need for a source of strength and comfort (Kirkpatrick, 1995).

Under such conditions the positive beliefs and coping strategies promoted by secure ATG are likely to become even more salient, as with the negative beliefs and coping strategies associated with insecure ATG. Although the moderating impact of negative events severity on the relationship between ATG and mental health has not yet been tested, this variable was found to moderate the relationship between religiosity and depressive symptoms in a meta-analysis of 147 studies ( $N = 98,975$ ; T. B. Smith et al., 2003). Further support is provided by two studies exploring this effect using constructs similar to secure ATG. First, a tendency to work with God as partners in coping with negative events was unrelated to depression amongst participants reporting a low stress level ( $n = 123$ ) but significantly correlated with depression ( $r = -.27$ ) amongst those reporting a high stress level ( $n = 122$ ) in a sample of church members (Bickel et al., 1998). Second, perceptions of God as caring and supportive predicted better psychological health in two higher-stress groups (parents who had lost a child within the past two years and adolescents reporting a high level of negative events), but not in the corresponding lower-stress groups (Maton, 1989).

### Gender

It has been proposed that females may be more affected by the quality of their relationships (including their relationship with God) than males, based on the theories of (a) gender role socialisation and (b) resource substitution. Theorists have proposed that gender role socialisation processes lead females to emphasise the importance of relational intimacy, thus deriving a greater sense of meaning and fulfilment from relationships and being more sensitive to negative relational states (Desrosiers & Miller, 2007; Gilligan, 1982). This may increase the impact of human attachment quality on females' mental health and functioning (Lapsley et al., 2000). Such gender differences may extend to a relationship with God (Burkhardt, 1994; Desrosiers & Miller, 2007). It has also been proposed that females may be more strongly affected by the quality of their relationship with God given their lower average levels of socioeconomic resources (J. A. Simpson, 2002). Specifically, 'resource substitution theory' (Ross & Mirowsky, 2006) describes the way in which certain resources can substitute for each other, such that as the level of one resource decreases, other resources become increasingly important (e.g., for maintaining wellbeing). Women have been noted as generally having lower socioeconomic resources compared with men (Ross & Mirowsky, 2006), and it is possible that this may increase their need to

rely on their relationship with God (J. A. Simpson, 2002), thus increasing their sensitivity to the quality of that relationship.

No published research has examined the moderating effect of gender on the ATG-mental health relationship. However, a number of studies have investigated this moderating effect in the relationship between human attachment style and mental health. Some have reported that the relationship is stronger amongst females compared with males (e.g., M. L. Cooper et al., 1998; M. E. Kenny & Donaldson, 1991; Riggs & Jacobvitz, 2002), though others have found no evidence for a moderating effect (e.g., Difilippo & Overholser, 2002; Lapsley et al., 2000; Overbeek, Vollebergh, Meeus, de Graaf, & Engels, 2004; Sund & Wichstrom, 2002; Wei, Heppner, & Mallinckrodt, 2003), or mixed findings (Gittleman, Klein, Smider, & Essex, 1998; Rice & Whaley, 1994). Some studies have also examined gender moderation in the relationship between spirituality and mental health. A number of these report stronger associations between spirituality and mental health amongst females compared with males (K. M. Clark, Friedman, & Martin, 1999; Feldman, Fisher, Ransom, & Damiceli, 1995; Heaven & Ciarrochi, 2007; Hintikka, Koskela, Kontula, & Viinamaki, 2000; Mirola, 1999). Conversely, a meta-analysis of studies examining the relationship between religiousness and depression found no evidence for a moderating impact of gender (T. B. Smith et al., 2003), and other studies have indicated that the moderating effect may be more complicated (L. Miller et al., 2002) or mixed (Maltby, Lewis, & Day, 1999; Meisenhelder, 2003).

A moderating effect has also been found in studies measuring ERG variables more closely related to ATG, although again, findings are not unanimous. The experience of a close relationship with God (related to secure attachment) predicted lower depressive symptomatology among females ( $n = 361$ ) but not males ( $n = 252$ ) in a sample of adolescents and young adults (Desrosiers & Miller, 2007). When this measure was administered to a large, nationally representative sample of adults in the United States (Ellison & Fan, 2008), higher scores were a stronger predictor of (better) self-esteem among females compared with males. However, gender did not moderate the relationship between positive ERG and other mental health variables (distress, happiness, excitement with life) in this study. In a longitudinal study of adolescents ( $N = 1096$ ), a sense of closeness to a 'higher power' predicted future depression levels after accounting for baseline depression for females but not males, though the effect in females was indirect (i.e., occurring through the effects of mediators) and weak (Perez

et al., 2009). Conversely, Gall et al. (2007) found no evidence for gender differences in the relationship between ERG and mental health variables, and Dickie, Ajega, Kobylak, and Nixon (2006) found that perceived closeness to God was associated with higher self-esteem in males but not females.

Overall, there is some evidence to suggest that negative events and gender may moderate the relationship between ATG and mental health. This evidence is tentative given the absence of published research explicitly addressing these possibilities. Evidence is particularly unclear with regard to the moderating effects of gender, with some studies suggesting that spiritual variables and human attachment style may exert a stronger impact on females and other studies failing to detect this effect. However, given relevant theoretical and empirical work indicating the possibility of these moderating effects, it seems worthwhile for future studies to take these variables into account when exploring the ATG-mental health relationship.

### **Summary**

ATG is believed to have similar psychological functions and effects to human attachment style, a variable that has been widely demonstrated to influence mental health. A number of research findings suggest that ATG may influence mental health, though these do not provide conclusive evidence. Specifically:

i. Qualitative research indicates that those whose relationship with God resembles secure attachment experience mental health benefits from this relationship, while the opposite has been reported for a relationship resembling insecure ATG.

ii. Empirical research examining variables resembling secure and insecure ATG provides some evidence for hypothesised relationships with mental health.

However, it is not clear whether relationships represent a causal impact, largely because most studies have been cross-sectional.

iii. A number of studies directly examining the relationship between ATG and mental health have found significant associations in the expected direction.

However, other studies have reported predominantly non-significant findings.

Limitations of the research make it difficult to draw conclusions based on the findings. Most importantly, few studies have yet explored the prospective effects of ATG on mental health, and of these studies, none detected significant effects.

Overall therefore, there is no empirical evidence to date supporting a causal effect of ATG on mental health.

The need for better quality research on the relationship between spirituality and mental health has been noted, particularly in the areas of measurement precision and validity, sample-related issues and methodological rigour, including the need for prospective research designs in order to explore the causal direction of relationships (e.g., Berry, 2005; Diener et al., 1999). These critiques clearly apply to research on the ATG-mental health relationship. In order to deepen our understanding of this relationship, there is a need for research using prospective methodology, appropriate and validated measures of ATG, samples of adequate size and appropriate religious make-up, and the investigation of potential moderators. Another criticism of research on spirituality and mental health is the lack of exploration of mechanisms by which the relationship occurs (Berry, 2005; Diener et al., 1999). This is the focus of the next chapter, which explores the role of negative events and coping in the relationship between ATG and mental health.

## CHAPTER SIX

### Attachment, Negative Events and Coping

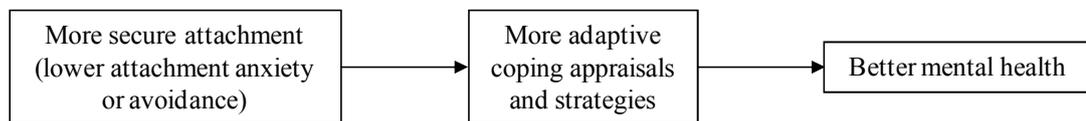


#### **Mechanisms for an Effect of Human Attachment on Mental Health: The Role of Negative Events and Coping**

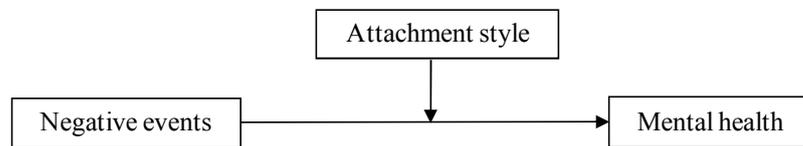
The human attachment system has far-reaching implications for many aspects of functioning, and has been shown to influence mental health through a range of mechanisms (e.g., Hankin et al., 2005; Mallinckrodt & Wei, 2005; Vogel & Wei, 2005). At its core however, secure attachment represents a resource that alleviates distress and promotes adaptive coping in the face of threat and adversity (S. Johnson, 2004; Mikulincer & Florian, 1998). Thus, a key mechanism by which attachment affects mental health is through influencing the ways in which people respond to negative events (Mikulincer & Florian, 1995; Mikulincer et al., 1993). The coping process involves both *appraisals* (e.g., cognitive perceptions of the degree of threat, the controllability, desirability and likely outcome of the event and one's ability to cope) and coping *strategies* (e.g., methods for dealing with negative events, including problem-focused, emotional-focused and help-seeking strategies; Kraaij et al., 2003; Folkman & Moskowitz, 2004; Torquati & Vazsonyi, 1999). Those with secure attachment styles have experienced attachment figures as available and responsive in times of distress. These experiences promote the development of adaptive coping appraisals and strategies, increasing resilience to the psychological impact of negative events (S. Johnson, 2004; Mikulincer et al., 1993; Slade, 1999; Ungerer & McMahon, 2005). For example, secure attachment is associated with appraisals of events as less negative and threatening, higher expectations of one's ability to cope, and the use of constructive problem-focused and support-seeking strategies (Birnbaum et al., 1997; Fuendeling, 1998; Mikulincer & Florian, 1995, 1998; Mikulincer et al., 1993; Torquati & Vazsonyi, 1999). Conversely, a lack of consistent responsiveness from attachment figures leads to inadequate distress regulation and the development of less adaptive coping strategies (Fuendeling, 1998). For example, those with high levels of attachment anxiety tend to over-estimate the degree of threat associated with an event, underestimate their ability to cope, and direct their attention toward negative thoughts

and feelings (Birnbaum et al., 1997; Fuendeling, 1998; Mikulincer & Florian, 1995, 1998). In contrast, those with high levels of attachment avoidance tend to engage in ‘deactivating’ coping strategies such as inhibiting acknowledgement and display of negative emotions and withdrawing from others, aimed at avoiding the pain associated with proximity-seeking (Egeland & Carlson, 2004; Fuendeling, 1998; Lopez & Brennan, 2000; Mikulincer & Florian, 1995, 1998; Mikulincer et al., 2003).

The theory that attachment style affects mental health through influencing responses to negative events has received empirical support from studies exploring (1) mediator effects and (2) moderator effects. Given that mediator and moderator effects are often confused in the literature, these effects are shown diagrammatically in Figure 2, to clarify their distinction.



Mediator effect: The relationship between attachment style and mental health is mediated by coping style. Specifically, a more secure attachment style leads to more adaptive coping appraisals and strategies, which lead to better mental health. Insecure attachment style has the opposite effects.



Moderator effect: The effect of negative events on mental health is moderated by attachment style. Specifically, negative events have a greater detrimental influence on mental health amongst those with a more insecure attachment style.

*Figure 2.* Depiction of mediator and moderator effects in the relationships between human attachment style, negative events, coping, and mental health.

*Mediator effects.* A number of studies demonstrate that the influence of attachment style on mental health is mediated by the ways in which people cope with negative events. That is, secure attachment promotes more adaptive coping appraisals and strategies, which in turn predict better mental health outcomes (the opposite effects operate with respect to insecure attachment). This mediator effect has been found in a range of samples, including undergraduate students (Lopez, Mauricio, Gormley,

Simko, & Berger, 2001; Wei et al., 2003; Wei, Heppner, Russell, & Young, 2006; Wei, Russell et al., 2005; Wei, Vogel, Ku, & Zakalik, 2005), highschool students (Merlo & Lakey, 2007), couples going through divorce (Birnbaum et al., 1997) and mothers of infants with congenital heart disease (Berant et al., 2001).

*Moderator effects.* Studies have also shown that attachment style moderates the effects of negative events on mental health. Specifically, negative events are shown to have a more detrimental effect on the mental health of those with less secure attachment styles. This effect has been found across a range of samples and forms of negative events, for example couples going through divorce (Birnbaum et al., 1997), adolescents experiencing a high level of general negative events (Kraaij et al., 2003), children in families exposed to high stress (Sroufe et al., 2005), maltreated children (Toth & Cicchetti, 1996), female high-school graduates experiencing interpersonal stressors (Hammen et al., 1995) and former political prisoners exposed to torture and ill-treatment (Salo et al., 2005). Although the effect was not found in one young adolescent sample (Sund & Wichstrom, 2002), the balance of evidence suggests that attachment style does typically moderate the impact of negative events.

### **ATG, Negative Events and Coping**

Given that ATG is believed to function psychologically in a similar way to human attachment (L. B. Cooper et al., 2009; Granqvist & Kirkpatrick, 2008), the mechanisms by which ATG may influence mental health may also be similar. In line with this, a key mechanism by which ATG has been proposed to influence mental health is through influencing the ways in which people respond to negative events (Belavich & Pargament, 2002; L. B. Cooper et al., 2009; Proctor et al., 2009). If this is the case, the mediator and moderator effects described earlier with respect to human attachment style should also apply to ATG. Specifically: (a) the relationship between ATG and mental health should be mediated by coping styles, and (b) ATG style should moderate the impact of negative events on mental health.

### **Religious coping style as a mediator of the relationship between ATG and mental health**

A growing body of research has been devoted to exploring the ways in which people involve their spirituality (and their relationship with God specifically) in coping with adversity (Ano & Vasconcelles, 2005). Numerous “religious coping” methods

have been described (Pargament, 1997), and there is evidence suggesting that many such methods are associated with mental health (Ano & Vasconcelles, 2005). Furthermore, it has been suggested that individuals' style of ATG may play an important role in determining which forms of religious coping are used (Belavich & Pargament, 2002). This suggests the possibility of a mediation relationship similar to that outlined earlier with regard to human attachment style. Specifically, ATG style may predict religious coping style, which may in turn predict mental health.

Two forms of religious coping appear particularly salient as mediators of the relationship between ATG-anxiety/avoidance and mental health. Specifically, (a) ATG-anxiety may influence mental health through predisposing people to appraise negative events as indicating God's abandonment/punishment, and (b) ATG-avoidance may influence mental health through predisposing people to seek less support from God during negative events. The salience of these forms of religious coping as potential mediators is indicated by their direct relevance to the ATG dimensions and by evidence that they are associated with mental health (e.g., Bjorck & Thurman, 2007; Boscaglia et al., 2005; Fitchett et al., 2004; C. A. Lewis, Maltby, & Day, 2005; McConnell, Pargament, Ellison, & Flannelly, 2006; Pargament, Smith, Koenig, & Perez, 1998; Witvliet, Phipps, Feldman, & Beckham, 2004).

#### *ATG-anxiety, abandoning/punishing appraisals (APA), and mental health*

Human attachment anxiety is associated with a tendency to interpret negative events - particularly those of an interpersonal nature - as a sign of rejection and of one's unworthiness or unlovability (Fuendeling, 1998; Shirk, Gudmundsen, & Burwell, 2005). Such interpretations may be even more relevant to ATG-anxiety, given that *all* negative events can potentially be attributed to God's rejection or lack of care. This is because unlike human attachment figures, God is viewed as omnipotent and thus as having the power to prevent even 'uncontrollable' events such as natural disasters and physical illnesses/disabilities. Those with high levels of ATG-anxiety are, by definition, inherently doubtful of their lovability and acceptability to God. Negative events are likely to both activate and 'confirm' these fears, 'proving' to the individual that God has abandoned/rejected them, given that he could have prevented the events "had he cared enough". A study of 94 adults who had experienced a recent bereavement (Kelley, 2003) provided empirical evidence suggesting that ATG-anxiety is associated with higher levels of APA.

It is not difficult to imagine how APA might promote poorer mental health outcomes. These appraisals may constitute a source of distress in themselves, and may erode self-esteem and promote negative expectations of the outcomes of the events (Edmondson, Park, Chaudoir, & Wortmann, 2008). In line with this, measures relevant to APA have been linked with poorer mental health in a large number of studies (e.g., Bjorck & Thurman, 2007; Boscaglia et al., 2005; Burkner, Evon, Sedway, & Egan, 2005; Falloot & Heckman, 2005; Fitchett et al., 2004; S. K. Harris, Sherritt et al., 2008; Koenig, Pargament et al., 1998; McConnell et al., 2006; Nooney & Woodrum, 2002; Sherman, Simonton, Latif, Spohn, & Tricot, 2005; Witvliet et al., 2004). Although some studies have failed to find significant relationships (e.g., Braam, 2007; C. A. Lewis et al., 2005), these appear to be the exception rather than the rule. However, it is not yet clear whether this effect is causal, given conflicting findings of prospective research (Bosworth, Park, McQuoid, Hays, & Steffens, 2003; Fitchett, Rybarczyk, DeMarco, & Nicholas, 1999; Pargament et al., 2004; Sherman, Plante, Simonton, Latif, & Anaissie, 2009).

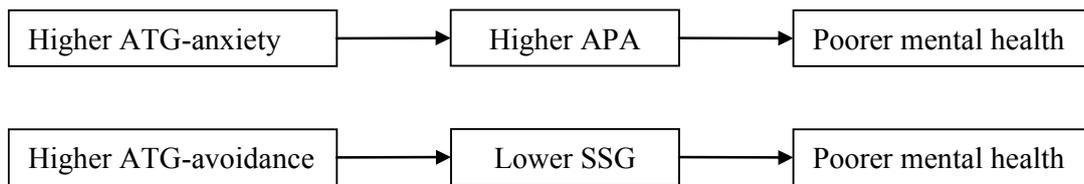
*ATG-avoidance, reduced seeking of support from God (SSG), and mental health*

Attachment avoidance is defined by discomfort with proximity-seeking/safe-haven behaviours. In line with this, human attachment avoidance predicts lower support-seeking in times of adversity (Egeland & Carlson, 2004; Fuendeling, 1998; Lopez & Brennan, 2000; Mikulincer et al., 2003). Similarly, those with high levels of ATG-avoidance should resist seeking support from God (SSG) in times of need (Belavich & Pargament, 2002). Two studies have provided empirical evidence demonstrating that ATG-avoidance is associated with lower levels of SSG (Belavich & Pargament, 2002; L. B. Cooper et al., 2009). Conversely, Kelley (2003) found no relationship between ATG-avoidance and SSG. However, the non-significant relationship in Kelley's study may have been attributable to respondents' experience of recent bereavement. The loss of a human attachment figure may trigger a sense of need for God as a replacement attachment figure (S. L. Brown, Nesse, House, & Utz, 2004; Granqvist & Kirkpatrick, 2008), leading even those with insecure ATG to turn to God.

Findings regarding the relationship between measures relevant to SSG and mental health are mixed. Some studies have reported significant cross-sectional relationships (e.g., Bickel et al., 1998; Bjorck & Thurman, 2007; Fabricatore, Randal,

Rubio, & Gilner, 2004; Keefe et al., 2001; Krause, 1995; Nairn & Merluzzi, 2003; Pargament, Tarakeshwar, Ellison, & Wulff, 2001; Rodgerson & Piedmont, 1998; Roesch & Ano, 2003; Schaefer & Gorsuch, 1991), and significant prospective relationships have also been found (Bosworth et al., 2003; Tix & Frazier, 1998). In contrast, other studies have failed to find significant relationships, using both cross-sectional designs (e.g., Burker et al., 2005; Fallot & Heckman, 2005; Gall, 2000; Hathaway & Pargament, 1990; Rippentrop et al., 2005; M. P. Thompson & Vardaman, 1997; Zwingmann, Mueller, Koerber, & Murken, 2008) and prospective designs (Fitchett et al., 1999; Pargament et al., 1994; Pargament et al., 2004; B. W. Smith, Pargament, Brant, & Oliver, 2000). The mixed pattern of findings may possibly reflect an effect whereby those with poorer mental health tend to seek more support from God. It is also possible that individuals with adequate alternative coping resources (e.g., personal strengths and social support from human relationships) do not experience a detrimental psychological effect of low SSG.

Figure 3 depicts the two religious coping mediator models described. No published research has tested either model. Indeed, only one published study has explored whether the relationship between ATG and mental health is mediated by any form of religious coping (Belavich & Pargament, 2002). Although the study found support for some components of the mediation models, the full models could not be tested given that ATG-anxiety and avoidance were unrelated to distress. (A relationship between the independent and dependent variables is a pre-requisite for mediation; Baron and Kenny, 1986.) However, these findings may not generalise to the models shown in Figure 3. Although ATG is likely to influence a number of religious coping methods, APA and SSG appear particularly worthy of exploration given their direct relevance to the ATG dimensions of anxiety and avoidance, in addition to evidence suggesting that they may also predict mental health. These forms of religious coping may therefore be more salient mediators of the relationship between ATG and mental health than those tested in Belavich and Pargament's study.



*Figure 3.* Hypothesised models depicting mediation of religious coping in the relationship between ATG and mental health. Top model: ATG-anxiety predicts higher APA (abandoning/punishing appraisals), which in turn predicts poorer mental health. Bottom model: ATG-avoidance predicts lower SSG (seeking support from God), which in turn predicts poorer mental health.

### **ATG style as a moderator of the effect of negative events on mental health**

If ATG affects individuals' mental health through influencing responses to negative events, it logically follows that ATG should moderate the effects of negative events on mental health. That is, those with higher levels of ATG-anxiety or avoidance should be more vulnerable to the effects of negative events, while those with lower levels (i.e., more secure ATG) should be less vulnerable. These moderator models provide related yet distinctive information from that provided by the aforementioned mediator models. This is because ATG may influence a wider range of coping responses than those tested in the mediator models. For example, a secure ATG may promote positive appraisals of negative events, such as the belief that God is ultimately in control and will not allow anything to happen that the individual cannot handle, and that God will use the event to bring about good (e.g., Granqvist, 1998; Owen, 2005; Rosmarin et al., 2009). These and other coping responses may contribute to a moderating effect of ATG style.

To date, only one study has explored the moderating impact of ATG in the relationship between negative events and mental health. Bishop (2008) found no evidence that secure ATG buffered the effects of stressful events on depression, in a sample of 235 residents of Roman Catholic monasteries. However, levels of stress and depressive symptoms in the sample were minimal (64% of the sample reported no depressive symptoms), reducing the likelihood of detecting moderation effects. Indirect support for the moderating effect of secure ATG was found in a sample of 120 university students (Fabricatore et al., 2000). Levels of stressful events predicted lower life satisfaction amongst those with a less positive ERG (akin to insecure ATG), but not amongst those with a more positive ERG (akin to secure ATG). However, this ERG variable did not moderate the relationship between stressful events and

happiness. Three other studies (Ellison, 1991; Ellison & Fan, 2008; Fabricatore et al., 2004) found no evidence for a moderating impact of ERG on the relationship between negative events and mental health.

Overall therefore there is little evidence that ATG moderates the relationship between negative events and mental health. However, only one published study has yet explored this effect using a direct measure of ATG. Furthermore, no published research has examined the moderating effect in separate insecure ATG groups. It is possible that high levels of ATG-anxiety constitute a greater risk factor for vulnerability to negative events than do high levels of ATG-avoidance. This is indicated by the following: (a) the coping style characteristic of ATG-avoidance (SSG) appears to be less strongly related to mental health than the style characteristic of ATG-anxiety (APA), (b) the negative effects of high ATG-avoidance may be weakened where individuals instead rely on human sources of support, and (c) those with high attachment avoidance tend to suppress negative emotions and attachment-related fears, potentially reducing distress (Fuendeling, 1998). The possibility that attachment anxiety constitutes a greater risk factor for negative events compared with attachment avoidance has also been raised in the human attachment literature (Fraley & Bonanno, 2004; J. A. Simpson et al., 2003). As a result, it may be that those with a preoccupied or fearful style of ATG (i.e., high ATG-anxiety) are more vulnerable to the effects of negative events compared with those with a dismissing ATG style (high avoidance but low anxiety). Thus, a moderating effect may be better detected when comparing those with secure ATG and those with high ATG-anxiety, as opposed to comparing secure vs. insecure ATG.

### **Summary**

A key mechanism by which human attachment style affects mental health is through influencing responses to adversity. This has been demonstrated through findings that (a) the relationship between attachment style and mental health is mediated by coping style, and (b) attachment style moderates the impact of negative events on mental health, with insecure attachment decreasing resilience and secure attachment increasing resilience. Theorists have proposed that ATG may similarly affect mental health through influencing the ways in which individuals appraise and respond to negative events (Belavich & Pargament, 2002; L. B. Cooper et al., 2009; Proctor et al., 2009). Thus, it may be hypothesised that (a) the relationship between

ATG and mental health is mediated by religious coping styles such as APA and SSG, and (b) ATG style moderates the impact of negative events on mental health. However, few studies have yet explored these hypotheses, and limitations of those studies preclude conclusions from being drawn. Exploration of these hypotheses would provide useful information regarding mechanisms by which ATG may affect mental health (if such an effect exists), and insight as to whether ATG functions in a psychologically similar way to human attachment. Acquiring an understanding of the factors that influence how people respond to stressful events also has important therapeutic applications (Clarkin & Levy, 2004; Davila & Levy, 2006). The therapeutic relevance of the effect of human attachment style on coping has been noted (Davila & Levy, 2006), and similar therapeutic applications may also apply with respect to ATG.

Although the preceding discussion focuses on the role of the attachment system in responses to adversity, it is important to note that this is not the only mechanism by which attachment influences mental health. For example, human attachment style also impacts mental health through its influence on a range of relational functioning variables (e.g., Hankin et al., 2005; Mallinckrodt & Wei, 2005; Vogel & Wei, 2005; Wei, Mallinckrodt, Larson, & Zakalik, 2005; Wei, Russell et al., 2005) and views of self (e.g., Bartholomew & Horowitz, 1991; Hankin et al., 2005; A. Lee & Hankin, 2009; J. E. Roberts et al., 1996). Such mechanisms may also be relevant to ATG. For example, a secure ATG may serve to improve functioning in human relationships (Cutland, 2000; V. W. Harris, Marshall et al., 2008), for example through promoting forgiveness (E. L. Worthington, Jr., Sharp, Lerner, & Sharp, 2006) and acceptance/compassion toward others (Fallot, 1997). A secure ATG may also promote self-esteem through the belief that one is loved and valued deeply by God (Ellison, 1991; Gall et al., 2007; George, Larson, Koenig, & McCullough, 2000; Koenig & Larson, 2001; Pargament et al., 1990; Spilka, Shaver, & Kirkpatrick, 1985), while views of God as rejecting or uncaring (underlying ATG-anxiety and avoidance) may negatively affect self-esteem (Proctor et al., in press). The findings of a recent study (Miner, 2009) highlight another potential mechanism for the effect of ATG on mental health. Specifically, Miner found that the effect of ATG-security on psychological adjustment was mediated by intrinsic religiosity, a healthy form of religiosity that is highly integrated and central to the individual's life. Although an exploration of these

mechanisms is outside the scope of the present study, it is important to acknowledge their potentially important role in the relationship between ATG and mental health.

## CHAPTER SEVEN

### Aims and Hypotheses



#### Summary of Literature Review and Aims of the Current Study

There is a growing recognition of the need to understand the relationship between spirituality and mental health (e.g., Koenig, 1998a). One aspect of spirituality that may be particularly important for mental health (and for therapy) is people's experience of their relationship with God (ERG). Research on ERG and its relationship with mental health is growing, but further exploration is needed. This research would benefit from the application of an overarching theoretical framework to guide conceptualisation of ERG and theorisation of how and why ERG might relate to mental health. ATG theory shows a number of important benefits that suggest its usefulness as one such framework, including its sound theoretical grounding in human attachment theory, and suitability for therapeutic application. ATG theory is fairly new however, and the body of research examining the relationship between ATG and mental health is relatively small. While human attachment style has been widely demonstrated to predict mental health, evidence for an effect of ATG on mental health is inconclusive. Although some studies of ATG and relevant constructs suggest that secure ATG is linked with better mental health and insecure ATG with poorer mental health, limitations of this research make it impossible to draw firm conclusions. These limitations arise primarily from the lack of prospective research and issues regarding ATG measurement. Additionally, little research has investigated potential moderators and mediators of the relationship between ATG and mental health. Given the apparent applicability and benefits of ATG theory and the limitations of prior research, the present study seeks to provide more rigorous investigation of the relationship between ATG and mental health. Specifically, the present study aims to address a number of limitations of past research through the following means.

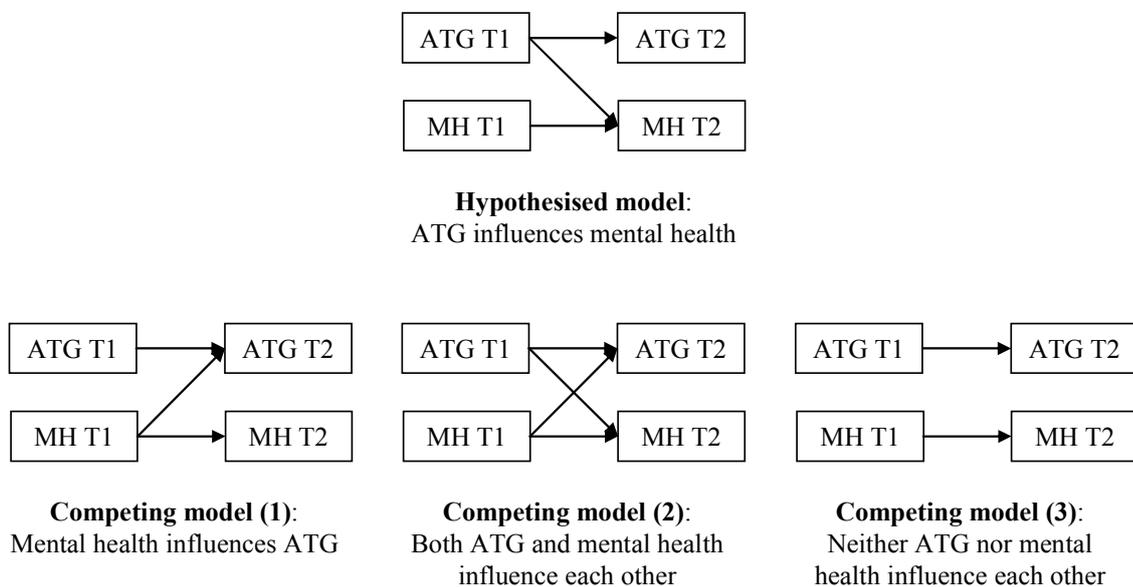
#### **(1) The use of a prospective, cross-lagged research design**

To date, most studies examining the ATG-mental health relationship have been cross-sectional. Two of the three prospective studies that were located (Desai, 2006;

Reinert, 2005) reported non-significant effects, although this may be due to limitations relating to the ATG measure used, sample size, study time-frame and type of mental health variables measured. The third prospective study (Kelley, 2003) did not control for baseline mental health, thus providing no evidence of causality. To date therefore there is no evidence that ATG exerts a causal effect on mental health. Three criteria must be met in order for a relationship between a pair of variables to be considered causal (Menard, 1991): (1) the variables must co-vary, (2) the relationship must not be spurious, that is, attributable to other variables, and (3) the change in the causal variable must precede or occur simultaneously with the change in the effect variable. Research to date provides evidence only for criterion (1), that is, that ATG and mental health covary. It is possible that this covariance is attributable to other variables or to a reverse relationship whereby mental health affects ATG. Investigation of evidence for a causal effect of ATG on mental health therefore requires alternative research designs.

Ultimately, experimental designs are necessary in order to meet all three criteria for causality. However, it would be difficult and unethical to systematically manipulate people's ATG, as with other areas of spiritual belief or experience (Blaine & Crocker, 1995). Given this, the most appropriate first step in investigating evidence for a causal impact of ATG on mental health (or vice versa) is through the use of a cross-lagged panel design (Kessler & Greenberg, 1981; Menard, 1991), in which both ATG and mental health are measured over two or more time points. This design cannot indisputably demonstrate causality because it is impossible to rule out every alternative explanation for the relationship. However, it provides stronger evidence for the plausibility of a causal relationship than many commonly used research designs (Engel & Reinecke, 1996; Kessler & Greenberg, 1981; Thøgersen & Ölander, 2002). Specifically, cross-lagged panel analyses allow for tests of causal influences in both directions (from x at Time 1 to y at Time 2 and y at Time 1 to x at Time 2), making it more likely for issues of causal order to be resolved (Menard, 1991). These 'cross-lagged paths' reflect the predictive relationship between the two variables over time, after accounting for the effects of their baseline (Time 1) levels. The effects of the baseline levels of each variable are accounted for by including 'autoregressive' paths in the model, which reflect the stabilities of each variable over time (i.e., the degree to which scores on variable x at Time 1 predict scores on x at Time 2). Further discussion of cross-lagged panel analysis is provided in the Method chapter.

A cross-lagged panel design will be used in the present study to determine whether ATG, measured at a given time point, predicts mental health at a later time point, controlling for baseline mental health. This model can be directly compared with the three competing models regarding the ATG-mental health relationship: (1) mental health influences ATG, (2) both mental health and ATG influence each other, and (3) neither ATG nor mental health influence each other. The four models are depicted in Figure 4. Although no existing theory or research explicitly suggests that mental health influences ATG, this possibility is indicated by findings from the field of human attachment (Buist et al., 2004; Hankin et al., 2005). The possibility that this ‘reverse effect’ accounts for the relationship between ATG and mental health needs to be ruled out explicitly in order to strengthen conclusions regarding the effect of ATG. Structural equation modelling can be used to compare the fit of the four models. This affords a direct test of whether the hypothesised effect of ATG on mental health is indeed the ‘best’ representation of the causal direction of this relationship. For examples of previous research adopting this approach, see De Jonge et al. (2001), Kinnunen, Feldt, Kinnunen, and Pulkkinen (2008), and Salanova, Bakker, and Llorens (2006).



*Figure 4.* Hypothesised and competing models depicting relationships between ATG and mental health (MH) over time. Horizontal lines specify effects of Time 1 (T1) variables on Time 2 (T2) levels of the same variable (autoregressive effects). Diagonal arrows represent effects of Time 1 independent variables on Time 2 dependent variables (cross-lagged effects).

## **(2) Improved measurement of ATG**

A potential explanation for discrepant findings of past research on ATG and mental health relates to the measures of ATG used. At the time this study was conducted, only two measures had been developed in line with the approach widely adopted in adult attachment research, namely, measuring the dimensions of anxiety and avoidance. Both of these measures (the Attachment to God Inventory (AGI), and Rowatt and Kirkpatrick's unnamed measure of ATG) are used in the present study. The AGI appears to be superior, largely due to its basis on the Experiences in Close Relationships Scale (ECR; Brennan et al., 1998). The ECR and its revised version (ECR-R; Fraley et al., 2000) are widely used measures of human attachment style that show statistical and theoretical superiority over other instruments (Backstrom & Holmes, 2007; Beck & Taylor, 2008; Fraley et al., 2000; Sibley, Fischer, & Liu, 2005). One advantage of AGI items is that content is focused on respondents' *experience* of their relationship with God, rather than simply perceptions of God. Not only is this more in line with conceptualisations of attachment anxiety and avoidance, but it also reduces the chance of simply tapping 'surface' cognitions regarding God's characteristics. Such cognitions may reflect what individuals have been taught to believe (e.g., by parents or clergy), which may not necessarily correspond to their genuine internal experience of their relationship with God (Hill & Hall, 2002; Tisdale, 2007). The emphasis on perceptions of God is a key limitation of Rowatt and Kirkpatrick's measure. While it is possible that these views do tap the internal experiences characterising attachment anxiety/avoidance, this remains to be tested. This will be explored in the present study, and if items seem valid, they will be retained, given that they may add conceptual depth to the AGI items. AGI items will also be subjected to testing, given that they have not received extensive validation to date. By using a measurement framework that is well validated in the wider field of human attachment, and by investigating evidence for the validity of the ATG measure (and modifying it if necessary), the present study may provide a stronger investigation into the ATG-mental health relationship than that of past research. This may also help to resolve conflicting findings regarding the relationship between ATG and mental health in past studies.

### **(3) Controlling the effects of human attachment style**

Human attachment style is believed to influence ATG (e.g., R. Beck & McDonald, 2004; Rowatt & Kirkpatrick, 2002) and has been demonstrated to predict change in mental health over time (e.g., Hankin et al., 2005; J. E. Roberts et al., 1996). This variable may therefore account for variance in prospective as well as cross-sectional relationships between ATG and mental health. No prospective studies on the ATG-mental health relationship conducted to date have controlled for human attachment style. Controlling for this variable will strengthen the validity of findings of the present study, by ensuring that any significant relationships between ATG and mental health are not attributable to human attachment style. Rather than assessing respondents' human attachment style in relation to a specific attachment figure (e.g., a parent or romantic partner), the present study assesses the style of attachment that characterises respondents' close relationships in general. No clear evidence exists to suggest that ATG is most strongly related to attachment in any specific human relationship (e.g., correlations are similar between ATG and attachment with parents vs. romantic partners). This suggests that ATG may not be influenced most strongly by any single human attachment relationship, but rather by individuals' general attachment 'template', which affects all attachment relationships to varying degrees. Thus, a well-validated measure of general human attachment style (the Relationships Questionnaire) is used in the present study, as has been used in past research examining the relationship between ATG and mental health (Rowatt & Kirkpatrick, 2002).

### **(4) Exploring moderating effects of negative events severity and gender**

Theoretical and empirical evidence from relevant fields suggests that the relationship between ATG and mental health may be moderated by negative events severity and gender. First, the effects of ATG style on mental health may be stronger under higher severity of negative events, given that negative events activate the attachment system. Evidence for this effect has been found in studies examining human attachment style (e.g., M. Lewis et al., 1984; Mikulincer et al., 1993; Mikulincer et al., 1999; Solomon et al., 1998) and constructs similar to ATG (Bickel et al., 1998; Maton, 1989). Second, the ATG-mental health relationship may be moderated by gender, with a stronger relationship amongst females compared with males. Some evidence for this is provided by studies examining human attachment

style (e.g., M. L. Cooper et al., 1998; M. E. Kenny & Donaldson, 1991; Riggs & Jacobvitz, 2002) and constructs similar to ATG (Desrosiers & Miller, 2007; Perez et al., 2009). However, findings from both fields are inconclusive, with other studies reporting non-significant (e.g., Difilippo & Overholser, 2002; Gall et al., 2007; Sund & Wichstrom, 2002; Wei et al., 2003), or mixed (Ellison & Fan, 2008; Gittleman et al., 1998; Rice & Whaley, 1994) evidence of gender differences. No published research has yet directly tested the moderating effects of gender and negative events severity in the relationship between ATG and mental health. If evidence of moderating effects is found, this may help to explain discrepant findings of past studies, and will highlight the importance of taking these moderators into account in future research.

#### **(5) Exploring mechanisms for an effect of ATG on mental health: The role of negative events severity and religious coping**

A key mechanism by which human attachment style is believed to affect mental health is through influencing the ways in which individuals respond to negative events (Mikulincer & Florian, 1995; Mikulincer et al., 1993). Empirical support for this proposition comes from research demonstrating that: (1) the influence of attachment style on mental health is mediated by the ways in which people cope with negative events (e.g., Berant et al., 2001; Lopez et al., 2001; Merlo & Lakey, 2007; Wei et al., 2006); (2) attachment style moderates the effects of negative events severity on mental health (e.g., Birnbaum et al., 1997; Kraaij et al., 2003; Salo et al., 2005; Sroufe et al., 2005). ATG is likewise thought to affect mental health through influencing the ways in which people respond to negative events (Belavich & Pargament, 2002; L. B. Cooper et al., 2009; Proctor et al., 2009). However, this issue has received little exploration to date. Thus, if ATG is found to affect mental health in the present study, this potential mechanism will be explored, through testing mediator and moderator effects similar to those found in human attachment research.

First, the present study will test whether the effect of ATG-anxiety/avoidance on mental health is mediated by religious coping. This was explored in a previous study (Belavich & Pargament, 2002); however, the lack of relationship between ATG and mental health in that study precluded testing of a genuine mediator model. Two forms of religious coping that appear particularly salient to ATG styles and mental health are abandoning/punishing appraisals (APA), and seeking support from God (SSG). No published research has yet tested mediator models using these variables.

Second, the present study will test whether ATG moderates the effect of negative events severity on mental health. Prior studies have examined this possibility using measures of secure ATG (Bishop, 2008) and similar constructs (Ellison, 1991; Ellison & Fan, 2008; Fabricatore et al., 2004). These studies have largely produced non-significant findings. However, it is possible that a moderating effect would be better detected if the insecure ATG groups were considered separately. This is because ATG-anxiety may increase vulnerability to negative events more so than ATG-avoidance, as discussed in Chapter 6. If so, the moderating effect may be best detected when comparing individuals showing secure ATG (who should be least vulnerable to the effects of negative events) with those showing high ATG-anxiety (fearful and preoccupied ATG). This possibility will be taken into account in the present study by examining the effects of negative events on mental health in all four ATG groups (secure, preoccupied, fearful, dismissing). Exploration of these mediator and moderator effects in the present study has the potential to develop our understanding of the mechanisms by which ATG may impact mental health. This information may also have useful therapeutic applications, as mentioned in Chapter 6.

### **Selection of Mental Health Variables for the Present Study**

In order to address the broad aim of the present study, that is, to explore the relationship between ATG and mental health, it is necessary to select a specific area of mental health to examine. The present study focuses on emotional wellbeing (as defined in Chapter 1), given the direct relevance of this aspect of mental health to attachment, and its practical significance to both clinical and non-clinical populations. Emotional wellbeing is likely to be one of the key aspects of mental health influenced by the attachment system, given the inextricable links between attachment and emotional functioning (Barry et al., 2007; Bowlby, 1979). Attachment processes are believed to be pivotal in shaping the experience and regulation of emotions, and attachment relationships are powerful sources of emotional experience in themselves (L. M. Diamond & Aspinwall, 2003; Lopez et al., 2002; Mikulincer & Sheffi, 2000). Furthermore, because emotions exert a powerful influence on numerous psychological processes (L. M. Diamond & Aspinwall, 2003), emotional wellbeing is of relevance to every individual and not only to clinical populations. The field of psychology is increasingly recognising the central importance of emotion to mental health and human

experience, as reflected by the explosion of research on emotional functioning (Watson & Clark, 1997).

Three emotional wellbeing variables were selected in the present study: one positive indicator (referred to as ‘positive wellbeing’, and assessing the construct of happiness), and two negative indicators (i.e., indicators of low emotional wellbeing), namely depressive symptoms and negative affect. Each of these variables have established theoretical and empirical links with attachment (e.g., Armsden & Greenberg, 1987; Barry et al., 2007; Creasey & Hesson-Mcinnis, 2001; Difilippo & Overholser, 2002; J. A. Feeney & Ryan, 1994; Love & Murdock, 2004; Pereg & Mikulincer, 2004; Raja, McGee, & Stanton, 1992). Further description of the variables is provided in the method section.

### **Hypotheses of the Study**

Five hypotheses were derived from the general aims of the study. Hypothesis 1 addresses the key question of the study, namely, whether there is evidence that ATG predicts emotional wellbeing over time. Hypotheses 2 and 3 examine variables that may moderate this relationship. Hypotheses 4 and 5 examine potential mechanisms for effects of ATG on emotional wellbeing, assuming that significant effects are found.

Hypothesis 1: ATG styles will prospectively predict emotional wellbeing, controlling for human attachment style. Specifically, higher baseline ATG-anxiety/avoidance will predict higher levels of depressive symptoms and negative affect and lower levels of positive wellbeing at Time 2, after controlling for baseline emotional wellbeing and human attachment style. It is hypothesised that this effect will be favoured above competing models regarding the relationship between ATG and emotional wellbeing, namely (a) a prospective effect of emotional wellbeing on ATG, (b) reciprocal prospective effects of ATG on emotional wellbeing and vice versa, and (c) no prospective relationships between ATG and emotional wellbeing. Figure 4 depicts these models.

Hypothesis 2: Gender will moderate the effects of ATG on emotional wellbeing. Specifically, prospective effects of ATG-anxiety/avoidance on emotional wellbeing are expected to be stronger amongst females compared with males.

Hypothesis 3: Negative events severity will moderate the effects of ATG on emotional wellbeing. Specifically, prospective effects of ATG-anxiety/avoidance on emotional wellbeing are expected to be stronger amongst those respondents who have

experienced a greater severity of negative events (operationalised using a summated severity rating for all negative events experienced over the past year), compared with those who have experienced a lower severity of negative events.

Hypothesis 4: Religious coping styles will mediate the effects of ATG-anxiety/avoidance on emotional wellbeing. The prospective effect of baseline ATG-anxiety on emotional wellbeing is hypothesised to be mediated by abandoning/punishing appraisals (APA). That is, it is hypothesised that higher ATG-anxiety will be associated with higher levels of APA, which in turn will be associated with poorer emotional wellbeing. The prospective relationship between ATG-anxiety and emotional wellbeing will be reduced (and may no longer be significant) after taking APA into account. The prospective effect of baseline ATG-avoidance on emotional wellbeing is hypothesised to be mediated by SSG (seeking support from God). That is, it is hypothesised that higher ATG-avoidance will be associated with lower levels of SSG, which in turn will be associated with poorer emotional wellbeing. The prospective relationship between ATG-avoidance and emotional wellbeing will be reduced (and may no longer be significant) after taking SSG into account. These mediator models are shown in Figure 5 below. Direct paths from Time 1 ATG variables to Time 2 emotional wellbeing variables are included given the possibility of partial (as opposed to full) mediation.

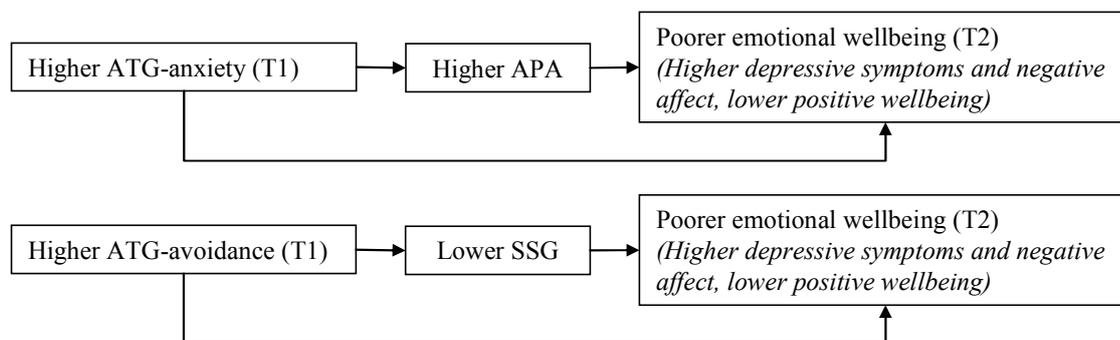


Figure 5. Mediation of religious coping methods (APA and SSG) in the relationship between ATG styles and emotional wellbeing. APA = abandoning/punishing appraisals; SSG = seeking support from God.

Hypothesis 5: ATG will moderate the (detrimental) effect of negative events severity on emotional wellbeing. The effects of negative events severity on emotional wellbeing will be strongest amongst participants with a high level of ATG-anxiety (preoccupied or fearful ATG). The effect will be weakest amongst those with a secure

ATG. Those with a dismissing ATG will experience intermediate effects of negative events on their emotional wellbeing.

By investigating the outlined hypotheses, the present study will firstly help to determine whether ATG may influence mental health. Although it is not possible to firmly establish causality without an experimental design, the finding of a significant prospective effect of ATG on mental health would provide important evidence suggesting the plausibility of a causal effect. Investigation of these hypotheses will also contribute useful information regarding potential mechanisms through which ATG may influence mental health, and moderators of this relationship. As such, these explorations may help to shed light on past discrepant findings and will contribute to the development of ATG theory and its therapeutic applications.



## SECTION III: METHOD

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### CHAPTER EIGHT



The present study assessed the relationship between ATG and emotional wellbeing using a cross-lagged panel research design. A survey was administered at two time points to a convenience sample of Christian participants. This chapter describes participant characteristics, measures, procedures of the study and planned data-analysis strategies.

#### Participants

The Time 1 survey was completed by 1,266 participants, 531 of whom also completed the Time 2 survey. Participants were recruited through a variety of means. At Time 1, paper copies of the questionnaire ( $N = 990$ ) were distributed at the following places: a Christian women's conference (103 copies), a Christian university group conference (130 copies), a Bible College (80 copies) and a range of churches (470 copies). The majority of churches were of Pentecostal or Evangelical denomination, as these were the churches the researcher had readiest access to. The 207 remaining questionnaires were distributed by acquaintances of the researcher to a range of other Christian contacts. The survey was also available on the internet (web address: [www.christian-survey.co.nz](http://www.christian-survey.co.nz)). The researcher e-mailed approximately 200 Christian contacts regarding the online survey, and requested that they forward the e-mail to other Christians. One church included an advertisement in their notices describing the study and providing the web-address, and a New Zealand Christian radio station advertised the online survey (unprompted by the researcher).

Most respondents completed the questionnaire online ( $n = 931$ ). No response rate can be calculated for the online survey because it is not possible to determine how widely the invitation to take part was distributed. Paper questionnaires were returned by 331 respondents, representing a 33.4% response rate. This may underestimate the true response rate for paper questionnaires given that it is not known how many of the 350 questionnaires given to church members were distributed to others as requested. Of the 1,266 Time 1 participants, 935 (73.9%) supplied valid contact details. Of these, 576 completed the second questionnaire, representing a response rate of 61.6%.

However, 45 Time 2 questionnaires were unable to be matched to a Time 1 identifying number (respondents failed to answer the identifying questions or the identifiers provided did not have a Time 1 match). After removing these participants the final Time 2 data set was comprised of 531 people, representing 41.9% of the 1,266 Time 1 respondents.

### **Demographic descriptors of the sample**

Table 1 describes demographic characteristics of the sample at both time points. At Time 1, the sample consisted of 814 female and 450 male participants (2 participants did not specify gender), with ages ranging from 16 to 82 years ( $M = 37.5$ ;  $SD = 15.01$ ). Around half of the sample were in their 20s or 30s. The majority of participants were living in New Zealand at the time of completing the Time 1 survey (83.5%). Other participants were residing in 21 different countries, most commonly Australia (6.9% of the total sample) and the United States (5.0%). Participants represented a range of Christian denominations, with a total of 39 denominations listed. These were aggregated into six categories, according to the recommendations of a New Zealand expert in the field of religious studies (P. Lineham, personal communication, October 25, 2006). They are: Pentecostal/Charismatic (including denominations such as Apostolic and Vineyard; 38.3%), Evangelical (e.g., Baptist, Open Brethren, Salvation Army; 32.9%), mainstream Protestant (predominantly those who identified as Anglican or Presbyterian; 3.5%), Catholic (13.9%), non/inter-denominational (8.1%), and other (those who did not respond to the question or who checked “other” but did not specify a denomination, and those who reported not currently attending church; 3.2%). One person specified that they were not Christian and was removed from the sample given that this was a criterion for participation in the study. Participants reported a high mean level of religious commitment, indicating that their religious beliefs and values are highly integrated into their lives (E. L. Worthington, Jr. et al., 2003). The mean score on the Religious Commitment Inventory (RCI-10; E. L. Worthington, Jr. et al., 2003) was substantially higher than the normative mean of 26 ( $SD = 12$ ) among adults in the United States (E. L. Worthington, Jr. et al., 2003). Two-thirds of the current sample (65.3%) scored in the ‘highly religious’ range (38 or higher; E. L. Worthington, Jr. et al., 2003).

Table 1

*Demographic Characteristics of the Sample at Time 1 and Time 2*

Variable	Time 1 ( <i>n</i> = 1,266)		Time 2 ( <i>n</i> = 531)	
	<i>n</i>	%	<i>n</i>	%
<b>Gender</b>				
Male	450	35.5	176	33.1
Female	814	64.3	355	66.9
Missing	2	0.2	0	0.0
<b>Age (as at Time 1)<sup>a</sup></b>				
<i>M</i> ( <i>SD</i> ) =	37.5 (15.1)		38.1 (15.1)	
16-19	87	6.9	34	6.4
20-29	425	33.6	175	33.0
30-39	184	14.5	81	15.3
40-49	252	19.9	110	20.7
50-59	178	14.1	73	13.7
60-69	80	6.3	41	7.7
70+	33	2.6	13	2.4
Missing	27	2.1	4	0.8
<b>Country</b>				
New Zealand	1,057	83.5	461	86.8
Other	209	16.5	70	13.2
<b>Christian Denomination</b>				
Pentecostal/Charismatic	485	38.3	222	41.8
Evangelical	417	32.9	180	33.9
Non/inter-denominational	103	8.1	31	5.8
Mainstream protestant	44	3.5	14	2.6
Catholic	176	13.9	71	13.4
Other	41	3.2	13	2.4
<b>Religious commitment</b>				
<i>M</i> ( <i>SD</i> ) =	39.6 (7.7)		40.4 (7.4)	

<sup>a</sup>Age was not assessed again at Time 2; thus for the Time 2 sample the age listed at Time 1 is used.

The makeup of the Time 2 sample was similar to the Time 1 sample. One third of the sample were male, the mean age (as stated at Time 1) was 38 years, and 87% of the sample were residing in New Zealand (these demographic details were assessed at Time 1 only). The denominational makeup and religious commitment level also remained similar. Overall therefore, participants predominantly represent young to middle-aged adult New Zealand Christians from Pentecostal and Evangelical denominations, who show high religious commitment.

### **Attrition analyses**

Analyses were used to examine demographic differences between participants who responded at Time 2 and those who did not. Chi-square analyses were used for comparisons on categorical variables (gender, country and religious denomination), and *t*-tests were used for comparisons on continuous variables (age and religious commitment). Given the large *N* and multiple tests, a significance criterion of  $p < .01$  was used. Responders and non-responders did not significantly differ in terms of gender,  $\chi^2(1, N = 1,264) = 2.41$ , age,  $t(1,237) = 1.19$ , or religious denomination,  $\chi^2(5, N = 1,266) = 12.91$ ,  $ps > .01$ . However, there were significant differences in terms of country,  $\chi^2(1, N = 1,266) = 7.34$ ,  $p = .007$ . Those living in New Zealand were significantly more likely to respond at Time 2 compared with those living outside New Zealand. There were also significant differences in terms of religious commitment level,  $t(1,257) = 3.24$ ,  $p = .001$ . Time 2 responders had a higher mean religious commitment compared with non-responders, possibly reflecting that those who are more committed to their faith were also more motivated to take part in the Time 2 survey. However, the actual difference in means was small ( $M = 40.40$  vs.  $38.93$ ), indicating that this had a minor effect on the makeup of the Time 2 sample.

### **Measures**

The Time 1 questionnaire (shown in Appendix A) contained measures of ATG, emotional wellbeing and human attachment style. Demographic variables were also assessed at Time 1, and included date of birth, gender, religious denomination, religious commitment level, and country currently residing in. Ethnicity was not measured given the possibility that this might compromise anonymity for some respondents. Some of the churches/organisations sampled included members known to the researcher and appeared to have a low proportion of members from ethnic minority

groups. Thus, given that ethnicity was not necessary for any analyses, it was deemed most appropriate to omit this item. The Time 1 questionnaire also contained four items assessing the emotional quality of participants' experience of their relationship with God. Of the measures administered at Time 1, only ATG and emotional wellbeing measures were administered again at Time 2. Measures of negative events and religious coping were included in the Time 2 questionnaire only, and are shown in Appendix B. All measures were self-report.

### **ATG measures**

The ATG measure used in the present study was comprised of items from two existing measures: The Attachment to God Inventory (AGI; R. Beck & McDonald, 2004) and an unnamed ATG measure developed by Rowatt and Kirkpatrick (2002). The combined scale consisted of 36 items comprising two subscales: a 17 item ATG-Anxiety subscale, and a 19 item ATG-Avoidance subscale. Unfortunately an error led to the omission of one item from Rowatt and Kirkpatrick's avoidance subscale. Items were rated on a 5-point Likert scale with anchors ranging from 'strongly agree' to 'strongly disagree'. Both subscales showed a good level of internal consistency at Time 1 ( $\alpha = .89$  for ATG-anxiety and  $.87$  ATG-avoidance respectively) and Time 2 ( $\alpha = .87$  and  $.88$ ). Descriptions of the two component measures are as follows.

*Attachment to God Inventory (AGI; R. Beck & McDonald, 2004).* The AGI is comprised of two 14-item subscales: Avoidance of Intimacy (AGI-Avoidance) and Anxiety about Abandonment (AGI-Anxiety). Items were adapted from a popular and well-validated measure of adult attachment, the Experiences in Close Relationships scale (ECR; Brennan et al., 1998) and the scales from which ECR items were derived (R. Beck, personal communication, May 04, 2008). AGI-Avoidance items reflect themes such as a preference for self-reliance and resistance toward emotional intimacy with God/dependence on God. Items include, "I prefer not to depend too much on God" and "I just don't feel a deep need to be close to God". The AGI-Anxiety subscale reflects themes such as preoccupation or anxiety regarding one's relationship with God, fears of being abandoned by God and anxiety about one's lovability to God. Items include, "I often worry about whether God is pleased with me" and, "I fear God does not accept me when I do wrong."

AGI items were selected from a pool of 70 items administered to 507 students at a Christian University. The expected two-dimensional factor structure was supported

by exploratory factor analysis, and the subscales exhibited good internal consistency ( $\alpha = .84$  for AGI-Anxiety and  $.86$  for AGI-Avoidance). Alpha coefficients in the present study were  $.87$  for AGI-Anxiety and  $.83$  for AGI-Avoidance at Time 1 (Time 2  $\alpha$  values were  $.89$  and  $.84$  respectively). The two-dimensional factor structure was replicated in a sample of 118 Christian University students and a community sample of 109 adults from church-based adult education programs (R. Beck & McDonald, 2004). Some validity evidence is provided by studies which revealed expected relationships between the AGI subscales and relevant variables. For example, AGI-Avoidance was associated with reduced awareness of God's presence, while AGI-Anxiety was associated with greater frustration and disappointment with God (R. Beck, 2006a). Both subscales were correlated with higher levels of emotional distress experienced during faith development (R. Beck, 2006b). Overall therefore there is some evidence to suggest that the AGI may provide a useful measure of the dimensions of ATG-anxiety and avoidance.

*Rowatt and Kirkpatrick's unnamed measure of ATG (Rowatt & Kirkpatrick, 2002).* Rowatt and Kirkpatrick's unnamed measure consists of 9 items, 6 tapping ATG-avoidance and 3 tapping ATG-anxiety. These subscales are referred to as RK-Avoidance and RK-Anxiety in the present study. Unlike the AGI, Rowatt and Kirkpatrick's scale was not developed specifically with the intention of capturing these two dimensions. Rather, these were the interpretations of the two dimensions resulting from exploratory factor analysis. Items for the scale were derived from descriptions of secure, avoidant and anxious ATG used in an earlier ATG measure (Kirkpatrick & Shaver, 1992). Exploratory and confirmatory factor analyses of the items in a sample of 374 university students and community members indicated a two-factor solution (Rowatt & Kirkpatrick, 2002). Internal consistency coefficients were  $.80$  for RK-anxiety and  $.92$  for RK-avoidance, although subsequent studies (H. J. Chen, 2005; Reinert, 2005) reported lower coefficients for the anxiety subscale ( $\alpha = .61$  and  $.67$ ). Alpha coefficients in the present sample were  $.67$  for RK-Anxiety and  $.80$  for RK-Avoidance at Time 1 ( $\alpha = .71$  and  $.80$  for the respective subscales at Time 2). The lower alpha coefficient for the RK-Avoidance subscale in the present study compared with previous studies is likely to be due to the inadvertent omission of one item. Nonetheless, this alpha coefficient still represents a good level of internal consistency (DeVellis, 2003). As discussed in Chapter 5, Rowatt and Kirkpatrick's scale focuses largely on *views* of God's responsivity to one's needs. It is possible that these views

tap the internal experiences characterising attachment anxiety/avoidance; however, this remains to be established. This will be explored in the present study through the use of factor analysis to determine whether the RK subscales load onto the same factors as the AGI subscales. If the RK subscales are found to adequately tap ATG-anxiety and avoidance, these items may add conceptual depth to the AGI items.

### **Emotional wellbeing measures**

Three measures of emotional wellbeing were used in the present study: the Centre for Epidemiological Studies Depression Scale (CES-D) to assess depressive symptoms, the Negative Affect subscale of the Positive and Negative Affect Scale (PANAS) to assess negative affect, and the Affectometer 2 to assess positive wellbeing. Although the full scales were administered, the ‘interpersonal’ items were not used, in order to reduce confounding with measures of ATG and human attachment style. This procedure has been adopted in other studies exploring the relationship between mental health and interpersonal variables (e.g., Krause, Liang, & Yatomi, 1989; Shifren, Park, Bennett, & Morrell, 1999). This reduces the likelihood of spuriously inflating correlations between emotional wellbeing measures and ATG/human attachment style. It also helps in ensuring that measures predominantly tap the emotional, as opposed to the interpersonal, component of wellbeing. Three interpersonal items were deleted from the CES-D (items 14, 15 and 19), and four from the Affectometer 2 (items 2, 9, 12 and 19). The PANAS-N did not contain any interpersonal items.

#### *Centre for Epidemiological Studies Depression Scale (CES-D)*

The CES-D (Radloff, 1977) is a 20-item scale assessing depressive symptoms, with an emphasis on the affective component of depression. Respondents indicate on a 4-point Likert scale how often within the last week they experienced the symptoms listed, from ‘rarely or none of the time’ (less than 1 day) to ‘most or all of the time’ (5-7 days). Scores range from 0-60, with scores of 16 or above generally viewed to indicate clinical depression (Beekman, Deeg, Smit, & van Tilburg, 1995; R. G. Knight, Williams, McGee, & Olaman, 1997; Radloff, 1977). The CES-D is one of the most widely used measures of depressive symptoms (Shafer, 2006). Although the measure was designed to be suitable for non-clinical samples, scores correlate well with clinical measures and are helpful in identifying clinical depression (Baldwin & Shean, 2006).

The CES-D shows good internal consistency (generally exceeding  $\alpha = .85$ ) in a diverse range of samples (e.g., Bohannon, Maljanian, & Goethe, 2003; Knight et al., 1997; Radloff, 1977; Stansbury, Ried, & Velozo, 2006). Alpha in the present study was .90 at both time points. Re-test correlations in the initial development of the CES-D (Radloff, 1977) were reported for a range of time intervals, from 2 weeks ( $r = .51$ ;  $N = 139$ ) to 12 months ( $r = .49$ ;  $N = 472$  and  $r = .32$ ;  $N = 342$ ). Evidence for the validity of the CES-D has been found in diverse samples (R. G. Knight et al., 1997). For example, the CES-D has been found to converge with other measures of depression (Brantley, Mehan Jr, & Thomas, 2000) and with diagnoses of clinical depression based on a DSM-IV diagnostic interview (Haringsma, Engels, Beekman, & Spinhoven, 2004).

In Radloff's initial analysis of the scale (Radloff, 1977), the CES-D was found to contain four factors. The presence of these four factors has been replicated in multiple studies, including a meta-analysis of the CES-D (Shafer, 2006). The factors are typically labelled Depressed Affect, Positive Affect, Somatic Symptoms and Interpersonal Problems. They appear to be best viewed as lower-order factors which together tap a higher-order factor of general depressive symptoms (J. C. Cole, Rabin, Smith, & Kaufman, 2004).

#### *Positive and Negative Affect Scale – Negative (PANAS-N)*

The PANAS (Watson, Clark, & Tellegen, 1988) is one of the most widely used measures of affect (Schmukle, Egloff, & Burns, 2002), and is suitable for use in both clinical and non-clinical populations (Watson et al., 1988). The scale comprises 20 single-word descriptors of mood and shows a two-dimensional factor structure. The 10 negative affect items load onto one factor and the 10 positive affect items load onto the other (Crawford & Henry, 2004; Watson et al., 1988). The Negative Affect subscale (PANAS-N) taps levels of subjective distress (Watson et al., 1988) and has been found to correlate highly with other measures of psychological distress (e.g., Crawford & Henry, 2004; Watson et al., 1988). Adjectives on this subscale include 'distressed', 'hostile' and 'afraid'. The PANAS-N shows good levels of internal consistency ( $\alpha = .84-.87$ ; Watson et al., 1988). Alpha in the present study was .88 at Time 1 and .87 at Time 2. The PANAS can be used with a wide range of timeframes; in the present study, respondents were asked to indicate the extent to which they experienced the mood states during the past few weeks, from 1 (very slightly or not at all), to 5

(extremely). Using this timeframe, the PANAS showed a retest reliability of .48 over an eight week period in a sample of 101 undergraduate students (Watson et al., 1988).

### *Affectometer 2*

The Affectometer 2 (Kammann & Flett, 1983a) measures individuals' current level of general happiness or wellbeing. The scale was developed in New Zealand through revision of the 96-item Affectometer, and has been described as a promising tool for assessing positive mental health (Tennant, Joseph, & Stewart-Brown, 2007). The scale consists of 20 sentence items (10 positive and 10 negative) and 20 adjective items (10 positive and 10 negative). The sentence items can be used on their own (Kammann & Flett, 1983), as in the present study. Sentence items assess a range of feelings, attitudes and beliefs reflecting a state of happiness. Respondents rate items according to how often they have felt that way over the past few weeks, from 0 (not at all) to 4 (all the time). The Affectometer 2 shows good levels of internal consistency, with an  $\alpha$  of .88 for the 20 sentence items in a random sample of 112 New Zealand adults (Kammann & Flett, 1983b). In the Scottish Health Education and Population Survey ( $N = 722$ ),  $\alpha$  was .91 for the 10 positive sentence items and .94 for the 10 negative sentence items. Alpha values in the present study at Time 1 were .85 for positive sentence items, .88 for the negative sentence items and .92 for the combined sentence items (respective  $\alpha$  values at Time 2 were .85, .87 and .92). Kammann and Flett (1983b) report a two-week retest correlation of .83 for the Affectometer 2 ( $N = 91$ ). The Affectometer 2 has been shown to correlate as predicted with a range of other variables including measures of wellbeing, stress, affect, distress, life events, and various relevant traits (Botha & Pienaar, 2006; Boyd-Wilson, McClure, & Walkey, 2004; Cheng & Furnham, 2002; Dennerstein, Lehert, & Guthrie, 2002; Kammann & Flett, 1983b; Tennant et al., 2007; Zika & Chamberlain, 1987). Scores are also thought to be relatively free from the effects of response bias (Kammann & Flett, 1983b).

Preliminary factor and cluster analyses indicate that Affectometer 2 items are best regarded as tapping a single wellbeing factor (Kammann & Flett, 1983b). A recent exploratory factor analysis of the scale (Tennant et al., 2007) extracted two factors: positive wellbeing (i.e., positively worded items) and negative wellbeing (negatively worded items). However, given the high correlation between these factors and cross-loadings of items, a unidimensional interpretation was favoured, with the caveat that subsequent research use confirmatory factor analysis (CFA) to explore this further. It is

likely that a two-factor model improves fit simply due to a ‘method factor’ whereby respondents tend to similarly endorse positively or negatively worded items. Thus, given the theoretical basis for a single dimension, a two-factor structure should be adopted only if CFA indicates that it is clearly superior and if the factors are not too highly correlated.

### **Relationship Questionnaire (RQ)**

The RQ (Bartholomew & Horowitz, 1991) is a measure of adult attachment style. Participants are asked to rate the extent to which four short descriptions of attachment styles (secure, avoidant/dismissing, preoccupied, and fearful) describe their general relationship style. For example, the paragraph describing the secure attachment style states, “It is easy for me to become emotionally close to others. I am comfortable depending on them and having them depend on me. I don’t worry about being alone or having others not accept me”. Participants rate descriptions on a 7-point Likert scale (1 = disagree strongly, 7 = agree strongly). Ratings on the four attachment styles can be used to derive scores on the dimensions of avoidance and anxiety (Griffin & Bartholomew, 1994b; Sibley, Fischer, & Liu, 2005)<sup>2</sup>.

Although the RQ is less sophisticated than recent attachment measures such as the Experiences in Close Relationships Scale (Brennan et al., 1998), its brevity offers an important advantage for the present study, and its validity has been widely demonstrated. The RQ shows good convergent validity with interview ratings of attachment (Bartholomew & Horowitz, 1991; Griffin & Bartholomew, 1994b), was found to be free of social desirability bias (Leak & Parsons, 2001), and shows psychometric validity across diverse cultures, as indicated by a study of over 17,000 participants from 62 cultural regions (Schmitt et al., 2004). The RQ was also found to demonstrate moderately high levels of stability over an eight-month period (Scharfe & Bartholomew, 1994).

### **Religious Commitment Inventory (RCI-10)**

The RCI-10 (E. L. Worthington, Jr. et al., 2003) is a 10-item measure of religious commitment. Items assess the extent to which individuals adhere to their religious values and beliefs and practice them in their daily lives (e.g., “I enjoy

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<sup>2</sup>The formulae for converting ratings to dimensional scores are as follows: Avoidance = (dismissing + fearful) – (secure + preoccupied); Anxiety = (preoccupied + fearful) – (secure + dismissing).

spending time with others of my religious affiliation”, “It is important to me to spend periods of time in private religious thought and reflection”). Items are rated on a 5-point Likert scale ranging from 1 (not at all true of me) to 5 (totally true of me). The RCI-10 was developed based on earlier, lengthier versions and was administered in a range of samples (totalling over 2000 participants), including students, community members, therapists and clients (E. L. Worthington, Jr. et al., 2003). The scale showed a high level of internal consistency in all studies ( $\alpha$  ranged from .92 to .98); alpha in the current sample was .88. The scale also showed good re-test reliability over a period of three weeks ( $r = .87$ ) and five months ( $r = .84$ ; E. L. Worthington, Jr. et al., 2003). The RCI-10 has now been used in a range of studies (e.g., Hicks & King, 2008; Tsang, McCullough, & Hoyt, 2005; Wade & Worthington, 2003; Wade, Worthington, & Vogel, 2007), and shows significant positive correlations with other measures of religiosity/religious commitment (Rosik, 2007; E. L. Worthington, Jr. et al., 2003). Although the scale was intended to be suitable for a range of religious groups, it has predominantly been validated in Christian samples (E. L. Worthington, Jr. et al., 2003).

### **Psychiatric Epidemiology Research Interview Life Events Scale (PERI)**

The PERI (B. S. Dohrenwend, Krasnoff, Askenasy, & Dohrenwend, 1978) is a checklist containing 102 stressful events (e.g., “had problems in school or training program”, “close friend died”). The PERI was developed in response to criticisms of ‘first generation’ life event checklists such as Holme’s and Rahe’s (1967) Social Readjustment Rating Scale (Monroe et al., 2006). Such criticisms included the ambiguity of event descriptions and the fact that some events appeared to represent symptoms or consequences of illness, confounding the measure with assessments of physical or mental health (B. P. Dohrenwend, 2006; B. S. Dohrenwend et al., 1978). Another factor confounding negative events ratings with mental health measures was the use of subjective ratings of the severity/impact of events. These subjective judgements have been shown to be influenced by participants’ mental health state, thus artificially inflating the correlation between negative events weightings and measures of mental health (B. P. Dohrenwend, 2006). The PERI was developed to reduce such problems by using more narrowly defined events, omitting events most likely to be confounded with symptoms, and using a more objective rating system (Gotlib & Hammen, 1992). As a result of such changes, the PERI is considered more

methodologically rigorous than many alternative checklist measures (Gotlib & Hammen, 1992; Mancuso, Rincon, Sayles, & Paget, 2005). The scale continues to be used in a wide range of studies (e.g., Ingram, Betz, Mindes, Schmitt, & Smith, 2001; Leserman et al., 2000; Monroe et al., 2006; Spangler, Simons, Monroe, & Thase, 1997).

Events in the PERI are weighted according to standardized life change magnitude ratings which represent the average degree of change a person is expected to experience as a consequence of the event. Ratings range from 163 (“acquired a pet”) to 1,036 (“child died”). Evidence for the validity of the PERI includes the high correlation ( $r = .72$ ) between PERI standardised weightings and clinicians’ DSM-III Axis IV (Severity of Social Stressors) severity ratings in a sample of psychiatric outpatients (Skodol & Shrout, 1989). Additionally, higher PERI scores have been found to be associated with poorer mental health (Ge, Conger, Lorenz, & Simons, 1994; Weil et al., 1999) and are predictive of suicide attempts (Yen et al., 2005).

Given the lengthiness of the PERI, only a subset of events was included in the present study, as with many prior studies using this measure (e.g., M. L. Cooper, Russell, Skinner, Frone, & Muclar, 1992; Ge et al., 1994; Weil et al., 1999). Firstly, only negative events were used (i.e., those designated on the PERI as representing a ‘loss’ rather than a ‘gain’ or ‘ambiguous’), given the focus of the present study on the role of negative events in the relationship between ATG and emotional wellbeing. Secondly, events were removed if they were deemed unlikely to have been experienced by sample members (e.g., “Didn’t get out of jail when expected”). Thirdly, events were merged if they had similar content (e.g., the item ‘robbed’ was combined with ‘assaulted’, to give the item “robbed or assaulted”). Where items were merged, their average standardised weightings were used. The final scale consisted of 41 events within 6 categories: housing/finance, work/school/training program, accidents/injuries/illness, legal, relationships, and other. Participants were given the option to specify additional negative events not included on the list, and 110 participants did so. However, a number of these events were already included in the questionnaire, and some of the specified events were excluded because they were not clearly negative, or represented mental health symptoms (e.g., “depression”) or spiritual problems (e.g., “had a faith crisis”), thus confounding negative events with measures of mental health and ATG. After removing these, 97 events (specified by 74 respondents) remained that were clearly negative in nature but did not appear on the

PERI. These were assigned weightings (low, medium, high) by two independent raters<sup>3</sup>. A total negative events severity score was calculated for each participant by summing the total weights for all reported events. This was the score used in analyses in the present study.

Although the present study spanned a 3-7 month time frame, participants were asked to indicate the events they had experienced over the previous 12 months. A 12 month period has been recommended as the minimum period appropriate for use with checklist event measures, and appears to be the most common timeframe used in research on the health effects of life events (R. J. Turner & Wheaton, 1995). Use of a shorter period is likely to result in the omission of events occurring prior to the study but continuing to exert an influence on the change in mental health from Time 1 to 2. (For example, consider a participant experiencing a bereavement several months before the study began. This event may continue to cause deterioration in mental health over the period of the study, and thus is important to take into account.) A 12 month period has been widely adopted in studies using the PERI (e.g., M. L. Cooper et al., 1992; Ge et al., 1994; Harkness, Monroe, Simons, & Thase, 1999; Ingram et al., 2001; Spangler et al., 1997; Weil et al., 1999).

### **Brief Measure of Religious Coping (Brief RCOPE)**

The Brief RCOPE (Pargament et al., 1998) was formed based on analyses of the 63-item RCOPE scale, with the aim of identifying as efficiently as possible the patterns of religious coping that would have important positive and negative implications for health. The subscales, Positive Religious Coping and Negative Religious Coping, each consist of 7 items. These subscales were respectively used to operationalise SSG (seeking support from God) and APA (abandoning/punishing appraisals) in the present study. Brief RCOPE items followed the PERI in the questionnaire, and respondents were asked to rate the extent to which they used each religious coping strategy in dealing with the most negative events they experienced over the past year, from 1 (not at all) to 4 (a great deal).

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<sup>3</sup>The procedure for assigning weightings to these events was as follows. (1) Events included in the questionnaire were divided into 3 equal-sized categories based on their standardised weightings. (2) The average weighting for each of the three groups was calculated; these were 270 (low severity), 409 (medium severity), and 619 (high severity). (3) The events specified as “other” were assigned to one of the three groups (low, medium or high severity), using events from the PERI as a guide. (4) Once a final consensus was reached between the independent raters, the events were assigned the mean weightings for the relevant category (e.g., 270 for an event judged as low severity).

The Brief RCOPE was initially tested and validated in a college student sample ( $N = 540$ ) and a hospital sample ( $N = 551$ ; Pargament et al., 1998). Both subscales showed adequate internal consistency ( $\alpha = .90$  and  $.87$  for Positive Religious Coping and  $.81$  and  $.69$  for Negative Religious Coping), as found in the present study ( $\alpha = .85$  for Positive Religious Coping and  $.74$  for Negative Religious Coping). Factor analyses support the two-dimensional structure of the scale, with only a weak positive correlation between subscales (Pargament et al., 1998). The subscales correlate as predicted with relevant constructs, for example, religious and existential wellbeing (Arnette et al., 2007), intrinsic religiosity (C. A. Lewis et al., 2005; Maltby & Day, 2003; Zwingmann et al., 2008) and the religious/spiritual outcomes occurring as a result of negative events (Pargament et al., 2004; Pargament et al., 1998; Proffitt, Cann, Calhoun, & Tedeschi, 2007; Tarakeshwar & Pargament, 2001).

The Brief RCOPE subscales were modified for use in the present study. First, the wording of two items was altered slightly with permission from the author (K. I. Pargament, personal communication, June 29, 2006) to make items more relevant.<sup>4</sup> Second, four items from the Brief RCOPE were not used given that they were not directly relevant to SSG/APA constructs (though the full scale was administered). Specifically, one Positive Religious Coping item was removed (“Asked forgiveness for my sins”) and three Negative Religious Coping items were removed (“Wondered whether my church had abandoned me”, “Decided the devil made this happen” and “Questioned the power of God”). Although these items were removed based on theoretical rather than empirical considerations, further support for this decision was provided through the use of CFA in the current sample. Specifically, the four items identified as less relevant showed the lowest factor loadings on their subscales, while items most closely tapping SSG/APA showed the highest loadings. The conceptual disparity of the four deleted items was further demonstrated by the improved model fit resulting from their deletion. Thus it appears that removal of these items not only increases the theoretical relevance of the subscales for the present study, but also enhances the conceptual purity of the subscales.

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<sup>4</sup>In the item “Focused on religion to stop worrying about my problems”, the word ‘religion’ was replaced with ‘God’ to make this item more relevant to the focus of the study (ATG). In the item “Sought help from God in letting go of my anger”, the word ‘anger’ was replaced with ‘negative feelings’ in order to make the question applicable to those respondents who experienced negative feelings other than anger.

## **Items assessing the emotional quality of participants' experience of their relationship with God**

Four items were developed for the present study to assess the emotional quality of participants' experience of their relationship with God. These were used as part of validating the ATG measure. Research in the field of human attachment has demonstrated that higher levels of attachment anxiety and avoidance are associated with experiencing one's attachment relationship as a greater source of negative emotion and a lesser source of positive emotion (Barry et al., 2007; J. A. Simpson, 1990). This should logically apply to ATG. Thus, four items were developed to assess the extent to which participants experience their relationship with God as a source of negative emotion (distress and sadness) and positive emotion (peace and happiness). Participants rated each item on a 4-point Likert scale, from 1 (not at all) to 4 (a great deal).

### **Procedure**

Time 1 data were collected between May and August 2006, after gaining ethical approval for the study (Massey University Human Ethics Committee, ALB 06/018). All participants were provided with the questionnaire and an information sheet describing the study (Appendix C). The information sheet specified that anyone 16 years or older who identified as a Christian may take part in the study. It also outlined the anonymity of participants' responses and the voluntary nature of participation, and stated that completion and return of the questionnaire implied consent. The information sheet also invited participants to take part in the Time 2 survey. Paper copies of the questionnaire were accompanied by two pre-paid, return-addressed envelopes, one for the completed questionnaire and the other for participants' contact details, if they opted to take part in the Time 2 survey. The separate envelopes allowed participants' names and contact details to remain separate from their questionnaires. Participants responding online provided contact details on a separate webpage that was not linked with the survey.

In mid-November 2006, the second survey was distributed to participants willing to take part, along with an information sheet (Appendix C). Responses were received between November 2006 and March 2007. The average length of time between participants' Times 1 and 2 responses was 4.12 months ( $SD = 0.95$ ); this period ranged from 3 to 7 months. This time period was deemed suitable for analysing

change over time, given that prospective studies (including those using a cross-lagged design) examining the effect of human attachment style on mental health have employed similar time frames and found significant effects (e.g., Hankin et al., 2005; J. E. Roberts et al., 1996; J. A. Simpson et al., 2003; Wei, Russell et al., 2005). In order to link participants' data collected at the different time points without compromising anonymity, two 'identifying questions' were included in each survey (father's first name and mother's maiden name).

### **Methodological issues relating to the use of an internet survey**

The use of the internet as a method for collecting survey data within the field of psychology has increased rapidly in recent years (Peden & Flashinski, 2004). This is not surprising given advantages such as access to larger and wider samples and more efficient data collection (Gosling, Vazire, Srivastava, & John, 2004). Various concerns have been raised concerning the use of internet samples however. For example, it has been suggested that samples may over-represent males, younger adults, the White middle-class and the socially maladjusted; that validity may be undermined by insincere responders and individuals submitting multiple responses; and that responses will differ from those obtained using traditional pencil and paper methods (Gosling et al., 2004). In order to address these concerns, Gosling et al. (2004) compared responses to psychological self-report measures drawn from self-selected internet samples ( $N = 361,703$ ) with 510 published samples utilising paper-and-pencil surveys. No evidence was found for the concerns raised; on the contrary, internet samples were no less demographically diverse (and the larger sample sizes resulted in larger absolute numbers of participants from minority groups) and no more maladjusted. Data did not appear to be adversely affected by insincere or repeat responders and findings were consistent with paper and pencil surveys. Overall, the quality of data was equal to, if not exceeding, the data generated by paper-and-pencil surveys (Gosling et al., 2004). Additionally, the findings of internet surveys have been compared with paper and pencil surveys in studies examining key constructs relevant to the present study, including studies of attachment and mental health (e.g., Fouladi, McCarthy, & Moller, 2002) and spirituality and mental health (e.g., Desrosiers & Miller, 2007). These studies provide evidence for the validity of internet-based findings and the consistency of findings with paper-and-pencil versions of the same measures.

## Data Analysis and Preparation of Data

The predominant data analysis strategy used in the present study was structural equation modelling (SEM), performed using the program *Analysis of Movement Structures (AMOS) Version 16* (Arbuckle, 2007). Descriptive statistics such as means, standard deviations and reliabilities of scales were calculated using *Statistical Package for Social Sciences (SPSS) for Windows Version 16*. SPSS was also used in the estimation of missing data values, exploratory factor analyses, Chi-square ( $\chi^2$ ) tests of significant relationships between discrete variables, *t*-tests for significant differences in group means, and paired *t*-tests for significant changes over time in mean levels of variables.

This section of the Method is divided into a number of subsections, detailing: (1) an overview of SEM and its application in the present study, including the statistical assumptions underlying SEM and the choice of statistical indices used to determine the fit of models; (2) preparation of the data set, including strategies used to deal with missing data; (3) the process used to test and modify measures; (4) planned tests of study hypotheses; (5) the process for testing measurement invariance.

### Overview of SEM

SEM is a form of analysis that uses statistical techniques belonging to the general linear model to examine the relationships between one or more independent and dependent variables (Tabachnick & Fidell, 2007; J. B. Ullman, 2006). SEM involves specifying a hypothesised model (e.g., a model in which ATG predicts emotional wellbeing) and then testing the viability of this model against the actual relationships found in the data set, simultaneously analysing all specified relationships (Byrne, 2001). In technical terms, this involves comparing the covariance matrix derived from relationships among the observed variables with the covariance matrix that is expected if the model has been correctly specified (J. B. Ullman, 2006). That is, SEM essentially asks whether the model is able to produce a covariance matrix consistent with that produced by the raw data (J. B. Ullman, 2006). If the model fit is adequate, estimates and significant tests of relationships between variables and other parameters are more likely to be accurate (Byrne, 2001). However, good model fit only suggests that the model is plausible; it is generally possible to formulate other models that fit the data equally well, and determining the most plausible model requires consideration of their substantive meaning (MacCallum, 1995).

### *Advantages of SEM*

SEM offers a number of advantages over other multivariate data analytic strategies (e.g., multiple regression or MANOVA). Advantages of SEM include its confirmatory approach (i.e., the ability to directly test the hypothesised model), its flexibility for testing complex relationships and its ability to remove the effects of measurement error, permitting more accurate estimates of relationships (Byrne, 2001; Quintana & Maxwell, 1999; J. B. Ullman, 2006). Hypotheses of this study, as with most psychological research, are made with reference to specific constructs (e.g., positive wellbeing) rather than the observed variables used to measure them (e.g., Affectometer 2 scores). Most statistical methods test hypotheses at the level of observed scores, which only partially represent the construct of interest because they are contaminated by measurement error. A distinct advantage of SEM is the ability to test hypotheses at the latent construct level, by taking into account the effects of measurement error (J. B. Ullman, 2006). Removing the effects of measurement error is also important where longitudinal analyses are involved, as with the present study, given that this affords more accurate estimation of the degree of change occurring in latent constructs over time (Engel & Reinecke, 1996).

The advantages of SEM over other approaches have contributed to its growing popularity, particularly for nonexperimental research (Byrne, 2001), and informed the use of this analytic method in the present study. SEM has been widely used in attachment research, including in studies examining the relationship between attachment and mental health (e.g., Carmichael & Reis, 2005; Overbeek et al., 2004; Shapiro & Levendosky, 1999; Taris & Bok, 1997; Wei et al., 2006; Wei, Russell et al., 2005). Moreover, SEM provides a powerful method for analyses of cross-lagged panel data (Fincham, Harold, & Gano-Phillips, 2000). SEM has been used extensively in studies employing a two wave cross-lagged panel design similar to that of the present study (e.g., De Jonge et al., 2001; J. A. Hall, Milburn, & Epstein, 1993; Kivimäki, Feldt, Vahtera, & Nurmi, 2000; Mäkikangas, Kinnunen, & Feldt, 2004; Thøgersen & Ölander, 2002), including two studies examining the impact of attachment on mental health (Buist et al., 2004; Hankin et al., 2005).

Early cross-lagged correlation methods for analysis of panel data were based on a comparison of the magnitude of cross-lagged correlations from X to Y and Y to X (i.e., comparing  $r_{X1Y2}$  with  $r_{Y1X2}$ ; e.g., D. T. Campbell, 1963). This form of analysis

has been widely criticised (see Rogosa, 1980, and Kessler and Greenberg, 1981, for a detailed description of problems with this technique). One key problem is that bivariate cross-lagged correlations do not solely reflect the effect of X on Y and vice versa; they are also influenced by the stabilities (autoregressive effects) of X and Y. Given this, it is imperative that cross-lagged paths (the portion of the cross-lagged correlation reflecting the effect of the independent variable on the dependent variable) are modelled and estimated simultaneously with autoregressive paths (Kessler & Greenberg, 1981; Kinnunen et al., 2008). This can be achieved through the use of SEM. Indeed, SEM enables all relevant relationships to be modelled simultaneously: cross-lagged paths (the paths of key interest for hypotheses), autoregressive paths, intercorrelations between variables at Time 1, and relationships between the prediction error terms for variables at Time 2. Because the autoregressive effects of each variable are accounted for, significant cross-lagged path coefficients indicate that the independent variable (e.g., ATG-anxiety) is able to predict a change in the dependent variable (e.g., positive wellbeing) over time, suggesting the possibility of a causal effect (D. E. Greenberg, 2008; Thøgersen & Ölander, 2002). Another advantage of SEM over earlier cross-lagged analyses is that it allows the fit of the hypothesised model (depicting the expected patterns of cross-lagged effects) to be directly compared with plausible alternative models, thus providing a more theory-driven approach (Thøgersen & Ölander, 2002).

SEM is also an appropriate form of analysis for testing the moderation and mediation effects hypothesised in the present study. Moderation effects in the present study are tested using multi-group analysis, for example by examining differences in the ATG-emotional wellbeing relationship in males versus females. SEM offers a number of advantages for multi-group analysis. First, SEM allows formal testing of whether the hypothesised model is the best fitting model in both groups. Second, SEM provides a test of structural invariance to determine whether the paths of interest are of significantly different magnitude in the two groups. The robustness of this test is enhanced by measurement invariance testing (described later), which indicates whether group differences in relationships between variables are genuine rather than due to measurement biases (Cheung & Rensvold, 2002). SEM is also the recommended method for testing mediation effects, as it has a number of advantages over common alternative approaches (Cheung & Lau, 2008). For example, all relevant paths can be tested simultaneously (even with multiple mediators and dependent variables), and by

controlling for measurement error, SEM reduces the likelihood of underestimating the effects of mediators (Cheung & Lau, 2008; Wu & Zumbo, 2008).

### *Assumptions of SEM*

**Sample size.** Achieving an adequate sample size in SEM is important in order to ensure the stability and accuracy of parameter estimates and fit indices, and to achieve an adequate level of power for testing the significance of parameter estimates (Jackson, 2003; MacCallum, Browne, & Sugawara, 1996). Determining what constitutes an adequate sample size is particularly complex in SEM, as this depends on a wide range of factors including the complexity of the model, deviation from normality, estimation method, number of indicators and how strongly indicators are associated with latent variables (Jackson, 2003; R. L. Worthington & Whittaker, 2006). However, two useful guidelines are that SEM analyses require a minimum sample size of 100 to 200 (Kline, 2005; Russell, 2002; R. L. Worthington & Whittaker, 2006) and that there should be at least 5 (and preferably 10) participants for each parameter that will be estimated (Raykov & Marcoulides, 2006; R. L. Worthington & Whittaker, 2006). Indicators that the sample size (or ratio of participants to parameters) is too small include overly large standard errors and solutions that are improper (as indicated by the presence of negative variances or correlations greater than 1, for example) or do not converge (Vandenberg & Self, 1993).

These guidelines influenced a number of decisions relating to analyses in the present study. Firstly, attempts were made to conduct analyses in samples of at least 200 participants where possible, with no samples constituting less than 100 participants. Secondly, effort was made to reduce the number of indicators per latent variable. Each additional indicator adds to the number of free parameters in the model which must be estimated, resulting in fewer degrees of freedom and thus less power (Jackson, 2003). Also, more complex models may be less likely to be replicated in other studies, particularly if they are tested in small samples (Jackson, 2003). Thirdly, the *p* value used to assess the significance of model parameters was retained at .05 as opposed to adopting a more stringent value, despite conducting multiple significance tests. Although there is a potential for increased Type I error (i.e., rejecting the null hypothesis when it is true), the problem of increased Type II error (i.e., accepting the null hypothesis when it is false) is likely to be more salient in the present study given

the complexity of models, which reduces power. Adopting a more stringent  $p$  value would further increase the likelihood of failing to detect genuine effects. However,  $p$  values for key coefficients are reported in full, in order to allow readers to form their own conclusions regarding the significance of effects. Also, a more stringent significance criterion of  $p < .01$  was used for other tests in the study (i.e., those not relating specifically to tests of study hypotheses, such as where multiple correlations or group differences are tested for significance).

**Normality.** Levels of univariate non-normality considered problematic in SEM are indicated by skewness values of 2 or more, and/or kurtosis of 7 or more (Finney & DiStefano, 2006; Nevitt & Hancock, 2001; West, Finch, & Curran, 1995). The Negative Religious Coping subscale of the Brief RCOPE was the only measure in the present study that showed a level of non-normality considered problematic by these standards. (Skewness and kurtosis values for measures are displayed in Table 2 of the Results section). However, despite the univariate normal distributions of most variables, all structural equation models tested in the present study showed multivariate non-normality, as indicated by Mardia's coefficient (Byrne, 2001). This is problematic given that the estimation method used, maximum likelihood (ML), assumes multivariate normality of observed data. (ML was selected given that it is the most widely used estimation method in SEM (J. B. Ullman, 2006). The popularity of ML is partly due to the fact that it provides estimates with desirable properties (e.g., low variance) for normally-distributed data; J. B. Ullman, 2006). Large departures from normality can affect model fit statistics, and while estimates of model parameters remain relatively unbiased, their standard errors tend to be under-estimated, leading to incorrect significance tests (R. P. McDonald & Ho, 2002; Nevitt & Hancock, 2001; Russell, 2002; West et al., 1995).

Approaches developed to address the potential effects of non-normality on ML estimation include the asymptotically distribution free (ADF) estimation method, the Satorra-Bentler SCALED  $\chi^2$  and bootstrapping (Nevitt & Hancock, 2001; Tomarken & Waller, 2005; West et al., 1995). The ADF is problematic when testing large models in sample sizes of the range used in analyses of the present study (Nevitt & Hancock, 2001), and the Satorra-Bentler SCALED  $\chi^2$  is not available in AMOS; thus, bootstrapping was used. In bootstrapping, numerous random subsamples are drawn from the data, and the standard deviation of the parameter estimates derived across the samples gives the boot-strapped standard error (Nevitt & Hancock, 2001). These

standard errors are estimated using a nonparametric approach, with no assumption of normality, and thus are more accurate for data that is moderately or severely non-normal (Byrne, 2001; Nevitt & Hancock, 2001). Tests of the significance of parameter estimates in the present study are based on these bootstrapped standard errors, derived from ‘bias-corrected (*BC*) confidence intervals’, which provide a more accurate test of the significance of parameters (Mooney & Duval, 1993). Note that bootstrapping does not adjust values of fit statistics such as the Comparative Fit Index or Tucker-Lewis Index (see explanation of these fit indices below), which tend to be moderately underestimated where departures from normality are substantial (West et al., 1995). Thus, it is likely that model fit in the present study may be slightly underestimated.

Bootstrapping may fail if sample sizes are too low (e.g., < 200), especially with complex models. In these situations bootstrap standard errors can be inflated and less accurate than ML estimates (Nevitt & Hancock, 2001). This possibility was considered in the present study, and as expected, bootstrapped standard errors showed signs of inflation in sample sizes less than 200. Given this, bootstrapping was not used where sample sizes were less than 200; in such cases the ML-derived standard errors and *p* values are reported.

#### *Fit indices used to evaluate models in the present study*

A wide range of statistics can be used to indicate the overall goodness of fit of a model in SEM. Five statistics are reported in the present study:  $\chi^2$  goodness of fit test, comparative fit index (CFI; Bentler, 1990), Tucker-Lewis index (TLI; Tucker and Lewis, 1973), root mean square error of approximation (RMSEA; Steiger, 1990) and the standardized root mean square residual (SRMR; Bentler, 1995). These fit statistics are used widely and have been recommended on the basis of their sensitivity to model mis-specification and other important characteristics (e.g., Hu & Bentler, 1999; Kline, 2005; Martens, 2005; Vandenberg & Lance, 2000; R. L. Worthington & Whittaker, 2006).

**$\chi^2$  goodness of fit test.** This is the most common index of fit (Hoyle, 1995) and tests the null hypothesis that the covariance matrix implied by the model is the same as the population covariance matrix (Byrne, 2001). Accepting the null hypothesis thus implies good model fit. However, because  $\chi^2$  is overly sensitive to sample size, it is virtually always statistically significant in large samples (D. A. Kenny, 2003). Growing dissatisfaction with the  $\chi^2$  goodness of fit index has led researchers to

develop a number of more pragmatic fit indices (Byrne, 2001). Despite problematic characteristics of the  $\chi^2$ , it is recommended that this still be reported, along with the degrees of freedom and level of significance (Kline, 2005; B. Thompson & Daniel, 1996).

**Comparative fit index (CFI) and Tucker-Lewis index (TLI).** Both the CFI and TLI are comparative indices of fit, derived from a comparison of the hypothesised model with an “independence model” which specifies no relations among variables (Hu & Bentler, 1995; H. W. Marsh, Balla, & McDonald, 1988). Both the CFI and TLI are based on the Normed Fit Index (NFI), which is given by  $[\chi^2(\text{independence model}) - \chi^2(\text{proposed model})] / \chi^2(\text{independence model})$  (D. A. Kenny, 2003). Although the NFI has been popular, it shows a tendency to underestimate fit when sample size is low. As a result, Bentler (1990) formed the CFI to take sample size into account. Another problem with the NFI is that there is no penalty for adding extra parameters to the model. The TLI corrects for this by adding degrees of freedom (*df*) terms into the equation, thus favouring more parsimonious models (D. A. Kenny, 2003). The CFI and TLI range from 0 to 1. Values exceeding .90 are generally considered acceptable (Bentler, 1992) and values of .95 or greater indicate that the model fits the observed data well (Hu & Bentler, 1999). However, CFI and TLI often function less well in complex models (i.e., those containing a large number of variables), potentially leading to rejection of correctly specified models (D. A. Kenny & McCoach, 2003).

**Root mean square error of approximation (RMSEA).** This index tests how well the model (with optimal parameter values) would fit the population covariance matrix if that matrix were available (Byrne, 2001). Values  $\leq .05$  indicate good model fit, .05 - .08 indicate reasonable fit, .08 - .10 indicate mediocre fit, and  $> .10$  indicate poor fit (Browne & Cudeck, 1993; Hu & Bentler, 1999; MacCallum et al., 1996). It is recommended that the RMSEA is reported along with its 90% confidence interval to indicate the accuracy of the estimate (Kline, 2005; MacCallum et al., 1996). Unlike the TLI and CFI, the RMSEA is not adversely affected by increased model complexity (D. A. Kenny & McCoach, 2003).

**Standardised root mean square residual (SRMR).** The SRMR reflects the difference between the covariances that are implied by the model and those that exist in the data (Quintana & Maxwell, 1999; Weston & Gore, 2006). Lower values imply that the model fits well, while high values indicate misspecification, particularly misspecified factor covariances (Vandenberg & Lance, 2000). Values below .08 are

considered to indicate good model fit (Hu & Bentler, 1999), values between .08 and .10 indicate mediocre fit, and values above .10 indicate poor fit (Vandenberg & Lance, 2000).

In addition to these fit indices, the **expected cross-validation index (ECVI; Browne and Cudeck, 1989)** is used in the measurement section of the Results for comparisons among measurement models (e.g., comparing the original factor structure of a measure with the revised structure). The model with the lowest ECVI has the greatest likelihood of being replicated in samples drawn from the same population (Byrne, 2001). This is useful for determining the most favourable model, in conjunction with information provided by other fit statistics and theoretical considerations.

There is considerable debate over the use of specific cut-off values for fit indices, given that values are influenced by a wide range of factors, including sample size, number of variables in the model, the estimation method used, and the degree of model misspecification (R. L. Worthington & Whittaker, 2006). Thus it is recommended that cut-off criteria be regarded as general guidelines rather than definitive rules, that findings are interpreted in light of relevant theory, and that a range of fit statistics are considered (Vandenberg & Lance, 2000; R. L. Worthington & Whittaker, 2006). For example, because the CFI and TLI are negatively influenced by model complexity while the RMSEA shows the opposite effect, in large models (such as those used to test many of the hypotheses of this study) it is recommended that both are taken into account. If the TLI and CFI are slightly below cut-off criteria but the RMSEA is adequate, it is likely that the fit of the model is reasonable, while a poor RMSEA is likely to indicate inadequate fit (D. A. Kenny & McCoach, 2003).

### **Data preparation**

Data from paper questionnaires were entered manually and internet data were uploaded automatically. Ten percent of manually entered data were randomly selected for checking, with few errors detected. Levels of missing data in the final data set ranged from 0.0% to 2.1% across individual variables; overall, less than 1% of data were missing. This is well below the levels suggested to indicate potential problems (e.g., Kline, 1998; Tabachnick & Fidell, 2007). In order to minimise data loss caused by respondents failing to answer a small number of items on multiple-item scales, missing values on these scales were estimated using the Expectation Maximisation

(EM) method in SPSS. In order to avoid inaccurate estimations, values were not estimated if respondents failed to answer more than 20% of the items on a scale (Downey & King, 1998). In these cases the scale was coded as missing for that respondent.

Outliers were identified using Mahalanobis d-squared values, which detect cases lying a substantial distance outside the general 'swarm' of cases in multivariate space (Tabachnick & Fidell, 2007). In line with Byrne's recommendation (Byrne, 2001), cases with Mahalanobis d-squared values substantially higher than remaining cases were deleted from that particular analysis. This test for outliers was conducted before each analysis. Data were also checked for signs of invalid responding, and two cases of extreme responding were detected and deleted. This reduced the Time 1 sample to 1,264 but did not affect the Time 2 sample.

### **Planned Testing, Modifying and Statistical Modelling of Measures**

#### *Confirmatory factor analysis*

Structural equation models consist of two parts: the measurement model, representing connections between latent variables and their observed indicators (e.g., item scores), and the structural model, representing connections among the latent variables (i.e., examining the hypothesised relationships between variables). In order to place confidence in the results of the structural model (used to test hypotheses), it is important that variables accurately reflect the intended constructs. This requires testing of the measurement model, using confirmatory factor analysis (CFA). In the present study, CFA will be applied to the ATG scale, emotional wellbeing measures and Brief RCOPE. Given that these measures have a specific factor structure hypothesised based on theory and empirical research, confirmatory factor analysis is more appropriate than exploratory factor analysis (J. B. Ullman, 2006). The PERI and RQ will not be subjected to CFA, as the PERI is a checklist measure with no underlying factor structure, and the RQ consists of four items which tap different attachment dimensions.

CFA not only assesses the hypothesised factor structure of scales, but can also assist in the modification and refinement of scales (Floyd & Widaman, 1995). Items with lower CFA factor loadings do not capture the latent construct as effectively; thus, researchers may delete such items to enhance the validity of the scale, particularly where a briefer scale is required (e.g., A. T. Beck, Brown, Steer, & Weissman, 1991;

Wei et al., 2007). As noted earlier, there is a need to ensure an adequate ratio of participants to free parameters in the models tested in the present study. If all items were used as indicators, the number of free parameters would be overly high, exceeding the number of participants. Thus it is advantageous to select the subset of items that best capture the latent variables. It is generally recommended that each latent variable should have at least 3 or 4 indicators (Quintana & Maxwell, 1999; Schumacker & Lomax, 2004), although it may be necessary to have more indicators in order to ensure that the conceptual breadth of the latent variable is adequately captured (particularly where items are used as indicators). Even where items are used however, it is recommended that no more than 8 items be selected, as higher numbers are likely to contribute to poor fit (G. W. Cheung, personal communication, June 27, 2008; Floyd & Widaman, 1995). SEM provides a range of information relevant to selecting the 'best items', including the magnitude of factor loadings and cross-loadings with other constructs. In addition to this information, the content of the item and other statistical item properties should also be taken into account.

For the emotional wellbeing variables, it will be important to determine how best to model the variables together, following CFAs of each individual measure. Although the CES-D, PANAS-N and Affectometer 2 were selected to measure three facets of emotional wellbeing thought to be conceptually distinct, there is notable overlap in some items (e.g., CES-D items and negatively worded Affectometer 2 items). This may compromise the conceptual distinctness of the variables. Thus, SEM will be used to determine how to best model the three variables together. SEM provides a powerful method for this process, by (a) identifying the correlations between the latent variables (with error removed) in order to determine whether any variables overlap sufficiently to suggest they are in fact tapping the same underlying construct, and (b) predicting cross-loadings between indicators of different variables, which indicates whether items assess other variables rather than uniquely predicting the intended construct. This information will be used to determine the best way to model the emotional wellbeing variables together and to select the best subset of items/indicators for each variable.

### *Cross-validation*

Modifying measures on the basis of factor analysis can potentially result in models that do not generalise to new samples (Weston & Gore, 2006). This problem is

less likely where large samples are used, where there is a good theoretical basis for modifications, and where a cross-validation sample is used to test the modified model (Martens, 2005; Weston & Gore, 2006). The use of a cross-validation sample is thus recommended where sample sizes permit (Floyd & Widaman, 1995). In the present study the Time 1 sample will be split randomly in half to form ‘development’ and ‘validation’ samples. After modifications are made in the development sample, a group invariance test (described later) will be used to compare the model across the development and cross-validation samples, as recommended by Byrne (2001).

#### *Testing and modification process for the ATG scale*

The ATG scale will receive more detailed and lengthy testing than other scales. The two measures comprising the scale have received little testing, and while their factor structures have been proposed on the basis of exploratory factor analysis and theory, they have not been confirmed using CFA. Given that this measure assesses the key construct of the study, it is important to understand its structure, verify that items tap the intended constructs, and where necessary, improve the validity of the scale by removing poor items. Testing and modification of the scale will involve the following:

1. Reviewing item content to identify items with potentially poor content validity.
2. Identifying items with problematic psychometric properties. This includes non-normal response distribution (high levels of skew/kurtosis), mean scores that are far from the centre of the possible range (i.e., ceiling or floor effects), an increase in alpha if the item is deleted, overly high correlations with other items in the scale (indicating redundancy), and low item-total correlations (H. J. Chen, 2005; L. A. Clark & Watson, 1995; DeVellis, 2003; Floyd & Widaman, 1995; Meir & Gati, 1981; Pett & Johnson, 2005; G. T. Smith & McCarthy, 1995).
3. Conducting a principal components analysis (PCA), as was used in the development of the AGI and RK scales. Although a two-factor solution is theoretically most plausible, it is not clear whether the items from Rowatt and Kirkpatrick’s measure will combine with the AGI items to form coherent factors. Hence, a PCA will be used before CFA, to explore the structure of the combined scale and particularly to assess whether items from Rowatt and Kirkpatrick’s measure show appropriate loadings on the expected dimensions.
4. Conducting CFA to clarify the factor structure by comparing the hypothesised factor structure with alternative structures, and to examine item loadings. Although there is

no accepted criterion of what constitutes a ‘low’ factor loading, some researchers have recommended or employed various minimum levels for CFA item loadings such as .40 (Raubenheimer, 2004), or .38 (A. T. Beck et al., 1991). Others delete items on the basis of the size of their loadings relative to those of other items (e.g., Wei et al., 2007). Poor items will be deleted based on the information provided by factor loadings, cross-loadings, content validity and basic psychometric properties. The revised scale will then be tested in the cross-validation sample to ensure that changes made on the basis of PCA and CFA will generalise to a new sample.

5. Testing the validity of the revised scale by examining (a) correlations with relevant measures, and (b) whether items tap emotional wellbeing. The latter issue will be explored given criticisms that measures of spiritual variables may be contaminated with references to mental health constructs (Koenig, 2008).

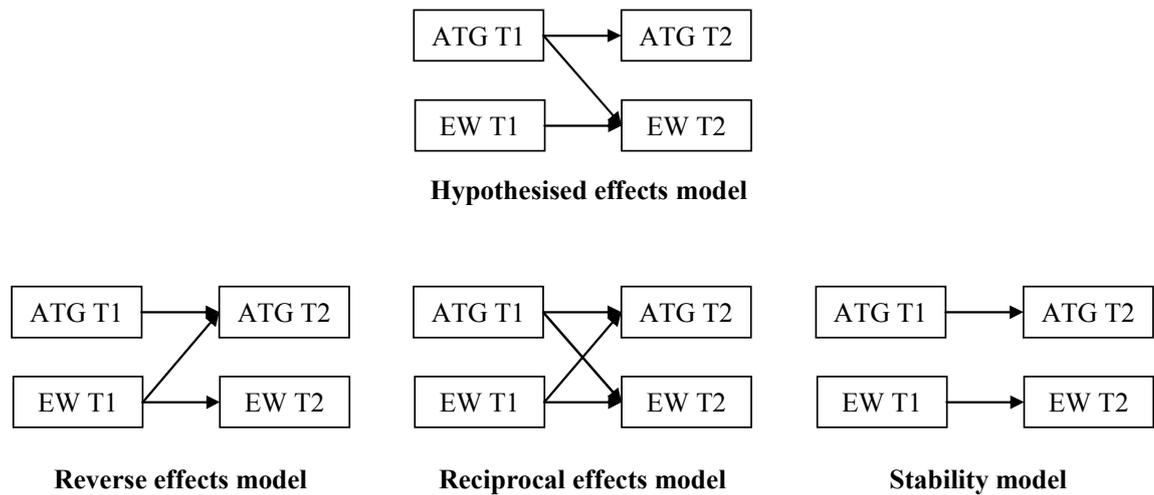
### **Planned tests of hypotheses**

#### *Testing of cross-lagged effects (Hypotheses 1-3)*

Cross-lagged effects of ATG on emotional wellbeing and vice versa will be tested by comparing four competing models (for other examples of two-wave cross-lagged analyses using this method, see Cramer, 1996; De Jonge et al., 2001; Kinnunen et al., 2008; Salanova et al., 2006). A simplified picture of the four models is shown in Figure 6. The ‘hypothesised effects’ model specifies that ATG variables at Time 1 predict emotional wellbeing variables at Time 2; that is, cross-lagged paths extend from Time 1 ATG to Time 2 emotional wellbeing. This model will be compared with three competing models. The ‘reverse effects’ model specifies cross-lagged paths from emotional wellbeing variables at Time 1 to ATG at Time 2. The ‘reciprocal effects’ model specifies cross-lagged paths from ATG to emotional wellbeing and vice versa. The ‘stability’ model specifies that neither ATG nor emotional wellbeing variables influence each other over time. In the latter model Time 2 variables are predicted only by their autoregressive effects (i.e., the effects of the identical variable measured at Time 1, represented by the horizontal paths in the diagram), with no cross-lagged effects. This is the most parsimonious of the four models; the reciprocal effects model is the least parsimonious.

As with other studies (e.g., Cramer, 1996; De Jonge et al., 2001; Kinnunen et al., 2008; Salanova et al., 2006), the  $\Delta\chi^2$  test will be used to compare each model with

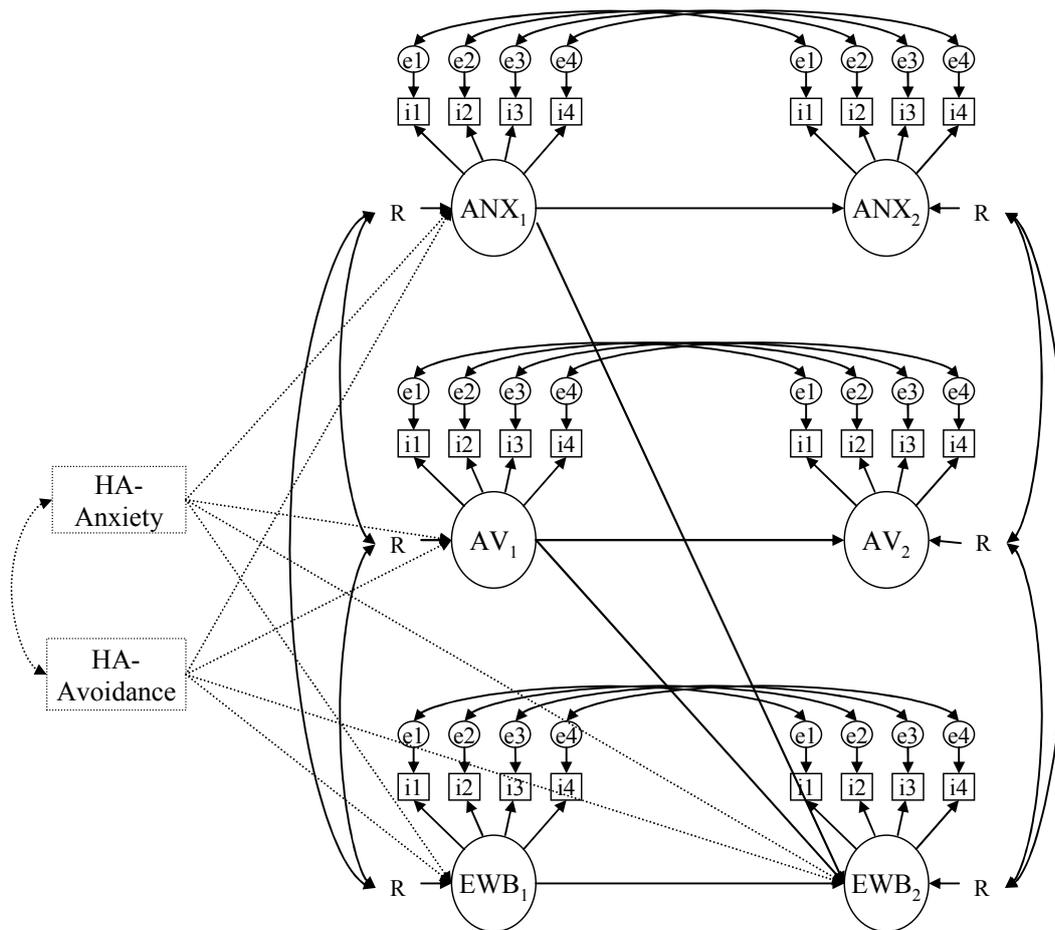
the more parsimonious models to determine whether the additional cross-lagged paths result in improved model fit. Thus, the hypothesised and reverse effects models will be compared with the stability model, and the reciprocal effects model will be compared with all other models. A non-significant  $\Delta\chi^2$  indicates that the additional cross-lagged paths do not improve model fit, thus favouring the more parsimonious model.



*Figure 6.* Hypothesised and competing models depicting relationships between ATG and emotional wellbeing over time. For simplicity, only one ATG variable and one emotional wellbeing variable (EW) are shown.

The hypothesised effects model is depicted in detail in Figure 7, to provide an example of how models will be specified. For simplicity, only one emotional wellbeing variable is represented in the figure; in reality, depressive symptoms, negative affect and positive wellbeing would all be included in the model. To control for human attachment style, human attachment anxiety/avoidance are specified as predictors of Time 1 ATG and emotional wellbeing and Time 2 emotional wellbeing. The latter is necessary given that human attachment style has been shown to predict changes in emotional wellbeing over time. Time 1 ATG and emotional wellbeing variables are specified as correlated, given that the causal direction of the relationship is unknown (thus necessitating prospective analysis). It is important to note that as a consequence of this, it is not possible to determine what proportion of variance each Time 1 predictor uniquely explains in the Time 2 variables. For example, it is not possible to determine what proportion of variance in Time 2 positive wellbeing is explained by Time 1 ATG-anxiety over and above the effects of Time 1 positive wellbeing. This is because there is no way to determine how to allocate the portion of

variance two predictors jointly explain in the dependent variable, if the reason for the correlation between the predictors is unknown (Pedhazur, 1997). However, Pedhazur advises that a rough approximation of effect size can be gained by considering the total proportion of variance in each dependent variable explained by the set of predictors, in conjunction with the relative sizes of standardised regression coefficients ( $\beta$ s) of predictors (although  $\beta$  comparisons should be considered only as approximations of the relative importance of predictors, given that  $\beta$  values are influenced by the variability of the predictor).



*Figure 7.* The hypothesised effects model, showing measurement and structural portions. The measurement portion shows connections between latent variables and their indicators. The structural portion shows paths between latent variables (e.g., autocorrelations/stability paths and cross-lagged paths). Circles represent latent variables and squares/rectangles represent observed variables, according to SEM convention (J. B. Ullman, 2006). The portion of the figure representing the effects of human attachment style is dotted, as with all subsequent figures. For simplicity only one emotional wellbeing variable is shown and only 4 items are shown as indicators of each latent variable. HA-anxiety = human attachment anxiety; HA-avoidance = human attachment avoidance; ANX = ATG-anxiety; AV = ATG-avoidance; R = residual variance term; e = error term; i = item.

Models allow for correlations between two types of error terms, as shown in Figure 7. Firstly, the prediction error terms for Time 2 variables (denoted R in the figure) are allowed to correlate. These terms represent the variance in the Time 2 dependent variables not able to be accounted for by predictors in the model. Correlations between these terms are necessary because the relationships between these variables may not be fully accounted for by the cross-lagged relationships (D. E. Greenberg, 2008; Thøgersen & Ölander, 2002). Secondly, error terms between pairs of identical items/indicators at the two time points are allowed to correlate (these are denoted 'e' in the figure). This is necessary because item variances contain an item-specific component that is likely to be stable (and thus correlated) across time (Vandenberg & Lance, 2000).

#### Testing moderating effects in cross-lagged models (Hypotheses 2-3)

Hypotheses 2 and 3 explore differences in cross-lagged relationships between ATG and emotional wellbeing in (a) males vs. females and (b) high vs. low negative events groups. As with other studies testing group differences in two-wave cross-lagged models (e.g., Houkes, Janssen, de Jonge, & Bakker, 2003; Kivimäki et al., 2000), the four competing models will be tested in each group separately. If the same model (e.g., the hypothesised model) is favoured in both groups, a test of structural invariance will be used to determine whether the cross-lagged paths in the model are of significantly different magnitude in the two groups. This involves constraining the cross-lagged paths to be equal across groups and determining whether this constraint results in a significant decrease in fit, as indicated by a significant  $\Delta\chi^2$  value. A prerequisite to testing structural invariance is the establishment of measurement invariance for the model; this is detailed in the section on measurement invariance testing.

High and low negative events groups will be formed using a median split on the 'negative events severity' score. The moderating impact of negative events will be tested through analysis of group differences as opposed to the use of an interaction term, given that the latter would not distinguish between Hypotheses 3 and 5 in the present study. That is, a continuous moderation effect, indicated by a significant interaction between negative events and ATG in the prediction of emotional wellbeing, would not distinguish whether negative events moderates the impact of ATG style on emotional wellbeing (Hypothesis 3) or ATG moderates the impact of negative events

on emotional wellbeing (Hypothesis 5). The group difference approach adopted in the present study was used in an earlier study (Maton, 1989) testing the moderating effect of negative events on the relationship between a variable similar to ATG (‘spiritual support’) and mental health.

*Testing mediation effects (Hypothesis 4)*

The basic mediation models to be tested are depicted in Figure 8. As shown, emotional wellbeing at Time 2 is specified to be predicted by Time 1 ATG style indirectly, through the effects of the mediators. The model also accounts for the effects of Time 1 emotional wellbeing. A direct path from Time 1 ATG to Time 2 emotional wellbeing is included given that the mediating effect may be partial rather than full. Mediation models examining the relationship between human attachment style and mental health have been specified in similar ways in prior research (e.g., Wei, Russell et al., 2005). Note that mediation models will only be tested if ATG-anxiety/avoidance are found to be significant predictors of Time 2 emotional wellbeing variables.

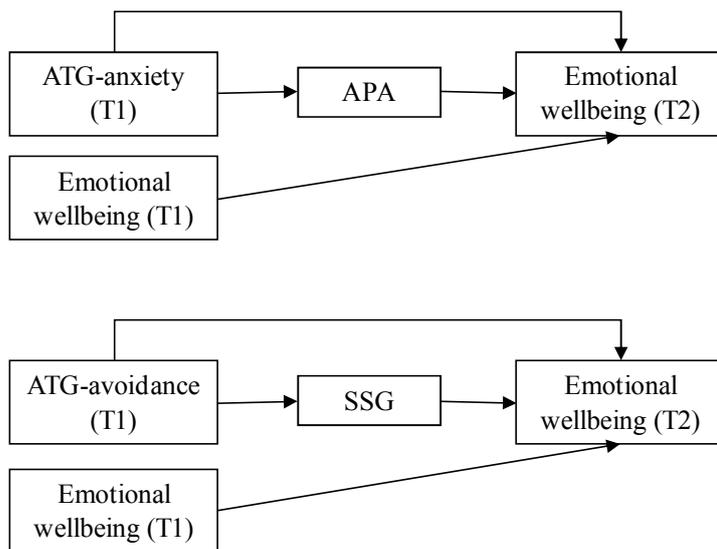


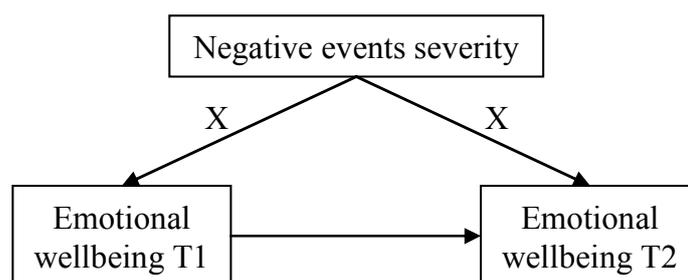
Figure 8. Models planned to test the mediating role of religious coping in the relationship between ATG and emotional wellbeing. APA = abandoning/punishing reappraisals; SSG = seeking support from God.

An advantage of SEM for testing mediation effects is that it allows simultaneous modelling of all paths (e.g., both direct and indirect) and multiple dependent variables (Cheung & Lau, 2008; Wu & Zumbo, 2008). Recommended

guidelines for estimating the size and significance of mediation effects are provided by Cheung and Lau (2008). Based on tests of multiple alternative approaches, they found that bias-corrected bootstrapping provided the most accurate estimation of the confidence intervals and significance of the mediation effect, that is, the indirect effect of the independent variable on the dependent variable via the mediator/s (Cheung & Lau, 2008). This approach is appropriate with sample sizes of 200 or more (Cheung & Lau, 2008) and will be used in the present study.

*Testing whether attachment style moderates the effect of negative events on emotional wellbeing (Hypothesis 5)*

Hypothesis 5 involves testing whether the effects of negative events on emotional wellbeing differ across ATG groups (secure, preoccupied, dismissing, fearful). The basic model to test is shown in Figure 9. Although this figure shows only one emotional wellbeing variable, the model will include all variables. Negative events severity is specified as a predictor of emotional wellbeing at Time 1 as well as Time 2, given that Time 1 measurement of emotional wellbeing variables was within the time frame over which negative events were reported. Because there are no competing models (unlike the cross-lagged analyses), the model will be tested in all ATG groups simultaneously, and a formal test of structural invariance will be used to determine whether the paths from negative events to emotional wellbeing variables (marked ‘X’ in the Figure) differ significantly between the groups.



*Figure 9.* Model planned to test the effect of negative events severity on emotional wellbeing in ATG groups. Paths marked X represent the effects of negative events severity on emotional wellbeing. It is hypothesised that these paths will be strongest in the preoccupied and fearful groups and weakest in the secure group.

ATG groups will be formed according to the procedure frequently used in human attachment research (e.g., J. G. Allen et al., 2001; Collins, 1996; Torquati & Vazsonyi, 1999). That is, respondents will be classified *secure* if they score below the mid-point on ATG-anxiety and avoidance subscales (i.e., average item score less than 3 on both subscales), *dismissing* if they score above the ATG-avoidance midpoint but below the ATG-anxiety midpoint, *preoccupied* if they score above the ATG-anxiety midpoint but below the ATG-avoidance midpoint, and *fearful* if they score above the midpoint on both subscales.

### **Measurement invariance testing**

#### *Group invariance*

A number of models in the present study explore group differences in relationships between latent variables. In order for these differences to be meaningful, it is important that models show measurement invariance across groups. There are a number of increasingly stringent levels of measurement invariance. The first level, configural invariance, implies that the same number of factors is found in each group and the factors are defined by the same set of items (Cheung & Rensvold, 2002; Meredith, 1993). The second level, metric invariance, involves testing whether loadings of indicators on their factors are equal across the groups, and implies that ‘constructs are manifested in the same way across groups’ (Cheung & Rensvold, 2002, p. 236). Metric invariance is required for examination of group differences in relationships between latent variables (Gregorich, 2006). Evidence of metric non-invariance suggests that the indicators of latent variables are interpreted differently by members of the two groups. This precludes meaningful interpretation of group differences in relationships between latent variables.

The next level of measurement invariance, scalar invariance, refers to invariance of item intercepts across groups (Vandenberg & Lance, 2000). Scalar invariance indicates whether group differences in absolute values (e.g., mean scores) are meaningful (Conroy, Metzler, & Hofer, 2003; Gregorich, 2006). Scalar invariance is not a requirement of the present study given that metric invariance is sufficient for comparisons of structural relationships across groups (Steenkamp & Baumgartner, 1998). However, an advantage of testing for scalar invariance in the present study is

that invariant intercepts can be constrained equal across groups, thus reducing the number of free model parameters.

#### *Time invariance*

Most models to be tested in the present study include autoregressive (stability) paths between variables at Times 1 and 2. These paths indicate the degree of ‘differential’ stability in the variable over time (Schutz, 1998). Differential stability should not be confused with ‘mean stability’, which refers to stability in overall mean scores. A high differential stability coefficient does not necessarily imply that there was little mean change, but rather that the degree and direction of change in scores has been similar for all members of the sample, so that they retain a similar position in the group (Schutz, 1998). In order to ensure that these stability paths are genuinely measuring intraindividual stability in the underlying latent variable, the latent variable must show configural and metric invariance across the time points (Chan, 1998; Schutz, 1998). Non-invariant loadings suggest that respondents’ interpretation of items may have differed across the two time points. This renders the stability coefficient less meaningful, because it is contaminated by these measurement differences.

Every model in the present study using two-wave data will be tested for metric invariance over time. Scalar invariance will also be tested (i.e., invariance of item intercepts over time). Scalar invariance is necessary for meaningful comparisons of variable means over time points (i.e., to assess whether mean change has occurred; T. A. Brown, 2006; Conroy et al., 2003). Although these tests are not necessary for the present study, if intercepts are invariant over time they will be constrained equal to reduce free parameters.

#### *Process of invariance testing*

Tests for metric and scalar invariance over groups and time will follow the guidelines recommended by Cheung and Rensvold (2002). The sequence involves testing for configural invariance (the fit of the unconstrained model across the two groups/time points), followed by metric invariance (constraining factor loadings of all indicators to be equal across the groups/time points and comparing the fit with the unconstrained model), and then scalar invariance (adding the intercept constraints and comparing the fit with the unconstrained model). Differences in the fit of models are generally assessed using the Likelihood Ratio Test (the significance of  $\Delta\chi^2$ ), which

assesses whether the  $\chi^2$  differs significantly between two nested models. However, in large samples the  $\Delta\chi^2$  test can falsely reject non-invariance (Cheung & Rensvold, 2002). Thus, Cheung and Rensvold suggest the use of change scores such as  $\Delta\text{CFI}$  for model comparisons. Using this criterion, the CFI for the constrained model is subtracted from the CFI for the unconstrained model. Decreases in CFI of less than 0.01 indicate invariance. Decreases between .01 and .02 indicate that the models may not be invariant, and decreases of more than .02 indicate certain non-invariance. However, the accuracy of this criterion has as yet only been tested under a limited range of model conditions. Given this, it seems prudent to consider both criteria in the present study ( $\Delta\chi^2$  and  $\Delta\text{CFI}$ ). No critical levels have been recommended for changes in TLI, RMSEA or SRMR, so these fit indices will not be used in invariance testing in the present study.

## SECTION IV: RESULTS

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### CHAPTER NINE

#### Testing and Modification of Measures



Descriptive statistics for key variables at Times 1 and 2 are shown in Table 2. To check for non-random attrition, *t*-tests were used to examine differences between Time 2 responders and non-responders on all Time 1 variables listed in Table 2. Significant differences ( $p < .01$ ) were found on 3 of the 14 variables: AGI-anxiety,  $t(1,263) = -2.67$  ( $p = .008$ ), PANAS-N,  $t(1,259) = -3.00$  ( $p = .003$ ), and RQ-Preoccupied,  $t(1,250) = -3.01$  ( $p = .003$ ). Compared with non-responders, Time 2 responders had lower mean AGI-anxiety scores ( $M = 32.69$  vs. 34.11), PANAS-N scores ( $M = 19.25$  vs. 20.49) and RQ-preoccupied scores ( $M = 3.08$  vs. 3.38). Given the small magnitude of these differences and the fact that measures of similar constructs did not evince these effects it is unlikely that selective attrition has any substantial impact on study findings.

The remainder of this chapter details the measurement testing process applied to scales measuring latent constructs in the study (ATG, emotional wellbeing and religious coping). Rationales and descriptions of testing processes were outlined in the data-analysis section of the method.

#### ATG Scale

Before conducting factor analyses, the content validity of ATG items was reviewed. This involved considering the relevance of items to the construct of ATG-anxiety/avoidance, the possibility they tapped extraneous constructs, and poor or confusing item-wording. The review of content validity is detailed in Appendix D. Overall, ATG-anxiety items appeared to show good content validity, although a small number of items did not seem directly relevant to ATG-anxiety, and/or were somewhat ambiguous in their meaning. Also, several items index jealousy, which may result in over-representation of this facet of ATG-anxiety. The ATG-avoidance subscale contained a number of potentially problematic items. Several items derived from

Table 2

*Descriptive Statistics for Key Measures at Time 1 (N = 1,264) and Time 2 (N = 531)*

Measure	<i>M</i>	<i>SD</i>	Range	Possible range	Skew	Kurtosis
ATG measures						
AGI-Anxiety (T1)	33.53	9.32	14-65	14-70	0.42	0.03
AGI-Anxiety (T2)	32.25	9.58	14-60		0.46	-0.12
AGI-Avoidance (T1)	34.13	8.22	14-64	14-70	0.23	-0.07
AGI-Avoidance (T2)	34.64	8.07	16-62		0.35	0.02
RK-Anxiety (T1)	7.30	2.37	3-15	3-15	0.11	-0.43
RK-Anxiety (T2)	7.20	2.40	3-14		0.17	-0.43
RK-Avoidance (T1)	8.67	3.12	5-24	5-25	1.13	1.84
RK-Avoidance (T2)	8.79	3.04	5-20		0.89	0.83
Emotional wellbeing measures						
CES-D (T1)	11.04	9.05	0-55	0-60	1.50	2.64
CES-D (T2)	10.50	8.83	0-49		1.44	2.40
PANAS-N (T1)	19.96	7.20	10-49	10-50	0.97	0.71
PANAS-N (T2)	18.96	6.70	10-45		1.05	0.89
Affectometer 2:						
Negative (T1)	11.32	7.28	0-38	0-40	1.01	0.82
Affectometer 2:						
Negative (T2)	10.75	7.09	0-38		1.10	1.19
Affectometer 2:						
Positive (T1)	25.54	6.26	0-40	0-40	-0.73	0.74
Affectometer 2:						
Positive (T2)	25.84	6.04	2-40		-0.79	0.71
Human attachment measure (T1 only)						
RQ-Secure	4.48	1.57	1-7	1-7	-0.31	-0.75
RQ-Dismissing	3.31	1.71	1-7	1-7	0.29	-0.92
RQ-Preoccupied	3.25	1.73	1-7	1-7	0.42	-0.82
RQ-Fearful	3.06	1.75	1-7	1-7	0.60	-0.73
RQ-Avoidance	-1.37	3.91	-12-11	-14-14	0.22	0.10
RQ-Anxiety	-1.47	3.93	-12-11	-14-14	0.30	-0.12
PERI negative events severity score (T2 only)						
	899.42	848.37	0-4656	-	1.20	1.51
Religious coping measure (T2 only)						
Brief RCOPE-PRC	20.64	4.43	7-28	7-28	-0.37	-0.27
Brief RCOPE-NRC	9.14	2.72	7-28	7-28	2.11	6.50

*Note.* Actual sample sizes vary slightly for different measures, depending on missing data. T1 = Time 1; T2 = Time 2; AGI = Attachment to God Inventory; RK = Rowatt and Kirkpatrick's measure of attachment to God; CES-D = Centre for Epidemiological Studies Depression Scale; PANAS-N = Negative Affect subscale of the Positive and Negative Affect Scale; RQ = Relationship Questionnaire; PERI = Psychiatric Epidemiology Research Interview Life Events Scale; Brief RCOPE = Brief Measure of Religious Coping; PRC = Positive Religious Coping; NRC = Negative Religious Coping.

the AGI-avoidance subscale assess the ‘emotional’ nature of one’s relationship with God, which may tap extraneous factors such as individual differences in emotional expression unrelated to attachment style. These items may also be gender-biased. Items derived from the RK-avoidance subscale appear problematic given that they tap general perceptions of God’s availability and responsiveness, which may fail to distinguish between the dimensions of ATG-anxiety and avoidance.

### **Principal components analysis**

The full scale was subjected principal components analysis (PCA), as used in the development of the AGI and RK scales. An oblimin rotation was used given that ATG-anxiety and avoidance are known to be correlated. One, two, three and four-component solutions were explored. The first principal component accounted for 27.4% of the variance, the second accounted for 11.0%, the third for 4.6%, and the fourth for 4.2%. The two-component solution was the clearest and most meaningful. The two components were identified as measuring the constructs of ATG-anxiety and avoidance; all items loaded most highly onto their hypothesised component. ATG-anxiety items loaded onto the first component and ATG-avoidance items onto the second component.

In the two-component solution, three of the five RK-avoidance items cross-loaded on the ATG-anxiety component. A loading of  $|\geq .30|$  or greater on the opposite component was used as the criterion for substantial cross-loading (Osborne & Costello, 2005, June; R. L. Worthington & Whittaker, 2006). Another item showed a cross-loading close to this cut-off (.28) and the remaining item showed a low loading on the ATG-avoidance component (adopting the criterion value of .40 as indicating a low loading; L. A. Clark and Watson, 1995; Raubenheimer, 2004). This indicates that, as suspected, these items may not be unique indicators of ATG-avoidance. Additional analyses confirmed the poor conceptual distinctiveness of the RK-avoidance subscale. Specifically, (a) RK-avoidance items correlated almost as highly with AGI-anxiety as with AGI-avoidance, (b) the RK-avoidance subscale showed a high latent correlation ( $r = .71$ ) with AGI-anxiety; this correlation was virtually as strong as the correlation with AGI-avoidance ( $r = .76$ ), (c) the RK-avoidance subscale correlated almost as strongly with Negative Religious Coping ( $r = .38$ ) as with Positive Religious Coping ( $r = -.49$ ); in contrast, the AGI-avoidance subscale demonstrated the expected strong negative relationship with Positive Religious Coping ( $r = -.60$ ) and weak relationship

with Negative Religious Coping ( $r = .04$ ). Given these findings, RK-avoidance items were removed. RK-anxiety items were retained given that this subscale appeared to tap the intended dimension adequately. Specifically, RK-anxiety items did not show high cross-loadings, and the subscale showed the expected pattern of correlations with AGI subscales and religious coping variables.

### **Confirmatory factor analysis**

Although the PCA provided some evidence that a two-factor structure best described the data, CFA provides a more powerful test of this. Similar to a recent CFA of the Revised Experiences in Close Relationships scale (ECR-R; Fairchild and Finney, 2006), two models were compared: a model with ATG-anxiety and ATG-avoidance represented as correlated but distinct factors and a model with all items loading onto a single factor. The models were tested in the development sample ( $n = 629$ ) using the 31 items that remained after deleting RK-avoidance items. Model fit statistics are displayed in the top two rows of Table 3. The fit of the two-factor model, though poor, was better than the one-factor model, and the latent correlation between the factors was .47, indicating that they tap distinct constructs. Thus the two-factor model was favoured.

Based on content validity, factor loadings and cross-loadings in CFA and PCA, and psychometric properties, six items were removed from the scale. The rationales for deleting these items are provided in Appendix Table E1. Following deletion of these items, the new model (“Revision 1”) was tested. Fit statistics are shown in the third row of Table 3. Although the model fit was improved, the CFI and TLI were low, suggesting the need for further modification. Additionally, the number of items is still higher than ideal. In order to further identify weak items, the model was tested in several subsamples, divided according to gender, denomination (Pentecostal, Evangelical, and other), and religious commitment (high and low, divided by median split). In each group, items showing the lowest factor loadings and/or high cross-loadings were identified, in an attempt to ensure that the final scale is valid across the whole sample. Modification indices were also inspected for pairs of items sharing substantial error variance, which can suggest overlapping content (Floyd & Widaman, 1995; Quintana & Maxwell, 1999). Where two or more items tapped similar facets of ATG-anxiety/avoidance, attempts were made to select the best item in order to shorten the scale whilst ensuring adequate theoretical breadth. After considering these factors

along with the content validity of items, ten items were removed. Rationales for deleting items are provided in Appendix Table E2.

Table 3

*Fit Statistics for ATGS Models*

Model	$\chi^2$	df	p	CFI	TLI	RMSEA		ECVI
						(90% CI)	SRMR	
One-factor						.10		
model, 31 items	3,274.20	434	.000	.58	.55	(.099-.105)		5.51
Two-factor						.08		
model, 31 items	2,233.72	433	.000	.74	.72	(.078-.085)		3.86
Revision 1						.08		
(Two-factors, 25 items)	1,236.76	274	.000	.82	.80	(.071-.079)		2.21
<b>Final model</b>						<b>.07</b>		
<b>(Two-factor, 15 items)</b>	<b>353.68</b>	<b>89</b>	<b>.000</b>	<b>.91</b>	<b>.90</b>	<b>(.061-.076)</b>		<b>0.69</b>

*Note.* All models were tested in the development sample ( $n = 629$ )

Figure 10 shows the structure of the final scale with standardised factor loadings. The final scale is hereafter referred to as the Attachment to God Scale (ATGS). The subscales are labelled ATGS-anxiety and ATGS-avoidance; their underlying latent constructs continue to be referred to as ATG-anxiety and ATG-avoidance. Appendix Table E3 provides the unstandardised factor loadings for ATGS items and their standard errors and  $p$  values. The content of items is also displayed in the table. The eight ATGS-anxiety items index anxieties and preoccupations regarding whether one is loved and cared for by God, perceptions of God as inconsistently responsive to one's needs, and expressions of distress in response to these concerns. These appear to capture the construct of ATG-anxiety well. The seven ATGS-avoidance items predominantly tap respondents' dependence on, and intimacy with, God. This differs slightly from the conception of attachment avoidance, which emphasises levels of *comfort* with / *preference* for dependency and intimacy in close relationships. Only four of the original AGI items referred specifically to this concept,

and it was necessary to remove three of these items given problematic content validity and psychometric properties. Thus, aside from one ATGS-avoidance item referring to a preference for independence from God, all describe *levels* of intimacy/dependence on God. While this is not ideal, it should be noted that the ECR and ECR-R also contain items measuring levels of intimacy/dependence. The adequate factor loadings of these ECR/ECR-R items suggest that they may be valid indicators of attachment avoidance.

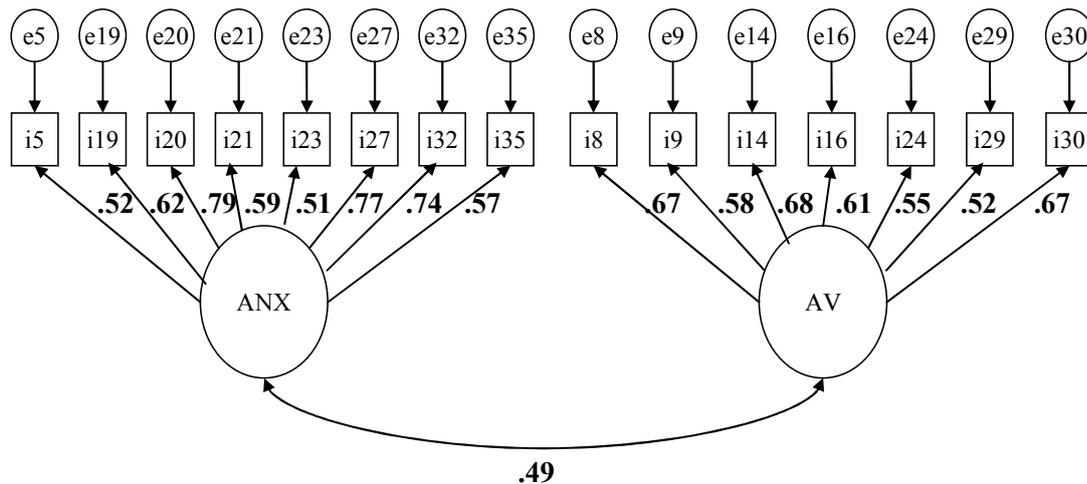


Figure 10. Structure of the ATGS, with standardised coefficients ( $n = 629$ ).

Item numbers correspond to those from the original questionnaire. e = error term; i = item, ANX = ATG-anxiety, AV = ATG-avoidance.

Fit statistics for the ATGS are shown in the bottom row of Table 3. The fit was acceptable, and this model had the lowest ECVI of all models tested, indicating that the modifications resulted in a more replicable factor structure. When tested in the cross-validation sample, the model showed metric and scalar invariance across the development and cross-validation groups (see Appendix Table E4). This indicates that the modifications generalised to an independent sample. Cronbach's alphas in the full Time 1 sample were .87 for ATGS-anxiety and .79 for ATGS-avoidance. As with past research (e.g., R. Beck & McDonald, 2004), the ATG dimensions were significantly and positively correlated. The raw correlation between the ATGS subscales was .36; the latent correlation (removing error variance) was .49.

### **Further validity testing of the ATG Scale: Relationships with other constructs**

In addition to CFA, evidence for the validity of the ATGS subscales was provided through examination of relationships with (a) relevant constructs, and (b) emotional wellbeing measures. These examinations are described in detail in Appendix E, pp. 225-228. The ATGS-subscales showed hypothesised relationships with a number of relevant constructs. Specifically, higher ATGS-avoidance scores were associated with a lesser tendency to turn to God for support in coping with negative events, a less positive emotional experience of one's relationship with God, lower religious commitment, and greater attachment avoidance in human relationships. Respondents with higher levels of ATG-anxiety were more likely to perceive negative events as evidence of God's abandonment/punishment, experienced their relationship with God as a greater source of negative emotion and a lesser source of positive emotion, were less religiously committed and reported greater attachment anxiety in human relationships. The magnitude of correlations was not overly high, providing some evidence of discriminant validity. Additionally, ATGS items did not appear to tap emotional wellbeing. This reduces the likelihood of spuriously inflated correlations between ATG and emotional wellbeing in the present study.

### **Emotional Wellbeing Measures**

Testing of the emotional wellbeing measures involved conducting individual CFAs to check that each measure showed the hypothesised factor structure, followed by the use of SEM to determine how to best model the three variables together. These steps were conducted in the development sample ( $n = 624$ ). Individual CFAs supported the hypothesised factor structures of the three measures (see Appendix F). Specifically, models specifying unidimensional factor structures for the PANAS-N and Affectometer 2 and a 'higher-order' factor structure for the CES-D showed adequate fit. Given the need to reduce the number of indicators in models, the three lower order factors of the CES-D will be represented by summed subscale scores (in place of items) in subsequent analyses. The model using subscale scores showed good fit (Appendix Table F1). The use of summed subscale scores as opposed to individual items is common in SEM (Byrne, 2001; Quintana & Maxwell, 1999) and has been applied in prior studies using the CES-D (e.g., Krause et al., 1989).

## Combining the emotional wellbeing measures

A model in which the three emotional wellbeing variables (depressive symptoms, negative affect, positive wellbeing) were specified as correlated was tested in the development sample. The fit of this model was acceptable but not excellent (see the top row of Table 4). Parameter estimates and modification indices highlighted three main problems with the model. Firstly, the depressive symptoms and negative affect factors were highly correlated ( $r = .83$ ), suggesting they tap the same construct and would be better specified as a single factor (T. A. Brown, 2006). The conceptual overlap between negative affect and depressive symptoms has been discussed by previous authors (e.g., Lonigan, Hooe, David, & Kistner, 1999; Watson & Clark, 1997), and it is common for these (and other) aspects of distress to co-occur (Hankin & Abramson, 2001). Reflecting this, the CES-D has been combined with other measures of distress to form indicators of a single construct in previous research (e.g., Hooker, Monahan, Bowman, Frazier, & Shifren, 1998; G. King, King, Rosenbaum, & Goffin, 1999; B. G. Knight, Silverstein, McCallum, & Fox, 2000). This approach will be adopted in the present study. In contrast, the positive wellbeing factor appeared conceptually distinct from the negative wellbeing factors, although it was related to both ( $r = -.69$  with depressive symptoms and  $-.59$  with negative affect). Positive wellbeing will therefore be retained as a separate factor.

Secondly, a number of negatively worded Affectometer 2 items (i.e., measuring low levels of positive wellbeing) cross-loaded onto the negative wellbeing factors. This is not surprising given their overlap in content with CES-D and PANAS-N items. Positively worded Affectometer 2 items did not show this problem, and appear to be more pure and effective indicators of positive wellbeing. The negatively worded items were thus deleted to enhance the conceptual and empirical distinction between the positive and negative wellbeing factors. Two positively worded Affectometer 2 items were also deleted. Item 13 was deleted because its content (“I have energy to spare”) overlaps with the somatic factor of the CES-D (e.g., one of the somatic items states, “I felt that everything I did was an effort”). This overlap was reflected in correlated error variance with the somatic factor. Item 3 was deleted given its low loading in comparison to other items (.32).

Thirdly, the positive affect subscale of the depressive symptoms factor cross-loaded onto positive wellbeing. This reflects the overlap in item content of these

constructs. Because the content of this subscale is largely covered by the positive wellbeing factor, this subscale was removed in order to enhance the conceptual distinction between the positive and negative wellbeing factors. Other studies have similarly chosen to model the CES-D without the positive affect factor in order to minimise overlap with positive wellbeing measures (e.g., Newsom, Rook, Nishishiba, Sorkin, & Mahan, 2005; Shifren et al., 1999).

Table 4  
*Fit Statistics for Emotional Wellbeing Models*

Model	$\chi^2$	df	p	CFI	TLI	RMSEA		
						(90% CI)	SRMR	ECVI
Initial (three factor)	1,315.67	370	.000	.89	.88	.06 (.060-.068)	.06	2.41
Final (two factor)	54.29	26	.000	.99	.98	.04 (.027-.058)	.03	0.18

The revised model consisting of two factors (negative wellbeing and positive wellbeing) is shown in Figure 11, along with standardised coefficients. Loadings of indicators on their hypothesised factors were significant and of an adequate magnitude. Appendix Table F4 provides unstandardised factor loadings with their standard errors and *p* values. The revised model showed improved fit (see Table 4) and cross-validated when tested in the validation sample (Appendix Table F5). The conceptual distinctiveness of each latent variable seems to be much improved in the revised model. In contrast with the initial model, all negative wellbeing indicators in the revised model refer to negative (distressing) aspects of emotional wellbeing (e.g., negative symptoms, thoughts and emotions), and all positive wellbeing indicators refer to positive aspects (cognitive and behavioural markers of happiness, including positive attitudes regarding oneself and one's life). This increases confidence that each factor assesses the intended construct. Another advantage is the reduced number of indicators in the revised model, which will help to minimise free parameters in models tested in the present study.

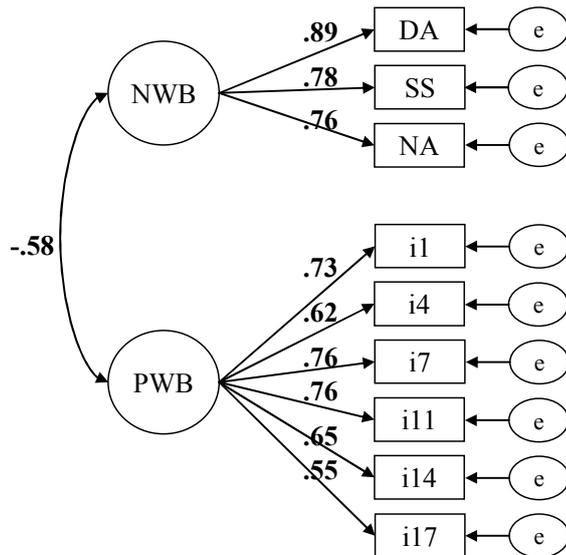


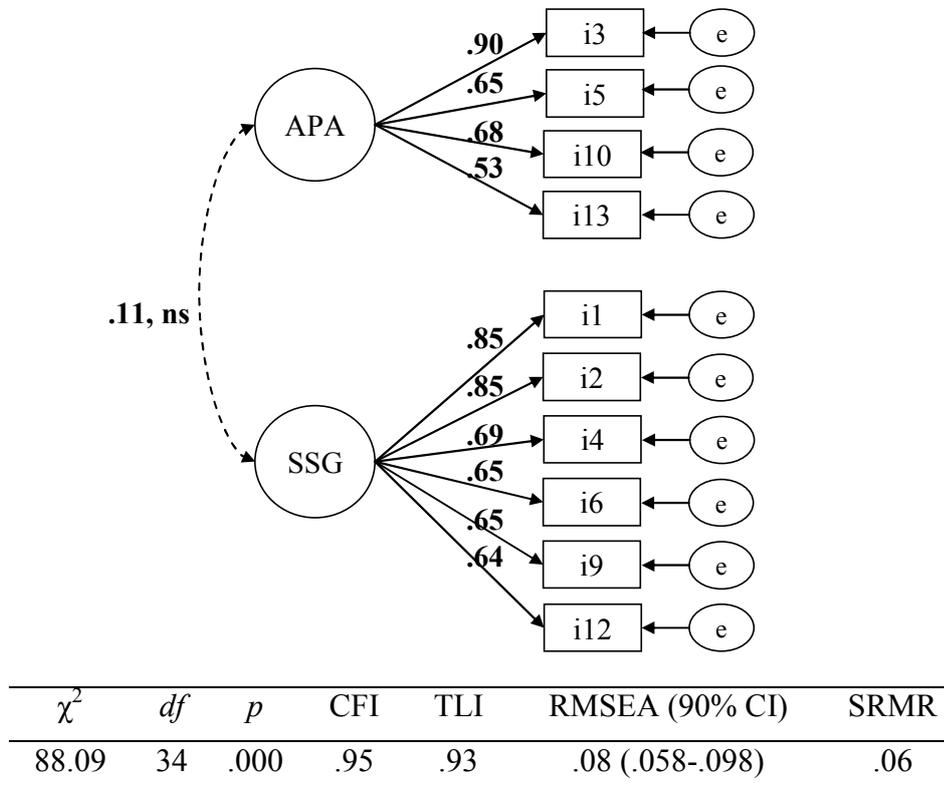
Figure 11. Final emotional wellbeing model with standardised coefficients ( $n = 624$ ).

Numbers in square boxes correspond to item numbers from the Affectometer 2. The content of these items is provided in Appendix Table F4. NWB = negative wellbeing; PWB = positive wellbeing; DA = depressed affect; SS = somatic symptoms; NA = negative affect; i = item; e = error term.

### Brief R-COPE

As described in the Method section, one item on the Positive Religious Coping subscale and three items on the Negative Religious Coping subscale of the Brief RCOPE were not used in analyses. Thus, the hypothesised two-dimensional factor structure was tested using the remaining 10 items. Because the Brief RCOPE was only administered at Time 2, this sample was divided to form development and validation samples. Standardised coefficients and fit statistics for the model tested in the development sample are shown in Figure 12. Appendix Table G1 provides unstandardised factor loadings with their standard errors and  $p$  values, along with item content. The model fit well in the development sample, and also cross-validated to the validation sample (see Appendix Table G2). All item loadings were significant ( $p < .01$ ). Highest-loading items from the Positive Religious Coping subscale were, “Looked for a stronger connection with God” and “Sought God’s love and care”, confirming that this subscale predominantly taps SSG. The highest-loading Negative Religious Coping item was, “Wondered whether God had abandoned me”, confirming that this subscale predominantly taps APA. The latent correlation between the factors was non-significant, indicating an orthogonal factor structure. Although other studies

have reported a positive correlation between the scales, these correlations have been weak (e.g.,  $r = 0.17$ ; Pargament et al., 1998).



*Figure 12.* Brief RCOPE model with standardised coefficients and fit statistics ( $n = 266$ ). Numbers in square boxes correspond to item numbers from the Brief RCOPE (refer to Appendix B for corresponding item content). The correlation between the two factors is dashed to show that it is non-significant (ns). APA = abandoning/punishing appraisals (derived from the Negative Religious Coping subscale of the Brief RCOPE); SSG = seeking support from God (derived from the Positive Religious Coping subscale of the Brief RCOPE); i = item number; e = error term.

## CHAPTER TEN

### Hypothesis Testing



This chapter details results regarding tests of study hypotheses. In order to facilitate interpretation of findings, latent correlations among all study variables are provided in Table 5. ATG-anxiety was significantly correlated in the expected directions with both emotional wellbeing variables, within and across time points. ATG-avoidance was associated with lower positive wellbeing, but was not significantly associated with negative wellbeing. Human attachment styles were correlated in the expected directions with emotional wellbeing variables, although human attachment avoidance was not significantly associated with Time 2 negative wellbeing. Negative events severity ratings and religious coping styles (APA and SSG) generally showed expected relationships with emotional wellbeing. Two demographic variables were significant predictors of independent and dependent variables. Specifically, older age predicted lower ATG-anxiety, negative wellbeing and APA, and female gender predicted lower ATG-avoidance and higher negative events severity and SSG. Gender and age were thus included in models as predictors of relevant independent and dependent variables (in addition to human attachment styles, which were included as predictors in all models). However, they were retained in final models only if their addition altered the significance or size of parameters. If not, they were removed in order to minimise the number of free model parameters. Note that religious commitment was not included as a predictor, given that it is not clear whether religious commitment ‘causes’ ATG or vice versa. Controlling for such variables can cause true relationships between independent and dependent variables to be misclassified as non-significant (W. R. Miller & Thoresen, 2003).

ATG-anxiety and avoidance showed a high degree of stability over time ( $r = .81$  and  $.85$  respectively), as did negative wellbeing ( $r = .70$ ); stability was lower for positive wellbeing ( $r = .48$ ). Paired sample  $t$ -tests were used to examine mean change in ATG and emotional wellbeing variables over time. These tests (and all subsequent  $t$ -tests reported in this study) were conducted using observed scores, formed by summing the scores on indicators comprising each variable. None of the ATG or emotional wellbeing variables showed significant mean change over time ( $p > .01$ ).

Table 5

*Latent Correlations Among Study Variables (N = 504)*

Variable	1	2	3	4	5	6	7	8
Demographic variables and covariates								
1. Gender (female)								
2. Age	-.05							
3. Living outside NZ	.03	-.08						
4. Pentecostal	-.00	-.12	-.10					
5. Evangelical	.03	.02	.00	-.60*				
6. Religious commitment	.02	.22	.03	.02	-.01			
7. HA-avoidance	-.01	-.11	.05	.03	-.03	-.27*		
8. HA-anxiety	.05	-.19*	.02	.02	-.05	-.16*	.13*	
Time 1 independent and dependent variables								
9. ATG-avoidance	-.22*	-.06	-.11	-.06	.03	-.67*	.27*	.11
10. ATG-anxiety	-.02	-.17*	.03	.03	-.07	-.44*	.21*	.39*
11. Positive wellbeing	.04	.09	.00	.06	.03	.41*	-.24*	-.32*
12. Negative wellbeing	.09	-.30*	.05	.04	.00	-.27*	.13*	.47*
Time 2 independent and dependent variables								
13. ATG-avoidance	-.16*	-.10	-.05	.00	.01	-.59*	.27*	.12*
14. ATG-anxiety	.02	-.19*	.04	.09	-.10	-.38*	.13	.33*
15. Positive wellbeing	-.00	.09	-.04	-.03	.01	.28*	-.19*	-.26*
16. Negative wellbeing	.09	-.24*	.03	-.04	.06	-.22*	.10	.39*
17. NES	.13*	-.07	.11	.06	-.04	-.09	.09	.08
18. SSG	.21*	.04	.01	-.01	.04	.54*	-.15*	-.10
19. APA	.06	-.31*	-.02	.04	-.04	-.19*	.13	.37*

Table 5 continued

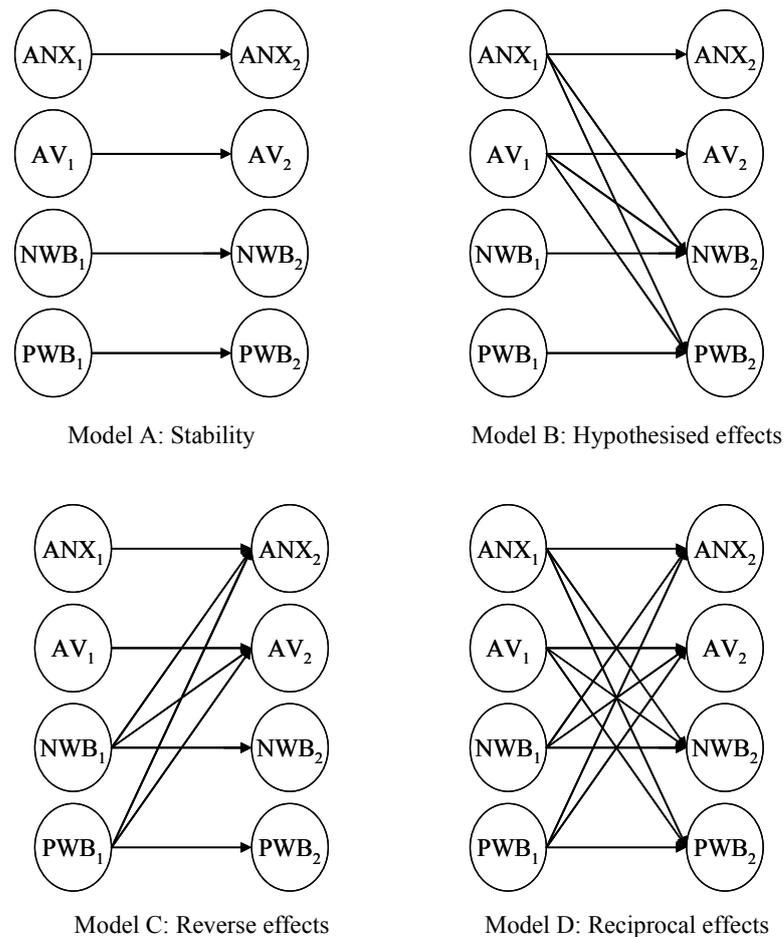
Variable	9	10	11	12	13	14	15	16	17	18
Time 1 independent and dependent variables										
9. ATG-avoidance										
10. ATG-anxiety	.44*									
11. Positive wellbeing	-.36*	-.50*								
12. Negative wellbeing	.12	.41*	-.57*							
Time 2 independent and dependent variables										
13. ATG-avoidance	.85*	.36*	-.33*	.11						
14. ATG-anxiety	.37*	.81*	-.39*	.49*	.44*					
15. Positive wellbeing	-.14	-.37*	.48*	-.48*	-.28*	-.45*				
16. Negative wellbeing	.02	.41*	-.43*	.70*	.10	.48*	-.65*			
17. NES	-.03	.07	-.05	.16*	.01	.14*	-.16*	.22*		
18. SSG	-.64*	-.24*	.28*	-.10	-.71*	-.27*	.24*	-.08	.02	
19. APA	.12	.59*	-.33*	.60*	.16*	.65*	-.33*	.56*	.18*	-.07

Note. *N* is less than the full number of respondents due to missing data. HA = human attachment style; NES = negative events severity; SSG = seeking support from God; APA = abandoning/punishing reappraisals.

\* $p < .01$ .

### **Cross-lagged Relationships Between ATG and Emotional Wellbeing (Hypothesis 1)**

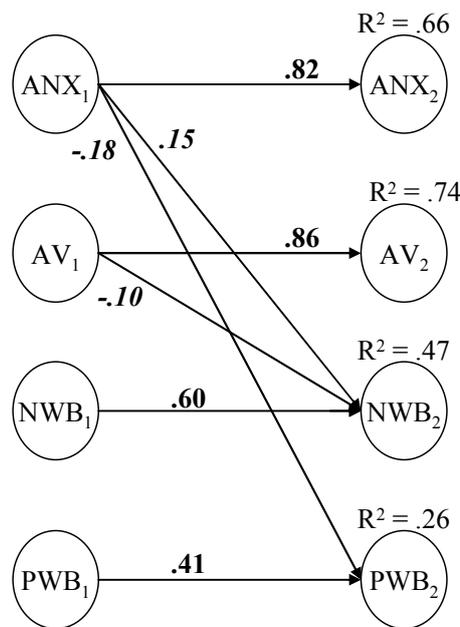
In order to test the hypothesis that ATG influences emotional wellbeing over time, four models representing possible directions of the relationship were compared. These models are depicted in Figure 13. Appendix Figure H1 depicts Model A in detail, to provide an example of how models were specified.



*Figure 13.* Models A to D, depicting possible relationships between ATG and emotional wellbeing. Models are arranged by decreasing levels of parsimony, in accordance with the sequence in which they are tested. Model A, the stability model, depicts only autoregressive paths, with no cross-lagged effects. Model B specifies that baseline ATG variables predict Time 2 emotional wellbeing variables. Model C specifies that baseline emotional wellbeing variables predict Time 2 ATG variables. Model D specifies cross-lagged effects from ATG to emotional wellbeing and vice versa. ANX = ATG-anxiety; AV = ATG-avoidance; NWB = negative wellbeing; PWB = positive wellbeing.

Before comparing Models A to D, Model A was tested for measurement invariance over time. The model showed full metric invariance and partial scalar invariance (Appendix Table H1). All subsequent models tested therefore include time constraints on loadings and invariant intercepts. When Models A to D were compared (see Appendix Table H2), Model D, the reciprocal effects model, was favoured. However, when bootstrapping was used to correct for non-normality in the model, the reverse cross-lagged paths (i.e., paths from baseline emotional wellbeing variables to Time 2 ATG variables) had non-significant bootstrapped *p* values. The only significant

cross-lagged paths were those in the hypothesised direction (from baseline ATG to Time 2 emotional wellbeing). Thus the hypothesised effects model, Model B, was favoured. Figure 14 shows standardised coefficients and fit statistics for this model after deletion of non-significant paths. For simplicity, only key structural paths (i.e., cross-lagged and stability paths) are shown in the figure. Appendix Table H3 provides unstandardised coefficients for these key paths, along with standard errors and *p* values. The full model is depicted in Appendix Figure H2, and shows the effects of human attachment variables. Human attachment styles predicted ATG and emotional wellbeing variables as expected. However, post-hoc analyses (not reported) indicated that these variables did not affect cross-lagged relationships. Specifically, when human attachment variables were removed from the model, key findings were unchanged: Models B remained the favoured model, and cross-lagged paths did not increase in magnitude.



$\chi^2$	<i>df</i>	<i>p</i>	CFI	TLI	RMSEA (90% CI)	SRMR
2,087.21	1164	.000	.92	.92	.04 (.037 - .042)	.06

Figure 14. Standardised coefficients and fit statistics for hypothesised effects model (*N* = 513). All paths are significant at *p* < .05. Cross-lagged coefficients are italicised. ANX = ATG-anxiety; AV = ATG-avoidance; NWB = negative wellbeing; PWB = positive wellbeing; R<sup>2</sup> = squared multiple correlation.

Fit statistics for the model were within appropriate ranges (see Figure 14). Three cross-lagged paths were significant. Specifically, higher baseline ATG-anxiety predicted increased Time 2 negative wellbeing and reduced Time 2 positive wellbeing, controlling for baseline emotional wellbeing and human attachment style. Higher baseline ATG-avoidance predicted reduced Time 2 negative wellbeing, controlling for baseline negative wellbeing and human attachment style. The direction of this effect is opposite to hypothesised, and is also opposite to the raw latent correlations between ATG-avoidance and negative wellbeing (see Table 2). This suggests a negative suppression effect (Tzelgov & Henik, 1991), whereby the direction of the relationship between ATG-avoidance and negative wellbeing changes when the effects of ATG-anxiety on negative wellbeing are taken into account. This was confirmed by exploring cross-sectional relationships between ATG and emotional wellbeing variables using SEM. Specifically, (a) the relationship between ATG-avoidance and negative wellbeing changed from positive to negative after controlling for the effect of ATG-anxiety on negative wellbeing, and (b) the relationship between ATG-anxiety and negative wellbeing increased after controlling for the effect of ATG-avoidance on negative wellbeing. Hence ATG-avoidance acts as a suppressor variable, because it suppresses 'irrelevant' variance in ATG-anxiety, thus increasing the association between ATG-anxiety and negative wellbeing.

Note that Figure 14 (and all subsequent figures) displays squared multiple correlation terms ( $R^2$ ) for Time 2 latent variables. The  $R^2$  term indicates the total proportion of variance in the variable explained by its predictors. For example, 47% of the variance in Time 2 negative wellbeing was explained by predictor variables (Time 1 negative wellbeing, Time 1 ATG variables, and the indirect effects of human attachment style variables).

### **Moderators of Cross-lagged Relationships Between ATG and Emotional Wellbeing (Hypotheses 2 and 3)**

In order to address Hypotheses 2 and 3, the four competing cross-lagged models depicted in Figure 13 were tested in (a) males and females, and (b) low and high negative events groups. The reduced sample sizes in these analyses resulted in ratios of participants to free parameters that fell below the recommended minimum of 5:1. Indeed, ratios were less than 2:1 when the cross-lagged model was tested in males (the smallest group). Given that this may result in low power and reduce the accuracy

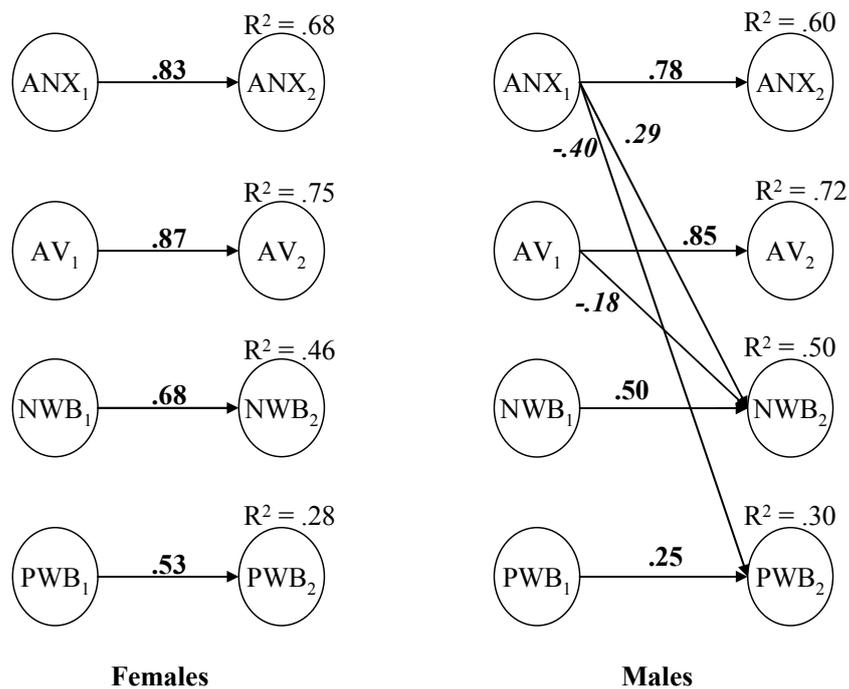
of parameter estimates, analyses were repeated using four smaller models. Each model consisted of a single pair of variables: one ATG variable and one emotional wellbeing variable. The lower complexity of these models improved participant-to-free-parameter ratios, though they were still typically in the range of 3:1 to 5:1. Because these models include only a single pair of variables, relationships do not account for the effects of other variables in the model, and interpretations of these models must take this into account. These models are not used as a basis for testing hypotheses, but rather as a check on the validity of findings from the larger models.

### **Gender moderation (Hypothesis 2)**

To facilitate interpretation of findings, means and standard deviations for ATG and emotional wellbeing variables were calculated for males and females (see Appendix Table I1). The only variable differing significantly between the genders ( $p < .01$ ) was ATGS-avoidance, with males showing a higher mean score.

When Models A to D were tested in each gender, the stability model was favoured in the female subsample and the hypothesised effects model in the male subsample (see Appendix Table I2). These models are depicted in Figure 15 with standardised coefficients and fit statistics. A full depiction of the models is provided in Appendix Figure I1, and additional statistics for key paths are provided in Appendix Table I3.

For females, model fit statistics were within appropriate ranges. CFI and TLI values in the male sample were low; however, the RMSEA and SRMR were within acceptable bounds, and modification indices did not indicate any substantial sources of misspecification in the model. Instead, the poorer fit appeared to be due to a large number of small cross-loadings of indicators onto different factors. Amongst females there was no evidence of causal effects of ATG on emotional wellbeing or vice versa. Amongst males, three cross-lag paths were significant. These paths indicate that higher baseline ATG-anxiety predicted higher Time 2 negative wellbeing and lower Time 2 positive wellbeing, controlling for baseline emotional wellbeing and human attachment style. Conversely, higher baseline ATG-avoidance predicted lower Time 2 negative wellbeing, opposite to the hypothesised direction of the effect.



Gender	$\chi^2$	<i>df</i>	<i>p</i>	CFI	TLI	RMSEA (90% CI)	SRMR
Females	1,817.65	1165	.000	.92	.92	.04 (.037 - .044)	.06
Males	1,711.16	1170	.000	.85	.85	.05 (.047 - .057)	.08

Figure 15. Standardised coefficients and fit statistics for stability model in females ( $n = 341$ ) and hypothesised effects model in males ( $n = 172$ ). All paths are significant at  $p < .05$ . Non-significant paths have been removed. Cross-lagged coefficients are italicised. ANX = ATG-anxiety; AV = ATG-avoidance; NWB = negative wellbeing; PWB = positive wellbeing;  $R^2$  = squared multiple correlation.

Because different models were favoured in each gender, no formal test of structural invariance was conducted. However, in order to ensure that gender differences were not caused by measurement non-invariance, the stability model was tested for metric invariance. Constraining factor loadings to be equal across genders at both time points did not significantly worsen model fit ( $\Delta\chi^2 = 107.24$ ,  $df = 96$ ,  $p = .203$ ;  $\Delta CFI = .001$ ). Thus, the model showed metric invariance across genders.

To check whether the validity of findings was compromised by the low ratio of participants to free parameters, Models A to D were tested in each gender using four smaller models, as described earlier. For females, the stability model was favoured in

all variable pairs. This provides some evidence that the non-significant cross-lagged effects in the full model were unlikely to be due to low power. For males, the model containing ATG-anxiety and positive wellbeing favoured the hypothesised effects (i.e., baseline ATG-anxiety predicted Time 2 positive wellbeing), in support of findings from the full model. However, in the models containing negative wellbeing, neither ATG dimension predicted Time 2 negative wellbeing. This is indicative of a suppressor effect. That is, amongst males, ATG-anxiety and avoidance were only significant predictors of negative wellbeing when their effects were considered simultaneously.

#### *Post-hoc exploration of gender differences*

Exploration of gender differences produced a number of unanticipated findings, including the non-significant effects of ATG on emotional wellbeing in females and the positive effect of ATG-avoidance on emotional wellbeing in males. Gender differences did not appear to be due to the distributions of ATGS-anxiety and avoidance scores. As shown in Appendix Table II, standard deviations of ATGS-anxiety and avoidance scores were similar for females and males. Thus, non-significant effects in females do not appear to be due to restricted variability of scores. Mean ATGS-anxiety scores did not differ significantly between genders, and although mean ATGS-avoidance scores were significantly lower in females ( $M = 16.07$ ) than males ( $M = 18.09$ ), this difference is relatively small when considering the standard deviation and range of scores (7 - 33). In order to aid interpretation of gender differences, post-hoc analyses were used to explore gender differences in (a) cross-sectional relationships between ATG-anxiety and emotional wellbeing, and (b) prospective relationships between human attachment style and emotional wellbeing. These explorations revealed the following:

(a) Cross-sectional relationships between ATG-anxiety and emotional wellbeing, controlling for human attachment style, were significant and in the hypothesised direction for both genders. The magnitudes of these relationships were generally similar for males and females. Appendix Table I4 reports relationships. This table also reveals that the suppressor effect in the relationship between ATG-avoidance and negative wellbeing applies to both genders, but is more prominent amongst males. In males, this results in a significant negative relationship between ATG-avoidance

and negative wellbeing after accounting for the effects ATG-anxiety on emotional wellbeing (similar to cross-lagged findings).

(b) Gender differences were found in the prospective effects of human attachment anxiety on emotional wellbeing. These were similar to gender differences in the effects of ATG-anxiety. In males, baseline human attachment anxiety predicted higher Time 2 negative wellbeing ( $\beta = .18, p = .025$ ) and lower Time 2 positive wellbeing ( $\beta = -.23, p = .003$ ), after accounting for baseline emotional wellbeing. Thus, as with ATG-anxiety, human attachment anxiety predicted elevated negative wellbeing and reduced positive wellbeing at Time 2 amongst males. Prospective effects of human attachment anxiety were non-significant in females, as with ATG-anxiety. Human attachment avoidance had no prospective effect on emotional wellbeing in either gender.

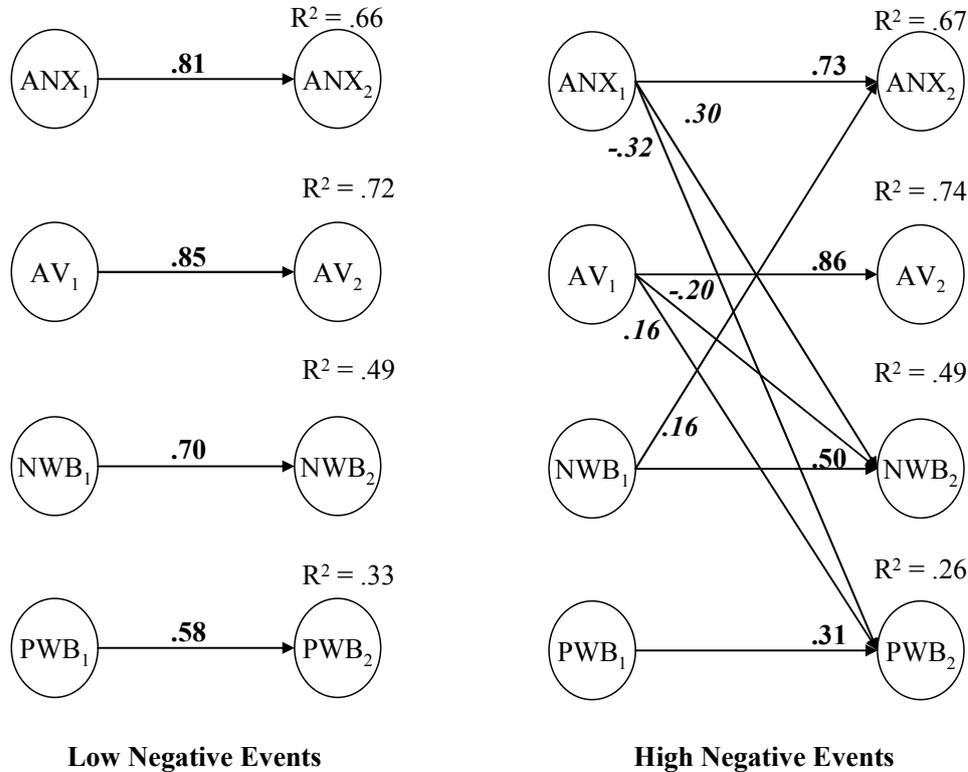
### **Negative events moderation (Hypothesis 3)**

To facilitate interpretation of findings, means and standard deviations for key variables were calculated for the low and high negative events groups (see Appendix Table J1). The high negative events group reported significantly higher negative wellbeing and Time 2 ATGS-anxiety ( $p < .01$ ). When Models A to D were tested, the stability model was favoured in the low negative events group, and the reciprocal effects model in the high negative events group (Appendix Table J2). These models are shown in Figure 16, with standardised coefficients and fit statistics. A full depiction of the models is provided in Appendix Figure J1, and additional statistics for key paths are provided in Appendix Table J3. Model fit statistics were within appropriate ranges for both groups.

No cross-lagged effects were significant in the low negative events group. Five cross-lagged paths were significant in the high negative events group. These paths indicate that in this group:

- i. Higher baseline ATG-anxiety predicted higher negative wellbeing and lower positive wellbeing at Time 2, controlling for baseline emotional wellbeing and human attachment style.
- ii. Higher baseline ATG-avoidance predicted lower negative wellbeing and higher positive wellbeing at Time 2 (opposite to the hypothesised direction of this effect), controlling for baseline emotional wellbeing and human attachment style.

iii. Higher baseline negative wellbeing predicted higher Time 2 ATG-anxiety, controlling for baseline ATG-anxiety and human attachment style (i.e., a ‘reverse’ effect).



Negative events group	$\chi^2$	<i>df</i>	<i>p</i>	CFI	TLI	RMSEA (90% CI)	SRMR
Low	1,815.10	1170	.000	.90	.89	.05 (.042 - .051)	.07
High	1,724.67	1165	.000	.91	.90	.04 (.039-.048)	.07

Figure 16. Standardised coefficients and fit statistics for stability model in low negative events group ( $n = 257$ ) and reciprocal effects model in high negative events group ( $n = 256$ ). All paths are significant at  $p < .05$ . Cross-lagged coefficients are italicised. ANX = ATG-anxiety; AV = ATG-avoidance; NWB = negative wellbeing; PWB = positive wellbeing;  $R^2$  = squared multiple correlation.

Because different models were favoured for each group, no formal test of structural invariance was conducted. However, the stability model was tested for metric invariance. Constraining factor loadings equal across high and low negative events groups did not significantly worsen model fit ( $\Delta\chi^2 = 92.03$ ,  $df = 94$ ,  $p = .538$ ;

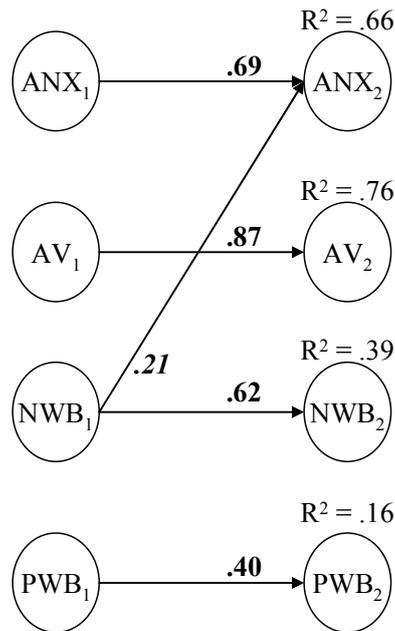
$\Delta\text{CFI} = .000$ ), indicating that group differences were not caused by measurement non-invariance. To check whether the validity of findings was compromised by the low ratio of participants to free parameters, Models A to D were tested in each group using four smaller models. In the low negative events group, the stability model was favoured in all variable pairs, in concordance with the full model. In the high negative events group, relationships between ATG-anxiety and emotional wellbeing variables in the smaller models concurred with those found in the full model. However, no significant relationships were found between ATG-avoidance and emotional wellbeing variables in the smaller models. This suggests a negative suppression effect.<sup>5</sup>

*Post-hoc exploration of gender differences in the moderating impact of negative events*

Previous analyses revealed notable unexpected gender differences in cross-lagged relationships between ATG and emotional wellbeing. Post hoc analyses were used to explore whether gender differences also apply to the moderating impact of negative events. In order to explore this, analyses of high and low negative events groups were repeated using the female sample. The male sample could not be tested due to insufficient sample size. However, a comparison of findings in the female vs. full samples indicates the likely pattern of effects in the male sample. Interest was primarily in the female high negative events group, as it was logical to assume that the stability model would apply to the female low negative events group. (This was confirmed in that the  $\Delta\chi^2$  test favoured Model A for this group.) Comparison of Models A to D for the female high negative events group favoured the ‘reverse effects’ model (see Appendix Table J4). This model is shown in Figure 17. A full depiction of the model is provided in Appendix Figure J2, and additional statistics for key paths are provided in Appendix Table J5. As shown in Figure 17, the only significant cross-lagged path was from baseline negative wellbeing to Time 2 ATG-anxiety. Thus, amongst female members of the high negative events group, higher baseline negative wellbeing predicted higher Time 2 ATG-anxiety, controlling for baseline ATG-anxiety and human attachment style. The same finding resulted when Models A to D were tested using four smaller models.

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<sup>5</sup> Although effects in the high negative events group were similar to those found in the male sample, this was not due to a dominance of males in this group. Both low and high negative events groups were dominated by females, and the proportion of females constituting the high negative events group (72.3%) was even higher than in the low negative events group (61.4% female).



$\chi^2$	<i>df</i>	<i>p</i>	CFI	TLI	RMSEA (90% CI)	SRMR
1,650.01	1168	.000	.89	.89	.05 (.042 - .053)	.08

Figure 17. Standardised coefficients and fit statistics for reverse effects model in female high negative events group ( $n = 184$ ). All paths are significant at  $p < .05$ . Non-significant paths have been deleted. Cross-lagged coefficients are italicised. ANX = ATG-anxiety; AV = ATG-avoidance; NWB = negative wellbeing; PWB = positive wellbeing;  $R^2$  = squared multiple correlation.

A number of findings are indicated when considering analyses in the female high negative events group (Figure 17), together with analyses in the full-sample low and high negative events groups (Figure 16) and previous analyses. These may be summarised as follows:

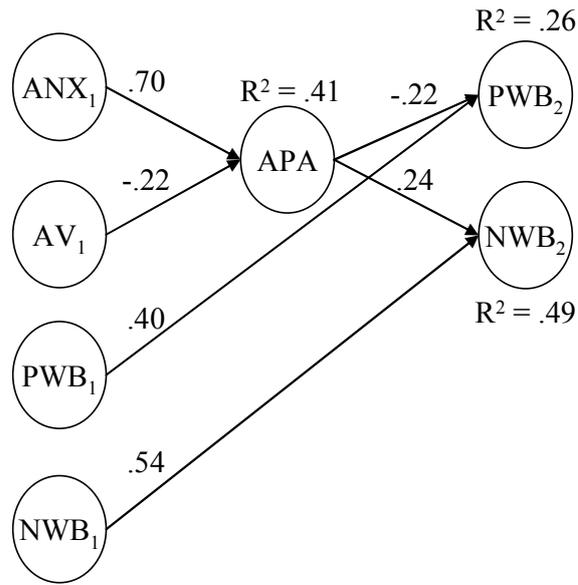
- i. Significant cross-lagged effects of ATG on emotional wellbeing are limited to males. Effects are in the hypothesised direction for ATG-anxiety, and the opposite direction for ATG-avoidance.
- ii. Cross-lagged effects of ATG on emotional wellbeing are weaker, and may be non-significant, amongst males reporting a low (vs. high) level of negative events.
- iii. In the female high negative events group, negative wellbeing has a cross-lagged effect on ATG-anxiety. This effect is weaker or non-existent amongst males.

### **Mechanisms for the Effect of ATG on Emotional Wellbeing: The Role of Negative Events and Coping (Hypotheses 4 and 5)**

Hypotheses 4 and 5 explore potential mechanisms for an effect of ATG on emotional wellbeing. These hypotheses were proposed based on the assumption that ATG-anxiety and avoidance would show predicted effects on emotional wellbeing. Revision is thus necessary in light of previous findings demonstrating that ATG-avoidance does not exhibit hypothesised effects. Indeed, higher ATG-avoidance predicted *better* emotional wellbeing in some analyses. ATG-avoidance is thus unlikely to constitute a risk factor for vulnerability to negative events as was initially hypothesised. Instead, higher ATG-avoidance scores may be associated with positive factors that reduce vulnerability (this is discussed further in the Discussion section). Hypotheses 4 and 5 were revised in light of this. Specifically, with regard to Hypothesis 4, religious coping is hypothesised only to mediate the relationship between ATG-anxiety and emotional wellbeing. A mediation relationship will not be tested with regard to ATG-avoidance. With regard to Hypothesis 5, it can be hypothesised that those with high levels of ATG-anxiety combined with low ATG-avoidance (i.e., preoccupied ATG) are likely to be most vulnerable to the effects of negative events. Those with low levels of ATG-anxiety (secure or dismissing ATG) are likely to be least vulnerable.

#### **Mediation of religious coping (Hypothesis 4)**

A structural equation model was used to test the hypothesis that the relationship between baseline ATG-anxiety and Time 2 emotional wellbeing is mediated by ‘abandoning/punishing appraisals’ (APA), a form of religious coping. ATG-avoidance was included in the model as a predictor of negative wellbeing, given that ATG-avoidance acts as a suppressor in the relationship between ATG-anxiety and negative wellbeing. ATG-avoidance was also included as a predictor of APA, given that ATG-avoidance acts as a suppressor in the relationship between ATG-anxiety and APA (as shown in Appendix Table E5). The final model, after deletion of non-significant paths, is shown in Figure 18, with fit statistics. A full depiction of the model is shown in Appendix Figure K1, and additional statistics for key paths are provided in Appendix Table K1. Note that loadings and intercepts of emotional wellbeing variables were constrained equal over the two time points (these constraints resulted in a non-significant change in model fit:  $\Delta\chi^2 = 13.81$ ,  $df=14$ ,  $p = .464$ ;  $\Delta CFI = .000$ ).



$\chi^2$	<i>df</i>	<i>p</i>	CFI	TLI	RMSEA (90% CI)	SRMR
1,266.75	689	.000	.93	.92	.04 (.037 - .044)	.06

Figure 18. Standardised coefficients and fit statistics for model in which APA mediates the relationship between baseline ATG-anxiety and Time 2 emotional wellbeing, controlling for baseline emotional wellbeing and ATG-avoidance ( $N = 506$ ). All coefficients are significant at  $p < .05$ . ANX = ATG-anxiety; AV = ATG-avoidance; PWB = positive wellbeing; NWB = negative wellbeing; APA = abandoning/punishing appraisals.  $R^2$  = squared multiple correlation.

The model showed adequate fit. Higher baseline ATG-anxiety was associated with higher APA. APA was associated with higher Time 2 negative wellbeing and lower Time 2 positive wellbeing, after accounting for baseline emotional wellbeing and human attachment style. Bootstrapping was used to estimate indirect effects of ATG-anxiety on emotional wellbeing variables (i.e., the effect mediated by APA). ATG-anxiety had a significant indirect effect on positive wellbeing ( $\beta = -.16$ ;  $B = -0.17$ , 95% CI =  $-0.286 - -0.081$ ;  $p = .001$ ), and negative wellbeing ( $\beta = .17$ ;  $B = 0.89$ , 95% CI =  $0.329 - 1.615$ ;  $p = .003$ ). The direct paths from ATG-anxiety to positive and negative wellbeing were non-significant, indicating that APA fully mediated the effects of ATG-anxiety on emotional wellbeing.

### **Moderation of ATG on the effect of negative events (Hypothesis 5)**

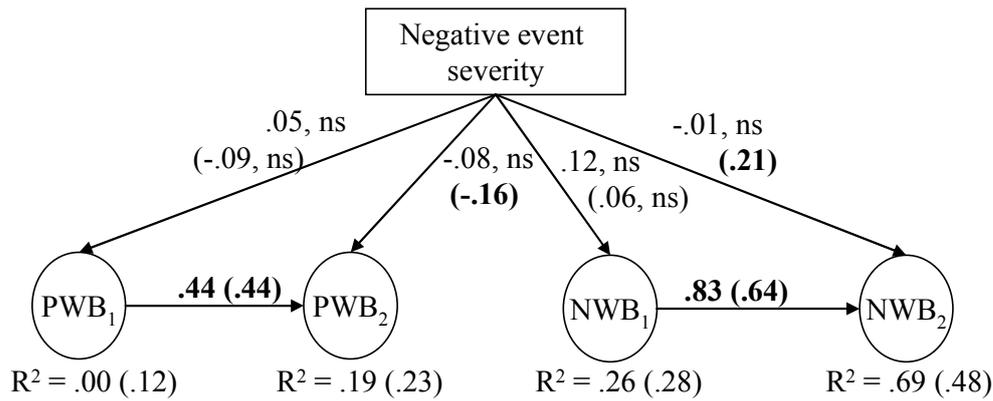
The planned procedure for forming ATG groups (described in the Method) resulted in insufficient sizes in the insecure ATG groups. Specifically, 72.7% of the sample were classified secure ( $n = 384$ ), 4.4% preoccupied ( $n = 23$ ), 12.5% dismissing ( $n = 66$ ) and 2.3% fearful ( $n = 12$ ). It was therefore necessary to use an alternate method to form groups. Although analyses would ideally compare all four ATG groups, it was not possible to split the sample in a meaningful way to allow sufficient  $n$  in all groups. Thus, analyses instead focus on comparing the two groups hypothesised to show the greatest difference in levels of vulnerability to negative events (preoccupied vs. secure/dismissing ATG groups). In order to form approximations of these groups, the sample was firstly split at the median ATGS-anxiety score, with those below the median constituting the secure/dismissing group ( $n = 236$ ). The use of median splits in the formation of ATG groups has been adopted previously (L. B. Cooper et al., 2009). Participants with high ATGS-avoidance scores<sup>6</sup> were then removed from the group scoring above the median on ATGS-anxiety, to form the preoccupied group ( $n = 194$ ).

Means and standard deviations of key variables were calculated for the two groups (Appendix Table L1) to facilitate interpretation of findings. The preoccupied ATG group reported significantly higher mean levels of negative wellbeing and lower levels of positive wellbeing compared with the secure/dismissing group. The groups did not differ in mean negative events severity scores.

A model examining the effects of negative events severity on emotional wellbeing was tested in secure/dismissing and preoccupied ATG groups simultaneously. Measurement invariance testing revealed that some factor loadings were non-invariant across time or groups (see Appendix Table L2). Following the recommendations of Gregorich (2006), the three non-invariant indicators (two positive wellbeing items and the depressive affect indicator of negative wellbeing) were deleted from the model. The model is shown in Figure 19, with fit statistics. Appendix Figure L1 provides the full depiction of the model, and additional statistics for key paths are provided in Appendix Table L3.

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<sup>6</sup> High scores were defined by the same criterion used to form initial ATG groups, that is, an average item score of three or greater. The alternative option to use a median split was not viable as it resulted in an insufficient  $n$  in the preoccupied group.



$\chi^2$	$df$	$p$	CFI	TLI	RMSEA (90% CI)	SRMR
288.46	174	.000	.94	.93	.04 (.031 - .047)	.08

Figure 19. Standardised coefficients and fit statistics for model testing the effects of negative events on emotional wellbeing in secure/dismissing ( $n = 236$ ) and preoccupied ( $n = 194$ ) ATG groups. The model uses only invariant indicators of latent variables. Coefficients for the preoccupied ATG group are in brackets. Coefficients in bold type are significant at  $p < .05$ . ns = non-significant; PWB = positive wellbeing; NWB = negative wellbeing;  $R^2$  = squared multiple correlation.

Negative events severity did not significantly predict emotional wellbeing at Time 1 in either group. In the preoccupied ATG group, higher negative events severity predicted lower Time 2 positive wellbeing and higher Time 2 negative wellbeing, controlling for baseline emotional wellbeing. These effects were not significant in the secure/dismissing ATG group. As shown in Table 6, negative events severity predicted around 5% of the variance in Time 2 emotional wellbeing variables for the preoccupied group and less than 1% of the variance for the secure/dismissing group. Paths from negative events severity to Time 2 emotional wellbeing variables were constrained equal across groups to test the significance of group differences. Constraining the path from negative events severity to Time 2 negative wellbeing resulted in significantly worse model fit ( $\Delta\chi^2 = 7.37$ ,  $df = 1$ ,  $p = .007$ ), indicating that this path differs significantly between the groups. However, constraining the path from negative events severity to Time 2 positive wellbeing resulted in a non-significant change in model fit ( $\Delta\chi^2 = 0.44$ ,  $df = 1$ ,  $p = .506$ ). (Constraining the paths to Time 1 positive and negative wellbeing also resulted in non-significant  $\Delta\chi^2$ .) Thus, only the

effect of negative events severity on Time 2 negative wellbeing differed significantly between groups.

Table 6

*Unique Proportion of Variance in Emotional Wellbeing Variables Accounted for by Negative Events Severity in Secure/Dismissing and Preoccupied ATG Groups*

Variable	Proportion of variance accounted for by negative events severity (%)	
	Secure/dismissing	Preoccupied
	ATG	ATG
Positive wellbeing (T1)	0.26	0.74
Positive wellbeing (T2)	0.37	4.04
Negative wellbeing (T1)	1.51	0.32
Negative wellbeing (T2)	0.83	6.20

*Note.* The model using only invariant items/indicators of emotional wellbeing variables was used to generate these values.

*Post-hoc exploration of the effects of human attachment style*

Participants in the preoccupied ATG group reported higher mean levels of human attachment anxiety compared with the secure/dismissing ATG group. The effects of human attachment style are not fully accounted for in the model shown in Figure 19. This is because it was not possible to specify human attachment style as a predictor of ATG group, given that ATG is not represented within the model. However, testing of the model in Figure 19 in high and low human attachment anxiety groups indicated that human attachment anxiety did not moderate the effect of negative events on Time 2 negative wellbeing. Specifically, constraining the path from negative events severity to Time 2 negative wellbeing to be equal across these two groups did not worsen model fit ( $\Delta\chi^2 = 0.05$ ,  $df = 1$ ,  $p = .818$ ). Thus, there was no evidence that the moderating effects of ATG were accounted for by human attachment anxiety.

*Post-hoc exploration of the effects of deleting non-invariant indicators*

Given that deletion of non-invariant indicators may have altered the nature of the emotional wellbeing constructs to some extent, the model was tested using all

indicators (with no measurement constraints). This model is shown in Appendix Figure L2, along with a discussion of the effects of deleting non-invariant indicators. Paths from negative events severity to Time 2 emotional wellbeing variables were similar in both models, suggesting that overall findings were unlikely to be affected by deleting non-invariant items.

## SECTION V: DISCUSSION

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### CHAPTER ELEVEN

#### Study Findings



##### Introduction and Overview

Researchers have suggested that ATG may have important implications for mental health (Bishop, 2008; Granqvist & Kirkpatrick, 2008; Reinert, 2005). However, few studies have explored the ATG-mental health relationship, and limitations of prior research make it impossible to ascertain the causal direction of the relationship. There has also been little investigation of mechanisms by which ATG might influence mental health. In order to begin to address these issues, the present study explored the prospective relationship between ATG and emotional wellbeing and potential mechanisms for the relationship, using a cross-lagged research design.

Hypotheses of the present study were tested using a convenience sample of 531 adult Christians, predominantly residing in New Zealand. Non-random sampling procedures resulted in a sample that differed somewhat from the New Zealand Christian population (New Zealand Statistics, 2006). Females and younger adults were slightly over-represented, and the denominational composition was weighted in favour of Pentecostal and Evangelical affiliations. New Zealand's largest denominations (Anglican, Catholic and Presbyterian) were under-represented. This likely reflects the greater accessibility of certain groups (e.g., younger adults and Pentecostal/Evangelical denominations) to the researcher. While this may have implications for the generalisation of findings, no published research to date suggests that denomination or age affect the ATG-mental health relationship, and the effect of the gender imbalance was reduced through explicit testing of gender-moderation.

The sample scored within normal ranges on study measures, thereby reducing the likelihood that participants showed anomalous characteristics that would limit the generalisation of findings. Mean levels of ATG-anxiety and avoidance, while low, were similar to those reported in other Christian samples using the same measures of ATG (R. Beck & McDonald, 2004; Joules, 2007; D. F. Reinert, personal

communication, June 02, 2006; Rowatt & Kirkpatrick, 2002)<sup>7</sup>. Low scores are not uncommon in attachment research, with many human attachment studies conducted using samples showing similarly low levels of attachment anxiety and avoidance (e.g., Mallinckrodt & Wei, 2005; Wei et al., 2003; Wei et al., 2006; Wei, Vogel et al., 2005). Furthermore, the low scores in these human attachment studies did not preclude detection of significant and meaningful relationships between human attachment dimensions and mental health. The high level of religious commitment reported by the sample was also similar to other adult Christian samples (E. L. Worthington, Jr. et al., 2003). Mean scores on measures of positive and negative emotional wellbeing were marginally higher in the present study than is typical of community samples, but appeared to be within normal ranges (for comparison data on the CES-D see Radloff, 1977, and Stommel et al., 1993; for the PANAS see Crawford and Henry, 2004; for the Affectometer 2 see Kammann and Flett, 1983b, and Tennant et al., 2007). Mean scores on other key variables (human attachment style, negative events, and religious coping) also appeared to be within normal ranges (for comparison data on human attachment style see Schmitt et al., 2004; for negative events see M. L. Cooper et al., 1992, Ge et al., 1994, Harkness et al., 1999, and Weil et al., 1999; for religious coping see Pargament et al., 1998; Proffitt et al., 2007).

The factor structures of key measures were examined prior to hypothesis-testing. The ATG measure received additional testing in order to select the subset of items that maximised the validity of the final scale. A review of the content validity and psychometric properties of items and the use of confirmatory factor analysis (CFA) allowed strengths and weaknesses of original scale items to be identified. Most items identified as having potentially problematic content validity also performed poorly in the CFA, confirming that their removal would improve scale validity. Removal of these items improved model fit and appears to have overcome a number of limitations of the original measures. In addition to other positive psychometric properties, scores on these subscales showed a high degree of stability (both mean and differential stability) over time, indicating that respondents' levels of ATG-anxiety and avoidance remained relatively stable over the period of the study. This suggests that ATG style may function similarly to human attachment style, as a trait-like variable

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<sup>7</sup> Because the ATG scales were rated on a different Likert scale in the present study, scores were converted to a common metric in order to allow mean comparisons with past studies.

that tends toward stability whilst showing some possibility for change (Davila & Sargent, 2003; Fraley, 2002; Rholes & Simpson, 2004). The high stability levels in the present study suggest that the ATG measure was assessing respondents' general underlying ATG style, as opposed to temporary and fluctuating experiences of ERG, thus allowing more confidence to be placed in the findings of the study.

Emotional wellbeing measures were also modified based on CFA. Analyses indicated that emotional wellbeing was best represented by two factors: negative wellbeing and positive wellbeing. Negative wellbeing was defined using the PANAS-N and two subscales of the CES-D, thus assessing depressive affect, general negative affect, and the somatic symptoms of depression. This is similar to conceptions of 'distress' used in other studies (e.g., G. King, King, Rosenbaum, & Goffin, 1999; B. G. Knight, Silverstein, McCallum, & Fox, 2000). Positive wellbeing was defined using six items from the Affectometer 2 and reflects a state of happiness marked by positive feelings and attitudes toward oneself and one's life.

The study's hypotheses were tested using structural equation modelling, with models showing adequate fit. Although CFI and TLI values were slightly low in a number of models, this may have been due to the multivariate non-normality of the data (West et al., 1995) and the complexity of the models (D. A. Kenny & McCoach, 2003). RMSEA values, which are less biased by model complexity (D. A. Kenny & McCoach, 2003), were generally in the range indicating 'good' fit, and never exceeded the boundary for 'reasonable' fit (Browne & Cudeck, 1993; Hu & Bentler, 1999; MacCallum et al., 1996). SRMR values also implied reasonable model fit (Hu & Bentler, 1999; Vandenberg & Lance, 2000). This increases the degree of confidence that can be placed in study findings.

Study findings provide some support for the hypothesised effect of ATG-anxiety on emotional wellbeing, mechanisms for this effect, and moderation of negative events. Evidence for other hypotheses was not obtained, for example regarding effects of ATG-avoidance on emotional wellbeing, and gender moderation. This chapter discusses study findings, divided into the following subsections: (a) the relationship between ATG-anxiety and emotional wellbeing, including moderating effects, (b) mechanisms for the effect of ATG-anxiety on emotional wellbeing, and (c) the relationship between ATG-avoidance and emotional wellbeing.

### **The Relationship Between ATG-Anxiety and Emotional wellbeing**

Attachment anxiety is characterised by fear and preoccupation concerning rejection or abandonment by one's attachment figures, and distress when they are perceived to be unavailable or unresponsive (Fraley & Shaver, 2000; Wei et al., 2007). Research has established that attachment anxiety in human relationships predicts adverse mental health outcomes (e.g., Hammen et al., 1995; Hankin et al., 2005; J. E. Roberts et al., 1996; J. A. Simpson et al., 2003; Wei, Russell et al., 2005). A relationship with God is believed to function as an attachment bond with psychological effects paralleling those of human attachments (L. B. Cooper et al., 2009; Granqvist & Kirkpatrick, 2008). Thus it was hypothesised that higher levels of ATG-anxiety would have a detrimental impact on emotional wellbeing similar to human attachment anxiety. Findings of the present study provide some support for this hypothesis. Specifically, ATG-anxiety prospectively predicted higher levels of negative wellbeing and lower levels of positive wellbeing, after accounting for baseline emotional wellbeing and human attachment style. However, these effects were found only amongst males, with potential reasons for this discussed later in the chapter.

The significant effect of ATG-anxiety on emotional wellbeing detected in the present study is consistent with past research reporting significant cross-sectional relationships between ATG-anxiety and poorer mental health (Joules, 2007; Kelley, 2003; Reinert, 2005; Rowatt & Kirkpatrick, 2002). The present study extends prior research findings by providing evidence that the relationship may represent a causal effect. The significant cross-sectional relationships reported previously do not provide evidence of causality, given that they may be explained by the effects of other variables, or by a reverse effect of mental health on ATG. The present study helps to overcome these limitations through the use of a cross-lagged research design. Although evidence for causality ultimately requires experimental research, prospective or longitudinal research designs provide the best alternative approach where experimental research is not feasible (Menard, 1991). The use of cross-lagged panel analysis allowed the hypothesised effects of ATG on emotional wellbeing to be explicitly compared with rival explanations for the relationship (e.g., that the effect occurred in the opposite causal direction).

Additionally, the present study is the first prospective study to control for the effects of human attachment style in the ATG-mental health relationship. This was

important given evidence that human attachment style is associated with ATG style (e.g., R. Beck & McDonald, 2004; Reinert, 2005; Rowatt & Kirkpatrick, 2002) and also predicts mental health, thus potentially accounting for the ATG-mental health relationship. Findings of this study indicated that although human attachment style predicted ATG and emotional wellbeing as expected, this variable did not account for the significant cross-lagged effects of ATG-anxiety on emotional wellbeing. This suggests that ATG-anxiety exerts a unique effect on emotional wellbeing, above and beyond the effect of human attachment style. This may be partly because individuals' style of ATG is only moderately correlated with human attachment style. Some individuals will therefore experience a more secure attachment with God than with humans, and their secure ATG may confer mental health benefits that are not provided by their (less secure) human attachment relationships. Others will experience more attachment anxiety in their relationship with God than with humans, and their ATG-anxiety may contribute uniquely to poorer wellbeing. However, even for those whose attachment relationships with God and humans are equally secure, a secure ATG may exert a unique influence on mental health through offering additional benefits that cannot be provided by human attachment relationships (Bennett, 1997; Kaufman, 1981) because of characteristics unique to God (e.g., omnipresence and omnipotence). Similarly, high levels of ATG-anxiety may have a detrimental psychological impact above and beyond human attachment anxiety. For example, a belief in God's omniscience may make perceptions of God's rejection particularly distressing (Pargament, Magyar-Russell et al., 2005), even more so than perceptions of rejection by humans.

Significant cross-lagged effects of ATG-anxiety on emotional wellbeing in the present study also were not accounted for by demographic variables (e.g., age, denomination). Demographic variables showed a negligible impact on parameters in virtually all models tested in the study and were removed to maximise parsimony. Through the use of a cross-lagged research design and statistical control of the effects of demographic variables and human attachment style, the present study provides more rigorous support for the theory that ATG impacts on psychological wellbeing (Bishop, 2008; Granqvist & Kirkpatrick, 2008; Reinert, 2005) than has been previously provided. Attachment anxiety in human relationships is recognised as a risk factor for future psychopathology (Davila & Levy, 2006; M. T. Greenberg et al., 1997; Sroufe,

2005), and findings of the present study suggest that ATG-anxiety may constitute a similar risk factor, at least amongst males.

In contrast with the present study findings, some past studies have reported non-significant cross-sectional (Belavich & Pargament, 2002; H. J. Chen, 2005; Desai, 2006) and prospective (Reinert, 2005) relationships between ATG-anxiety and mental health. Non-significant findings of these studies may have been due to the measures of ATG-anxiety used (some of which received inadequate validation and show potential problems relating to content and psychometric properties), the smaller sample size compared with the present study and/or the specific mental health variables assessed. It is also possible that some studies failed to detect significant effects due to the use of samples heavily dominated by females and/or those experiencing a low level of negative events. Non-significant effects were found in these groups in the present study.

### **Moderating effects of negative events**

The present study provides some support for the hypothesised moderating effects of negative events in the relationship between ATG-anxiety and emotional wellbeing. Prior research has demonstrated that human attachment style exerts a stronger effect on mental health under the presence of negative events (e.g., M. Lewis et al., 1984; Mikulincer et al., 1993; Mikulincer et al., 1999; Solomon et al., 1998). The present study indicates that this moderating effect may also apply with respect to ATG-anxiety, at least amongst males. Specifically, the prospective effect of ATG-anxiety on emotional wellbeing was stronger amongst males experiencing a higher level of negative events, and may in fact have been limited to this group, although this could not be tested directly. No published research has directly tested this moderating effect. However, findings are consistent with past research demonstrating that spiritual variables (T. B. Smith et al., 2003), including those related to ATG (Bickel et al., 1998; Maton, 1989) show stronger relationships with mental health in times of greater stress.

The moderating effect of negative events in the present study suggests that the ATG system may be activated by negative events, as with the human attachment system (Torquati & Vazsonyi, 1999). By activating ATG, negative events may increase the salience of the beliefs and coping strategies that characterise individuals' ATG style, thus strengthening their effects on emotional wellbeing. For example, in

the present study, ATG-anxiety was found to predict higher levels of APA (abandoning/punishing appraisals). Thus, it is likely that at a sufficiently high severity of negative events, those with high ATG-anxiety tend to interpret events as indicating God's abandonment, leading to distress. In contrast, low ATG-anxiety may be associated with positive beliefs and coping strategies which buffer the effects of negative events (as discussed in later sections). Where levels of negative events are low, the negative beliefs and coping strategies characterising high ATG-anxiety are less likely to be activated. This may explain why the effects of ATG-anxiety on emotional wellbeing become more salient as the severity of negative events increases.

### **Moderating effects of gender**

Findings of the present study did not support the hypothesis that the relationship between ATG-anxiety and emotional wellbeing would be stronger in females compared with males. Indeed, ATG-anxiety showed no prospective effect on emotional wellbeing amongst females. Although no published research has examined gender differences in the relationship between ATG and mental health, several studies have reported that the experience of a close relationship with God (akin to secure ATG) has a stronger effect on the mental health of females compared with males (Desrosiers & Miller, 2007; Ellison & Fan, 2008; Perez et al., 2009). One possible reason for the discrepancy between these findings and that of the present study may relate to the nature of the spiritual variable measured. ATG-anxiety differs somewhat from one's general experience of closeness to God, in that it relates more specifically to a fears of God's rejection. However, ATG-avoidance, which is more related to closeness to God, also showed no impact on emotional wellbeing amongst females in the present study. Also, one previous study found that closeness to God predicted self-esteem amongst males but not females (Dickie et al., 2006), more similar to findings of the present study. To date, the number of studies examining gender differences in the relationship between ERG and mental health is too small, and their findings too mixed, to permit conclusions to be drawn. Also, most studies to date have been cross-sectional. In the present study, the unanticipated pattern of gender differences was clearest in prospective analyses; cross-sectional relationships showed few gender differences. Thus, in order to form stronger conclusions regarding gender differences in the relationship between ATG (or other spiritual variables) and mental health, it is important that future studies considering these effects are prospective in nature.

The gender differences found in the present study also stand in contrast with findings from the field of human attachment. A number of studies have reported a stronger relationship between human attachment style and mental health amongst females compared with males (e.g., M. L. Cooper et al., 1998; M. E. Kenny & Donaldson, 1991; Rice & Whaley, 1994; Riggs & Jacobvitz, 2002). Although other studies have failed to detect gender differences (e.g., Difilippo & Overholser, 2002; Lapsley et al., 2000; Overbeek et al., 2004; Sund & Wichstrom, 2002; Wei et al., 2003), no studies appear to have reported either (a) a non-significant relationship between attachment and mental health specifically amongst women, or (b) a stronger relationship amongst men compared with women. Interestingly, the anomalous gender differences found with respect to ATG-anxiety in the present study also applied to human attachment anxiety. That is, human attachment anxiety also showed a prospective effect on emotional wellbeing amongst males only. Amongst female participants, both ATG-anxiety and human attachment anxiety showed hypothesised cross-sectional relationships with emotional wellbeing, but no prospective effects.

There are a number of possible explanations for these findings. Firstly, it is possible that the significant cross-sectional relationships between ATG-anxiety and emotional wellbeing in females *do* reflect a causal effect of ATG-anxiety, which was not detected over the time interval of the present study. For example, if females' ATG-anxiety has a slow-acting effect on their emotional wellbeing, a prospective relationship may only be detected in studies spanning a longer time period. (This may also apply with respect to human attachment anxiety.) Although there is no clear reason why the effect period should differ amongst women and men, this possibility cannot be ruled out without explicit testing.

Secondly, it is possible that females' ratings of ATG-anxiety (and human attachment anxiety) were more influenced by their mood at the time of completing the questionnaire compared with males. If this were the case, females' scores would not have reflected their genuine ATG-anxiety levels as accurately as males' scores. This would inflate cross-sectional correlations between emotional wellbeing and ATG-anxiety, while reducing the likelihood of detecting a prospective relationship. However, if this explanation were correct, it is likely that females' ATG-anxiety scores would have been less stable over time compared with males', whereas in fact, females' ATG-anxiety levels showed a high degree of stability ( $r = 0.83$ ), exceeding the stability in males ( $r = 0.77$ ).

Thirdly, it is possible that ATG-anxiety genuinely had no effect on emotional wellbeing amongst female participants, and that the significant cross-sectional relationships were accounted for by variables not included in the model. (NB: in the case of negative wellbeing, the cross-sectional relationship may also be due to the reverse effect of negative wellbeing on ATG-anxiety.) If so, this would suggest that female participants may have possessed certain ‘protective’ factors that buffered the effects of ATG-anxiety on their emotional wellbeing, which were not possessed by male participants. This may likewise account for the non-significant prospective effects of human attachment anxiety. One potential protective factor relates to the greater sense of connectedness to others and higher levels of social support frequently reported by females in comparison with males (e.g., Townsend & McWhirter, 2005; Umberson, Chen, House, Hopkins, & Slaten, 1996). This gender difference may be even more salient amongst religious women, given that religious females report receiving higher levels of social support from their religious community than do males (Heaven & Ciarrochi, 2007; Hintikka et al., 2000; Mirola, 1999; Ozorak, 1996). Thus, it is possible that females in the present sample had a greater number of supportive human relationships from which to derive their sense of self-worth and wellbeing compared to male participants. These relationships may also provide females with more available outlets to disclose their fears and preoccupations regarding God’s love for them, and to receive reassurance. In these ways, women’s intimate human relationships may serve to buffer harmful effects of ATG-anxiety.

In a similar vein, female participants’ relationship with God may also buffer the effects of human attachment anxiety. Although human attachment anxiety and ATG-anxiety are correlated, the magnitude of the relationship was only moderate in the present sample, and overall levels of ATG-anxiety were low. As a result, many female participants with high levels of human attachment anxiety are still likely to experience a secure ATG that may help to buffer the effects of their human attachment anxiety. This buffering effect may be stronger amongst females given that they tend to experience a closer and more supportive relationship with God compared with males (Francis, 1997). In the present study for example, female participants reported lower levels of ATG-avoidance, a greater tendency to seek support from God during negative events and a greater experience of their relationship with God as a source of peace, compared with male participants. Thus it may be that both human relationships and a relationship with God provide a greater resource for self-esteem and support for

females, and that these relationships tend to compensate for and buffer each other. By possessing a wider range of relational sources from which to derive wellbeing, the unique influence of any individual relationship (whether with a human or God) may be weakened. This may account for the non-significant effects of both ATG-anxiety and human attachment anxiety on the wellbeing of females in the present study. However, it should be recognised that this potential explanation and those preceding are purely speculative, requiring further investigation.

*Magnitude of the effect of ATG-anxiety on emotional wellbeing amongst males*

Although it was not possible to determine what proportion of variance in emotional wellbeing was accounted for by ATG-anxiety (as discussed in the Method section), a number of factors indicate that the effect sizes in males were of a meaningful magnitude. Firstly, an approximation of effect size can be gained by considering the total proportion of variance in each dependent variable explained by the set of predictors, in conjunction with the relative sizes of standardised regression coefficients of predictors (Pedhazur, 1997). In the model tested in males, 30% of the variance in Time 2 positive wellbeing and 50% of the variance in Time 2 negative wellbeing was explained by the predictors (Time 1 ATG, emotional wellbeing and human attachment style). According to J. Cohen's (1992) convention, these  $R^2$  values constitute 'large effects' <sup>8</sup>. In the model tested in males, the cross-lagged coefficients from baseline ATG-anxiety to Time 2 emotional wellbeing variables were of a similar magnitude to the emotional wellbeing stability coefficients. In fact, the coefficient from ATG-anxiety to Time 2 positive wellbeing exceeded the magnitude of the positive wellbeing stability coefficient. This suggests that the degree of change in positive wellbeing may have been more strongly influenced by baseline ATG-anxiety than baseline positive wellbeing (although comparisons between standardised coefficients are only approximations, given that these values are influenced by the variability of the predictors). In contrast, cross-lagged studies of human attachment style and emotional wellbeing have typically reported lower effects of attachment-anxiety in comparison with emotional wellbeing stability coefficients (Buist et al., 2004; Hankin et al., 2005). In addition, the standardised coefficients from human

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<sup>8</sup>  $R^2$  values were fairly consistent across all cross-lagged models, although somewhat lower in the female high negative events group.

attachment style to emotional wellbeing in these studies (Buist et al., 2004; Hankin et al., 2005) were typically lower than those in the male sample in the present study.

Further information regarding the magnitude of effects of ATG-anxiety amongst males in the present study was gained by comparing models in which emotional wellbeing was predicted separately by human attachment styles and ATG styles (additional analyses, not reported). The stronger effect of ATG-anxiety was indicated by (a) the larger percentage of variance in Time 2 emotional wellbeing variables explained in the ATG model, and (b) the higher regression coefficients from ATG-anxiety to emotional wellbeing variables compared with coefficients from human attachment anxiety to emotional wellbeing. Overall then, there is some indication that the effects of ATG-anxiety found in the male sample may be of a magnitude at least similar to the effects of human attachment, a variable viewed as having a ‘meaningful’ effect on mental health.

#### *Effects of emotional wellbeing on ATG-anxiety amongst women*

Amongst women in the ‘high negative events’ group in the present study, higher baseline levels of negative wellbeing predicted an elevation in ATG-anxiety over time. The possibility that ATG may be influenced by mental health has never been tested or even explicitly discussed. This issue has also received little attention in the human attachment literature. However, the finding is consistent with two prior studies reporting that poorer mental health predicted negative changes in human attachment style (Buist et al., 2004; Hankin et al., 2005). The finding also supports previous researchers’ discussion of the potential for mental health problems to cause people to question God’s love and care, and to feel condemned by God (Holden & Watts, 1991; Koenig, 2005; Moriarty, 2006; Pfeifer, 1994, 1996). Poor emotional wellbeing (e.g., depression, anxiety) is typically accompanied by negatively biased perceptions of oneself and others, expectations of rejection, and a decline in satisfaction with close relationships (Carnelley, Pietromonaco, & Jaffe, 1994; Hankin et al., 2005). The present study suggests that for Christians, these negative perceptions may extend to perceptions of oneself in relation to God (e.g., doubting one’s lovability in God’s eyes) and of God himself (e.g., as rejecting or untrustworthy), reflected in increased ATG-anxiety.

In the present study, negative wellbeing led to an increase in ATG-anxiety only in the high negative events group. This may reflect a ‘stress-diathesis’ effect.

Specifically, negative wellbeing may be associated with a vulnerability (i.e., diathesis) to maladaptive religious schemata/perceptions (e.g., negative views of God). These perceptions may become activated when negative events (the stressor) are sufficiently severe. The possibility that negative events may activate doubts regarding God's love and supportiveness has been suggested previously (Bjorck & Thurman, 2007; Cook & Wimberley, 1983; Fallot, 1997). Such events may even be interpreted as 'proof' that one is unworthy of God's care, given that he allowed the event to occur. Qualitative and quantitative research suggests the potential for negative events to cause declines in personal faith and spirituality (Y. Y. Chen & Koenig, 2006; Fontana & Rosenheck, 2004; Ingersoll-Dayton et al., 2002; Lawton & Bures, 2001), including a deterioration in people's relationship with God (Exline et al., 1999; T. A. Hall, 1995; Kane, Cheston, & Greer, 1993; Mako et al., 2006; Pritt, 1998). One study has specifically explored the relationship between a form of negative event (childhood mistreatment) and ATG (Reinert & Edwards, 2009). As predicted, higher reports of childhood mistreatment were linked with more insecure ATG. Conversely, it should also be recognised that many people report *positive* changes in their relationship with God and spirituality as a result of negative events (e.g., S. L. Brown, Nesse et al., 2004; B. S. Cole, Hopkins, Tisak, Steel, & Carr, 2008; Granqvist, 1998; Griffith, 1999; Kirov et al., 1998; McMillen & Fisher, 1998; J. A. Roberts, Brown, Elkins, & Larson, 1997; Shaw, Joseph, & Linley, 2005; T. Weiss, 2004). Perhaps individuals' baseline level of emotional wellbeing represents one factor that influences whether negative events lead to negative or positive changes in their relationship with God.

The pattern of findings in the present study suggests that the effect of negative wellbeing on ATG-anxiety was significant only amongst females, or at least weaker amongst males. One possible explanation for this relates to gender differences in the experience of negative wellbeing. Females tend to respond to depression/distress with more rumination than males, devoting more attention to the potential meaning of negative emotions and negative events (Butler & Nolen-Hoeksema, 1994; Nolen-Hoeksema, Larson, & Grayson, 1999), often feeling guilty and questioning their self-worth as a result (Hankin & Abramson, 2001; L. Miller et al., 2002). For religious females these tendencies may be manifested in spiritual forms, for example, in experiencing 'spiritual guilt' and feelings of alienation from God (L. Miller et al., 2002). Females may thus be more likely to form personalised religious interpretations of distressing emotions and events, for example inferring that God no longer cares

about their needs, potentially increasing ATG-anxiety. Additionally, research suggests that Christian women may have more negative experiences when they seek help from the church for mental health problems, and that these experiences can lead to a weakening or abandonment of their faith (Stanford, 2007). It is possible that these negative experiences may also generate feelings of abandonment by God. Stanford's findings also indicated that Christian women were more likely than men to view their mental illness as a result of spiritual failure (e.g., sin, weak faith). Such beliefs are likely to promote feelings of guilt and unworthiness (Heggen & Long, 1991), potentially increasing ATG-anxiety.

### **Mechanisms for the Effect of ATG-Anxiety on Emotional Wellbeing**

One of the key mechanisms by which human attachment style is believed to influence mental health is through influencing the ways in which individuals respond to and cope with negative events (Mikulincer & Florian, 1995; Mikulincer et al., 1993). Empirical support for this proposition comes from two sets of findings: (1) studies demonstrating that the influence of attachment style on mental health is mediated by the ways in which people cope with negative events (e.g., Berant et al., 2001; Lopez et al., 2001; Merlo & Lakey, 2007; Wei et al., 2006); (2) studies demonstrating that attachment style moderates the effects of negative events on mental health (e.g., Birnbaum et al., 1997; Kraaij et al., 2003; Salo et al., 2005; Sroufe et al., 2005). ATG is likewise believed to influence mental health through influencing the ways in which people interpret and respond to negative events (Belavich & Pargament, 2002; L. B. Cooper et al., 2009; Proctor et al., 2009). However, this issue had received little prior research attention. Two hypotheses were tested in order to investigate this possibility, following the approach of human attachment research. These hypotheses specified that: (a) the relationship between ATG style and emotional wellbeing would be mediated by religious coping style, and (b) ATG style would moderate the impact of negative events on mental health. Some support was found for both hypotheses, as is now discussed.

### **The mediating role of religious coping**

ATG styles are thought to influence the ways in which religious individuals draw on their faith in coping with negative events (Belavich & Pargament, 2002; L. B. Cooper et al., 2009; Proctor et al., 2009). Two religious coping styles particularly

relevant to ATG are seeking support from God (SSG) and appraising events as reflecting God's abandonment/punishment (APA). Key characteristics of ATG styles suggest that ATG-avoidance should be associated with lower SSG, while ATG-anxiety should be associated with higher APA. These predictions were confirmed in the present study, consistent with prior ATG research (e.g., Belavich & Pargament, 2002; L. B. Cooper et al., 2009; Kelley, 2003). These relationships show parallels with human attachment styles, wherein attachment anxiety is associated with interpreting negative events as a sign of rejection or unlovability (Fuendeling, 1998; Shirk et al., 2005) and attachment avoidance predicts lower support-seeking in times of adversity (Egeland & Carlson, 2004; Fuendeling, 1998; Lopez & Brennan, 2000; Mikulincer et al., 2003).

The present study also found that APA and SSG were significantly associated with emotional wellbeing, consistent with past research (e.g., Bjorck & Thurman, 2007; Boscaglia et al., 2005; Fitchett et al., 2004; S. K. Harris, Sherritt et al., 2008; McConnell et al., 2006; Witvliet et al., 2004). Thus, the pattern of correlations between ATG, religious coping and emotional wellbeing variables in the present study was consistent with the hypotheses that (a) APA would mediate the relationship between ATG-anxiety and emotional wellbeing and (b) SSG would mediate the relationship between ATG-avoidance and emotional wellbeing. However, the latter hypothesis was not supported in the present study, given that ATG-avoidance did not show the hypothesised effect on emotional wellbeing. Consequently, only the model relating to ATG-anxiety was tested. No published research has tested this model.

Findings of the present study indicated that APA fully mediated the prospective relationship between baseline ATG-anxiety and Time 2 positive and negative emotional wellbeing. This suggests that one way by which ATG-anxiety may reduce emotional wellbeing is through predisposing individuals to appraise negative events as reflecting God's abandonment/punishment. These appraisals are likely to become a source of distress, and may erode self-esteem and promote negative expectations of the outcomes of the events (Edmondson et al., 2008). It is important to note that full mediation does not necessarily imply that this is the sole mechanism through which ATG-anxiety affects emotional wellbeing. It is possible to have a number of variables fully mediate the relationship between an independent and a dependent variable. For example, the relationship between human attachment anxiety and mental health has been found to be fully mediated by a range of variables including perceived coping

(Wei et al., 2003), maladaptive perfectionism and ineffective coping (Wei et al., 2006), self-esteem (Hankin et al., 2005), social self-efficacy and loneliness (Wei, Russell et al., 2005), and emotional reactivity (Wei, Vogel et al., 2005). It is likely that the effect of ATG-anxiety on emotional wellbeing also occurs via a range of mechanisms. For example, the effect of ATG on psychological adjustment has been found to be mediated by intrinsic religiosity (Miner, 2009). Other possible mediators noted earlier in the literature review include self-esteem and functioning in human relationships.

It is also possible that the full mediation of APA in the present study may be due to the high correlation between APA and ATG-anxiety. Indeed, the strength of this relationship suggests that APA may potentially represent a facet of ATG-anxiety, as opposed to a truly distinct coping variable. APA items (derived from the Negative Religious Coping subscale of the Brief RCOPE) emphasise a sense of abandonment, rejection or punishment by God, all of which are key facets of ATG-anxiety. Thus APA may potentially be conceptualised as an expression/manifestation of ATG-anxiety in times of adversity.

Findings of the mediation model should not be viewed as ‘proof’ of the causal sequence suggested. It is possible that negative wellbeing influences APA levels, or that respondents’ recall of APA (measured at Time 2) was biased by their level of emotional wellbeing at the time of completing the items. These possibilities would spuriously inflate the correlation between APA and Time 2 emotional wellbeing. Past studies have been inconclusive as to the causal direction of the relationship between APA and mental health, although the most recent study (Sherman et al., 2009) provided evidence in support of a causal effect of APA on depression as opposed to the reverse effect. Resolving this issue and verifying the mediating role of APA in the relationship between ATG and emotional wellbeing will ultimately require a study in which ATG, APA and emotional wellbeing are each measured at multiple time points. This will allow determination of which variables influence changes in other variables over time. Future studies should also investigate the relationship separately in males and females. Given that ATG-anxiety showed no significant effect on emotional wellbeing in females in the present study, the findings regarding mediation of APA logically apply only to males. This was not tested given that the male sample was too small to permit bootstrapping, which was necessary for determining the significance of mediation effects.

### **ATG as a moderator of the effect of negative events on emotional wellbeing**

Research indicates that human attachment style moderates the effects of negative events on mental health, with secure attachment increasing resilience and insecure attachment increasing vulnerability (Birnbaum et al., 1997; Hammen et al., 1995; Kraaij et al., 2003; Mikulincer & Florian, 1998; Salo et al., 2005; Toth & Cicchetti, 1996). Given that ATG is thought to have psychological functions and effects similar to those of human attachment style, it was hypothesised that ATG style would similarly moderate the effects of negative events. Some support for this hypothesis was found when comparing participants exhibiting high ATG-anxiety combined with low ATG-avoidance (akin to preoccupied ATG) with those exhibiting low levels of ATG-anxiety (secure or dismissing ATG). In these analyses, negative events severity predicted increased Time 2 negative wellbeing in the preoccupied ATG group, but not the secure/dismissing ATG group. The magnitude of effects differed significantly between the two groups. This difference did not appear to be accounted for by human attachment anxiety, which did not show a moderating effect on that model path.

These findings differ from past studies examining ATG and related constructs, which have typically found no evidence for a moderating effect (Bishop, 2008; Ellison, 1991; Ellison & Fan, 2008; Fabricatore et al., 2004). One possible reason for the discrepancy relates to the constructs measured. Past research has tested moderating effects using measures of secure ATG or similar constructs, and did not distinguish between different forms of insecure ATG. This may have obscured important differences between insecure ATG groups. It may be that the moderating effect of ATG is less related to secure vs. insecure ATG per se, and more related to levels of ATG-anxiety. Similarly, ATG-anxiety may be associated with greater vulnerability to negative events than ATG-avoidance. The latter point may be partly due to problems with measurement of ATG-avoidance in the present study (discussed later). However, this possibility has also been raised in the human attachment literature (Fraleigh & Bonanno, 2004; J. A. Simpson et al., 2003), and it seems advisable that studies testing the moderating effect of ATG examine different forms of insecure ATG separately.

Although the present study provides some evidence for a moderating effect of ATG-anxiety, it should be noted that this effect was found only with respect to Time 2 negative wellbeing. The hypothesised pattern of group differences was also apparent

with regard to the effect of negative events on Time 2 positive wellbeing, but these differences were not statistically significant. Negative events showed no effect on baseline emotional wellbeing in either group. This may potentially reflect a recall bias effect. Specifically, the relationship between negative events and Time 2 emotional wellbeing may have been inflated if respondents' emotional wellbeing influenced their recall of negative events. However, an equally plausible explanation relates to the time frame over which negative events were reported. Given that respondents reported negative events experienced over the past 12 months, not all of these events would have taken place before baseline ratings of emotional wellbeing. Thus, whereas the full set of negative events was able to influence respondents' Time 2 emotional wellbeing, only a subset would have influenced baseline emotional wellbeing. This may restrict the relationship between negative events and baseline emotional wellbeing. If the effects of negative events on emotional wellbeing were cumulative or delayed, this would further increase the difference between effects at Times 1 and 2.

Previous findings of the present study indicate that the effect of ATG-anxiety on emotional wellbeing is mediated by APA. This suggests that the heightened impact of negative events in the preoccupied ATG group may have been due to their higher levels of APA. However, it should be noted that the impact of negative events in the preoccupied ATG group was not particularly strong. In community samples, correlations between negative events and emotional wellbeing typically range from .15 to .40 (e.g., Ash & Huebner, 2001; Kraaij, Arensman, & Spinhoven, 2002; Rafnsson, Jonsson, & Windle, 2006; Seiffge-Krenke, 2000; Suh, Diener, & Fujita, 1996). Effects in the preoccupied group were well within these 'normal' bounds. In contrast, the non-significant effects in the secure/dismissing group seem more noteworthy, particularly given that this group experienced a similar severity of negative events to the preoccupied ATG group. The level of negative events reported was also within the normal range reported by community samples (e.g., M. L. Cooper et al., 1992). Thus, study findings provide stronger evidence for a buffering effect of low ATG-anxiety than a vulnerability effect of preoccupied ATG. However, this may be due to the way in which the preoccupied ATG group was defined. In order to maintain sufficient sample sizes, a median split was used to differentiate high and low ATG-anxiety. The split point reflected a low level of ATG-anxiety. As a result, some members of the preoccupied group exhibited relatively low ATG-anxiety, unlikely to reflect genuine preoccupied attachment. Thus, the true 'vulnerability' effect of preoccupied ATG may

not have been adequately detected in the present study. This may also account for the non-significant moderation effect with respect to Time 2 positive wellbeing. That is, the group difference may have been statistically significant if the preoccupied group contained more respondents with genuinely high ATG-anxiety.

In order to determine why low ATG-anxiety might buffer the effects of negative events on emotional wellbeing, it is important to understand what this variable represents. Essentially, the very low levels of ATG-anxiety reported by the secure/dismissing group indicate that these participants are not preoccupied with concerns regarding God's love, acceptance or responsiveness to their needs. A small proportion of this group ( $N = 27$ , 11.5%) also reported high ATG-avoidance (i.e., reflecting dismissing ATG). For such participants, the absence of concerns regarding God's love and responsiveness may reflect a general disregard for their relationship with God. For the majority of the group however, low ATG-anxiety may reflect a relationship with God that is experienced as a source of acceptance and love, providing a safe haven and secure base. Reflecting this, the majority of respondents in this group described their relationship with God as providing 'a great deal' of happiness and peace. Such experiences may buffer the effects of negative events in and of themselves. A sense of God's love and care may also buffer the effects of negative events through promoting more positive coping appraisals, such as the belief that God is ultimately in control and will not allow anything to happen that the individual cannot handle, and that God will use the event to bring about good (e.g., Granqvist, 1998; Owen, 2005; Rosmarin et al., 2009). Such appraisals may enhance wellbeing in difficult times, as indicated by qualitative research (Fallot, 1997; Feher & Maly, 1999). Those with low ATG-anxiety may also derive a sense of support from their relationship with God during negative events (L. B. Cooper et al., 2009), which may provide significant emotional benefits (E. F. Bussema & Bussema, 2007; Cutland, 2000; Fallot, 1997; Feher & Maly, 1999).

It should be noted that the model used to test the effects of negative events on emotional wellbeing did not include the full set of emotional wellbeing indicators. This was because several indicators showed non-invariant factor loadings over time or across groups (i.e., metric non-invariance). There are no clear explanations for why items were interpreted differently at the two time points and amongst members of the two groups, particularly given that loadings were invariant in other models. It is possible that the  $\Delta\chi^2$  test was overly sensitive, given that  $\Delta\text{CFI}$  did not exceed the

recommended cut-off for non-invariance. As yet there are no clear guidelines regarding what sample sizes can lead to inaccurate  $\Delta\chi^2$  testing, and  $\Delta\text{CFI}$  criteria require testing in a wider range of sample sizes and model complexities in order to determine their accuracy. This may similarly explain the scalar non-invariance found in a number of models tested across groups in the study. The issue of scalar non-invariance may need to be considered in future studies, particularly where differences in means of latent variables are being estimated. Items showing scalar non-invariance across groups should not be included when making mean comparisons (Maitland, Dixon, Hultsch, & Hertzog, 2001). Given that this was not a focus of the present study the scalar non-invariance did not pose a problem. However, the metric non-invariance in the moderation analysis was problematic, and required deletion of non-invariant indicators. As a result, the nature of the emotional wellbeing constructs was altered somewhat. However, a comparison of findings with the full-indicator model suggested that this is unlikely to have affected overall conclusions of the analysis.

Overall, analyses of the present study provide some indication that ATG may moderate the effect of negative events on emotional wellbeing, with low ATG-anxiety buffering the effects of negative events. It is likely that buffering effects would have been stronger in (or limited to) males, given that the effects of ATG-anxiety on emotional wellbeing were limited to males in the present study. Sample sizes in the present study were not adequate to test this possibility.

### **The Relationship Between ATG-Avoidance and Emotional Wellbeing**

Attachment avoidance is characterised by discomfort with, and a tendency to avoid, interpersonal dependency and intimacy (Brennan et al., 1998; Fraley & Shaver, 2000; Lopez et al., 2002; Wei et al., 2007). A number of studies have reported that human attachment avoidance prospectively predicts poorer mental health outcomes (e.g., Berant et al., 2001; Hammen et al., 1995; Hankin et al., 2005; J. E. Roberts et al., 1996), although non-significant effects have also been reported (e.g., J. A. Simpson et al., 2003; Wei, Russell et al., 2005). Findings of the present study did not support the hypothesis that ATG-avoidance would predict poorer emotional wellbeing. Instead, ATG-avoidance showed no prospective effect on emotional wellbeing amongst females and predicted *better* emotional wellbeing in males, both in cross-sectional and prospective analyses. It should be noted that the positive effects of ATG-avoidance were found only when the effect of ATG-anxiety on emotional wellbeing was taken

into account. Nonetheless, no prior human attachment or ATG studies have reported that attachment avoidance is associated with better mental health, even when accounting for the effects of attachment anxiety. Prior ATG research has reported either non-significant cross-sectional relationships between ATG-avoidance and mental health (e.g., Belavich & Pargament, 2002; H. J. Chen, 2005; Joules, 2007), or that ATG-avoidance is associated with poorer mental health (e.g., Desai, 2006; Kelley, 2003; Reinert, 2005). The only studies to have tested this relationship prospectively, controlling for baseline mental health, reported non-significant effects of ATG-avoidance (Desai, 2006; Reinert, 2005). Overall therefore, there is no evidence to date that ATG-avoidance constitutes a risk factor for poorer mental health. Instead, the present study raises the possibility that, amongst males, ATG-avoidance may constitute a protective factor, promoting better emotional wellbeing.

It is important to note that *human* attachment avoidance did not predict better emotional wellbeing amongst males in the present sample. This may suggest that a close and dependent relationship with God, but not with human attachment figures, is detrimental to the wellbeing of males. If this were the case, then avoiding intimacy with/dependence on God would logically serve a protective function. However, this seems an unlikely explanation given that the vast majority of males in the present sample described a positive relationship with God. For example, almost all males reported that their relationship with God was a source of peace (99%) and happiness (97%). Most also reported that their relationship with God was ‘not at all’ a source of distress (65%) or sadness (70%), and 71% reported experiencing “a warm relationship with God”. Additionally, previous research in a male-only sample (Reinert, 2005) found that ATG-avoidance was associated cross-sectionally with better mental health, with a non-significant prospective relationship. Thus no clear evidence suggests that ATG-avoidance is psychologically beneficial to males because it protects them from an inherently damaging relationship with God. A more plausible explanation for the discrepancy between findings of the present study and past research relates to measurement issues, as now discussed. It is important to note that while this explanation appears to be the most plausible, at present it remains speculative.

### **What is the ATGS-avoidance subscale assessing?**

ATGS-avoidance items used to operationalise ATG-avoidance in the present study were derived solely from the Attachment to God Inventory (AGI; R. Beck and

McDonald, 2004). An advantage of the AGI is that items were derived based on the Experiences in Close Relationships Scale (ECR; Brennan et al., 1998), a popular and well-validated measure of human attachment anxiety and avoidance. Because of this, the AGI appears to capture the core features of ATG-anxiety and avoidance more effectively than other scales. However, one discrepancy between AGI-avoidance and ECR-avoidance subscales (noted in Chapter 9) is that the former predominantly focuses on *levels* of intimacy and dependence while the latter predominantly focuses on *comfort* with intimacy and dependence. Additionally, compared with the ECR, a number of AGI items used in the ATGS tap more extreme levels of dependence (e.g., “I am totally dependent upon God for everything in my life”, “I let God make most of the decisions in my life”). Thus, while low ECR-avoidance scores indicate comfort with dependence and intimacy, low ATGS-avoidance scores indicate a high *degree* of dependence/intimacy. For some individuals, this high degree of dependence on God may stem from a deep sense of trust and security genuinely reflecting low ATG-avoidance. However, it is also possible that low ATGS-avoidance scores may (a) be associated with negative psychological factors, and/or (b) tap an unhealthy form of dependence on God.

Firstly, some individuals may be highly dependent on God due to negative psychological traits/factors such as a low sense of self-efficacy, dependent personality traits, or a lack of social resources. If so, it may not be low ATG-avoidance per se that predicts worse wellbeing. Rather, these other psychological factors may predict both lower ATG-avoidance and lower wellbeing, thus accounting for the observed effect. Secondly, it is possible that ATGS-avoidance items partially tap an *unhealthy* form of dependence on God. While a degree of closeness and dependency in interpersonal relationships is healthy, overly high levels contribute to poorer mental health (Bornstein, 1992; M. E. Kenny & Donaldson, 1991; H. A. Turner & Turner, 1999). Similarly, a close and dependent relationship with God can be psychologically healthy, potentially leading to lowered anxiety, increased wellbeing and self-esteem, and, paradoxically, an enhanced sense of personal control and empowerment (Cutland, 2000; Owen, 2005; Pargament, 1997; Yangarber-Hicks, 2004). Conversely, dependency on God can have unhealthy psychological effects. For example, individuals who believe that God exerts full control over the outcomes of life (as opposed to actively partnering with humans) may develop a passive form of dependence on God (Schieman, 2008). This can inhibit the development of self-

efficacy, autonomy and competence (Schieman, 2008), factors critical to wellbeing (Reis, Sheldon, Gable, Roscoe, & Ryan, 2000). Dependence on God may also become unhealthy if used as an excuse for irresponsible decisions and behaviours (e.g., “God will take care of my needs so I don’t need to work; If God wants me to work, he’ll find a job for me”). It is possible that low ATGS-avoidance scores partially tap an unhealthy, passive dependence on God, for at least some individuals in the sample.

The wording of ATGS-avoidance items may also mean that *high* scores on this subscale do not necessarily reflect the intended construct, namely, discomfort with intimacy/dependence on God due to negative attachment experiences and beliefs. This problem may be most salient amongst participants who report low ATG-anxiety combined with high ATG-avoidance (i.e., the ‘dismissing avoidant’ group). For those reporting high ATG-anxiety combined with high ATG-avoidance (i.e., the fearful-avoidant group), it seems likely that dependency/intimacy with God is avoided due to negative views and experiences of God (which also cause the ATG-anxiety). Those with low levels of ATG-anxiety, however, may limit their dependence on God for reasons unrelated to ATG. For example, some participants may not hold negative views of God, but may simply have a low interest in developing their relationship with God. Other participants may be less dependent on God due to their sense of personal self-efficacy and effective coping skills and resources, factors associated with improved wellbeing. This could account for the relationships between higher ATGS-avoidance scores and better emotional wellbeing amongst males. Finally, it is possible that participants reporting higher ATGS-avoidance scores in the present study (which were still typically in the ‘moderate’ range) may in fact experience a ‘healthy’ form of dependence on God, given the extreme wording of items.

These possibilities offer tentative but plausible explanations for the positive association between ATGS-avoidance and better emotional wellbeing in the present study. They may also account for the discrepancy between findings of this study and human attachment research. Human attachment avoidance measures do not exhibit the problems associated with the ATGS-avoidance subscale, because they reference *comfort* with dependence/intimacy and do not reference overly high levels of dependency. This explanation may also account for the discrepancy with prior findings regarding the relationship between ATG-avoidance and mental health. Only one prior study has examined the relationship between ATG and mental health using AGI items (Joules, 2007). This study reported mainly non-significant correlations between ATG-

avoidance and mental health measures. Because relationships did not control for ATG-anxiety and were not examined separately in males and females, findings cannot be compared with those of the present study. ATG-avoidance measures used in other prior studies (Belavich & Pargament, 2002; Rowatt & Kirkpatrick, 2002) did not focus on levels of dependence/intimacy with God, but rather on perceptions of God's responsiveness. These measures thus avoid the problems associated with the ATGS-avoidance subscale; however, they are also problematic given that they do not capture the core features of avoidance of intimacy (as discussed and empirically tested in Chapter 9 with respect to Rowatt and Kirkpatrick's ATG-avoidance subscale). Thus the findings of the present study highlight the need for future research to improve measurement of ATG-avoidance. Specific recommendations for this are provided later. It is also worth noting that the problems with the ATGS-avoidance subscale may have been compounded by the low ATGS-avoidance scores reported by the present sample.

### **Why does ATG-avoidance predict better emotional wellbeing only in males?**

Although overly high dependence in human relationships predicts poorer mental health in both genders, research suggests that the negative effects tend to be stronger in males compared with females (W. H. Berman & Sperling, 1991; Bornstein, 1992; Reis et al., 2000; Sanathara, Gardner, Prescott, & Kendler, 2003). Close and dependent relationships also appear to confer more psychological benefits on females (M. E. Kenny & Donaldson, 1991; Samuolis, Layburn, & Schiaffino, 2001; Schultheiss & Blustein, 1994), while males may benefit more from relationships that foster autonomy (M. E. Kenny & Donaldson, 1991). These gender differences are believed to be largely due to gender role socialisation processes. These processes are thought to lead females to emphasise the importance of (and derive more wellbeing from) intimacy and connectedness, and males to emphasise the importance of personal competence, independence and autonomy (Crocker & Knight, 2005; Gilligan, 1982; R. M. Lee & Robins, 2000; Reis et al., 2000; Townsend & McWhirter, 2005). In a related vein, men may be more negatively affected by high levels of dependency given the greater social pressure on them to be independent and autonomous (Bornstein, 1992; H. A. Turner & Turner, 1999). These gender differences may also apply to a relationship with God (Walter, 1990). Religious experiences and traits are often viewed as 'feminine' in nature (Mahalik, Lagan, Scale, Scale, & Orientation, 2001; E. H. Thompson, 1991), and dependence on God may similarly be viewed as a more

acceptable characteristic of females. As a result, a man who depends highly on God may suffer more disapproval from society or experience more internal conflict compared with a woman who shows a similar level of dependence on God (Walter, 1990). Dependency on God may therefore have less positive/more negative effects on the wellbeing of men compared with women, due to social pressures and gender role socialisation (Ozorak, 1996). This effect may be further exacerbated by the fact that God is typically viewed as male within the Christian tradition. Dependency and intimacy in male-male relationships is at odds with cultural socialisation processes and norms, while such characteristics are culturally sanctioned within female-male relationships (Aukett, Ritchie, & Mill, 1988; Morman & Floyd, 1998).

### **Summary of Study Findings**

Overall, the present study provides some evidence that ATG-anxiety may lead to poorer emotional wellbeing over time, as hypothesised. Contrary to hypotheses, this effect was found only amongst males. Possible reasons for why ATG-anxiety showed no prospective effect on emotional wellbeing amongst females were outlined, but remain purely speculative at present. These include the possibility that: (a) the timeframe over which the study was conducted may have precluded detection of a significant effect, (b) females' ratings of ATG-anxiety may be more influenced by their current mental health status than males' ratings, (c) females may possess certain 'protective' factors that buffer the effects of ATG-anxiety on their emotional wellbeing, for example having a wider range of relational sources from which to derive wellbeing, thereby reducing the influence of their relationship with God. While the hypothesised moderating effects of gender in the relationship between ATG-anxiety and emotional wellbeing were not supported, the hypothesised moderating effects of negative events did receive support. Specifically, the prospective effect of ATG-anxiety on emotional wellbeing was stronger amongst those experiencing a higher level of negative events. Again however, this effect was limited to males. Amongst females in the high negative events group, a reverse effect was found, whereby higher baseline negative wellbeing predicted elevated Time 2 ATG-anxiety.

Some support was found for hypothesised mechanisms by which ATG-anxiety influences emotional wellbeing. Firstly, higher levels of ATG-anxiety were associated with a greater tendency to appraise negative events as indicating God's abandonment/punishment. These appraisals fully mediated the effect of ATG-anxiety

on emotional wellbeing, although it is likely that other mechanisms also exist. Secondly, low levels of ATG-anxiety appeared to buffer the effects of negative events on emotional wellbeing. Respondents with high levels of ATG-anxiety combined with low ATG-avoidance appeared more vulnerable to the detrimental effects of negative events.

No support was found for the hypothesised effect of ATG-avoidance on emotional wellbeing. ATG-avoidance showed no prospective effect on emotional wellbeing amongst females and predicted *better* emotional wellbeing in males. One tentative but plausible explanation for this effect relates to the way in which ATG-avoidance was measured in the present study. Specifically, certain features of the ATGS-avoidance subscale items mean that low scores on this subscale may, (a) be promoted by negative psychological traits, or (b) tap an unhealthy form of dependence on God. Similarly, high scores may not tap genuine ATG-avoidance for all participants, and may be associated with positive psychological factors for some participants. This highlights potentially important limitations regarding current measurement of ATG-avoidance, and suggests the need for future researchers to develop alternate measures.

## CHAPTER TWELVE

### **Limitations, Applications, Contributions and Recommendations of the Present Study**



This final chapter of thesis considers the limitations, potential therapeutic applications and contributions of the present study. Lastly, recommendations for future research are addressed.

#### **Limitations of the Present Study**

Findings of the present study make several salient contributions to the existing literature on ATG. Nonetheless, there are a number of limitations of the study that are important to note. These relate to issues of measurement, generalisability of findings, sample size, and the study time-frame.

#### **Measurement limitations**

Perhaps the most significant limitation of the present study is with regard to potential problems with the measure of ATG-avoidance used. Due to the way in which items were worded, it appears that the ATGS-avoidance subscale may not purely assess the intended construct. It is possible that low ATGS-avoidance scores partially tap unhealthy dependence on God, and may be associated with negative psychological traits. Similarly, high scores may not purely tap genuine ATG-avoidance, and may be associated with positive psychological factors. The uncertainty as to how accurately the subscale measures ATG-avoidance limits the ability to derive conclusions regarding the effects of ATG-avoidance on emotional wellbeing and, by extension, limits exploration of mechanisms for this effect. It should also be noted that one item from the RK-avoidance subscale was inadvertently omitted from the questionnaire. However, this error is unlikely to have affected findings given that all RK-Avoidance items were excluded from the final measure, on the basis of the subscale's poor content validity and functioning in statistical analyses. Recommendations for how measurement of ATG-avoidance might be improved in future studies are provided later.

A second potential measurement-related limitation of the present study relates to the use of self-report measures, which may be susceptible to response biases such as social desirability. These biases may inflate correlations between ATG and emotional wellbeing in cross-sectional analyses. However, conclusions of the present study are largely based on prospective analyses, which should be less affected by this problem, given that predictions of change over time are relatively impervious to the effects of response bias (Kirkpatrick, 1998). The effects of social desirability bias may also be reduced by the anonymous nature of the study. Nonetheless, findings may have been strengthened through the use of alternate measurement methods such as interview-based assessment of ATG. This would allow less conscious representations of ATG to be assessed through the implicit information gained from the structure of participants' discourse, in addition to the explicit content of their descriptions (Proctor, 2006). As such, this may provide more accurate assessment of participants' internal experience of their relationship with God (Proctor et al., in press).

### **Generalisability of findings**

Findings of the present study should be viewed as directly relevant only to the Christian experience of ATG. Findings cannot be assumed to generalise to other faith groups, given differences in the way in which peoples from different faith traditions experience their relationship with God (e.g., Granqvist, Ivarsson, Broberg, & Hagekull, 2007; Koenig, 1995; Monteiro, 2005; Tarakeshwar, Pargament, & Mahoney, 2003). Other demographic characteristics of the sample that may influence the generalisability of findings include the predominance of (i) Pentecostal and Evangelical denominations, (ii) younger adults, (iii) participants residing in New Zealand, and (iv) participants reporting a high level of religious commitment. The ethnic makeup of the sample, which was not assessed for ethical reasons relating to confidentiality, may likewise have influenced generalisability of findings. While no published research to date suggests that the relationships between ATG and emotional wellbeing is affected by these demographic characteristics, this possibility cannot be ruled out without explicit testing.

The generalisability of study findings is likely to be influenced by the low mean levels of ATG-anxiety and avoidance reported by the sample. Findings of the study are less representative of the effects of high ATG-anxiety and avoidance, and it is likely that the magnitude of relationships between ATG and emotional wellbeing

would differ in a sample exhibiting less secure ATG. For example, the positive effect of ATG-avoidance on emotional wellbeing may have been partly due to the low mean levels of ATG-avoidance, which are more likely to reflect unhealthy dependence on God. Findings regarding the moderating effect of ATG on the relationship between negative events and emotional wellbeing may also have been influenced by levels of ATG-anxiety/avoidance. Specifically, the ‘preoccupied’ ATG group in these analyses included participants who exhibited relatively low levels of ATG-anxiety. In a sample with higher ATG-anxiety, the more conventional method of classifying ATG groups could have been used, and this may have resulted in better detection of the true ‘vulnerability’ effect of preoccupied ATG. The low ATG-anxiety and avoidance scores in the present study are likely to partly reflect the self-selecting nature of the sample. However, it should be noted that these levels are similar to those reported in other Christian samples (R. Beck & McDonald, 2004; Joules, 2007; Reinert, 2005; Rowatt & Kirkpatrick, 2002). Furthermore, attachment anxiety and avoidance scores also tend to be low on human attachment measures in non-clinical samples (e.g., Mallinckrodt & Wei, 2005; Wei et al., 2003; Wei et al., 2006; Wei, Vogel et al., 2005), and this does not preclude detection of significant relationships with mental health.

### **Sample size**

Ratios of participants to free parameters were below the recommended minimum of 5:1 (Raykov & Marcoulides, 2006; R. L. Worthington & Whittaker, 2006) in some analyses, particularly where cross-lagged models were tested in separate groups. Possible consequences of this include less accurate parameter estimates and fit indices, and reduced power for testing the significance of parameter estimates (Jackson, 2003; MacCallum et al., 1996). Thus it is possible that the magnitude of effects may have been less accurate in some of the group analyses, and that some genuine effects may not have been detected due to lower power. However, it has been argued that achieving an adequate sample size may be more important than the participant-to-free parameter ratio (Jackson, 2003). All analyses met the recommendations of a minimum sample size of 100 (Russell, 2002; R. L. Worthington & Whittaker, 2006), with the majority of group analyses conducted in sample sizes of 200 or more. Furthermore, there was no evidence of improper solutions (a potential indicator that the participant-to-parameter ratio was inadequate for the analysis; Vandenberg and Self, 1993), and significant effects were found in the smallest

samples, demonstrating that power was adequate at least to detect these effects. Also, the cross-lagged analyses conducted in gender/negative events groups were compared with the findings of smaller models which had higher participant-to-free parameter ratios. The findings of these models were consistent with the larger models, with the exception of differences caused by suppression effects. This provides some suggestion that the validity of findings may not have been compromised by the low sample sizes in these analyses.

Some models in the present study were tested in groups too small to permit the use of bootstrapping to correct for multivariate non-normality. Given that non-normality can result in underestimation of standard errors, it is possible that the statistical significance of effects may have been overestimated in these groups, potentially leading to Type I error. However, the chance of Type I error is counteracted by the small sample sizes used in these analyses. Furthermore, the significant effects in these groups were of similar magnitude to significant effects in models where bootstrapping *was* used. Given that non-normality has little effect on the magnitude of parameter estimates, this provides another indicator that the validity of significance tests was not compromised in samples where bootstrapping could not be applied. Nonetheless, larger samples would have provided more accurate estimation of effects, particularly in analyses of smaller groups such as males. A larger sample would also have allowed more extensive testing of gender differences. For example, it is likely that gender differences would have been found with regard to the moderating effect of ATG in the relationship between negative events on emotional wellbeing, as well as the mediating role of religious coping. Such gender differences could not be assessed in the present study given inadequate sample size.

### **Time frame**

Effects of ATG on emotional wellbeing (and vice versa) may depend on the time period over which they are measured. For example, if effects typically occur quickly and last briefly, they would be best detected over short time periods. If effects occur more gradually, longer study periods may be required. In the present study, the period between Times 1 and 2 responses varied from three to seven months, so cross-lagged coefficients represent average effects occurring over this period. These averages may potentially obscure time-related differences in the magnitude of effects. Studies of human attachment have found significant effects of attachment style on

mental health over a wide range of time periods, from 6 weeks (J. E. Roberts et al., 1996) to two years (Hankin et al., 2005), suggesting that the time period chosen may not have a critical impact on whether an effect is detected. However, it is not known whether this applies to ATG, and it is possible that stronger effects of ATG on emotional wellbeing (or vice versa) would have been detected had the time period of the study been much shorter (e.g., one month) or longer (e.g., one year). Similarly, the buffering effect of ATG on the relationship between negative events and emotional wellbeing may have been better detected over time periods differing from those used in the present study.

### **Potential Therapeutic Applications of Study Findings**

Researchers and clinicians have highlighted the value and importance of attending to the spiritual domain in therapeutic work with religious clients (Eck, 2002; Proctor & McLean, 2009; Shafranske & Malony, 1996; Yarhouse, 2003). This demonstrates sensitivity and respect toward the client and may result in treatment plans that are more comprehensive and consistent with clients' preferences (Koenig, 1998a). This also has the potential to increase compliance and strengthen the therapeutic relationship (Proctor, 2009; Richards & Bergin, 2000; Wong-McDonald, 2007). One important aspect of spirituality to address when working with Christian clients is their experience of their relationship with God (ERG), given that this relationship lies at the heart of the Christian faith (H. J. Chen, 2005; Edwards & Hall, 2003; Granqvist & Kirkpatrick, 2008; Olthuis, 2006). An understanding of clients' relationship with God is believed to offer many potential therapeutic benefits (Richards, Smith, & Davis, 1989), due in part to the interconnectedness of the spiritual and psychological domains (Genia, 2000). For example, understanding clients' relationship with God may provide insights into areas of internal psychological struggle, human relationship patterns, and suppressed aspects of the self (H. J. Chen, 2005; Genia, 2000; Reinertsen, 1993; Shafranske, 2009). Furthermore, therapeutic work focused on clients' relationship with God can increase clients' willingness to disclose and explore sensitive psychological material they may otherwise be resistant to discuss (Reinertsen, 1993). As a framework for conceptualising Christians' ERG, ATG theory offers a number of benefits for therapeutic application, as described in the literature review. For example, the ATG framework may help therapists to recognise the potential for clients' relationship with God to have powerful positive or negative psychological effects, depending on its

nature. Also, because it rests on the familiar framework of human attachment theory, the ATG framework may be more easily adopted by therapists who lack a personal familiarity with the spiritual domain.

Therapeutic applications of human attachment theory are now well recognised (e.g., Comminos, 2007; Davila & Levy, 2006; Dozier & Tyrrell, 1998; Meyer, Pilkonis, Proietti, Heape, & Egan, 2001). Attachment style is an important factor to incorporate into therapy conceptualisations (Cobb & Davila, 2009; Lopez, 2009; McBride, Atkinson, Quilty, & Bagby, 2006). For instance, insecure attachment may be incorporated as a factor that predisposes, precipitates or perpetuates mental health problems (e.g., Schwartz & Pollard, 2004; Ungerer & McMahon, 2005), while secure attachment may constitute a protective factor that promotes wellbeing and positive coping (e.g., S. Johnson, 2004; Kobak et al., 2004; Mallinckrodt et al., 2009; Mikulincer & Florian, 1998).

ATG theory may likewise have salient therapeutic applications (Carone & Barone, 2001; L. B. Cooper et al., 2009; Gooden et al., 2000). Although the development of these applications is still in its infancy, recent advances are promising (e.g., Miner, 2008, July; Moriarty, 2006; Moriarty et al., 2007; Moriarty et al., 2004; Proctor & McLean, 2009; Tuskenis & Sori, 2006). However, the research base underlying such applications is limited. One gap in this research relates to the dearth of studies examining the prospective relationship between ATG and mental health. Therapeutic applications of ATG theory, and the rationale for their use, are typically based in part on the assumption that ATG influences mental health. This assumption had received very limited empirical support in previous research. An important contribution of the present study thus lies in providing the strongest evidence to date that ATG-anxiety may negatively impact emotional wellbeing. This finding suggests the possibility that high levels of ATG-anxiety may precipitate or perpetuate poor emotional wellbeing amongst Christian mental health clients, although studies using clinical samples are needed to test this directly. Conversely, low levels of ATG-anxiety may constitute a protective factor for clients, increasing resilience to negative events and facilitating improved emotional wellbeing. These findings highlight the potential value of addressing ATG-anxiety in assessment and treatment of Christian clients. Given uncertainty regarding the meaning of ATG-avoidance scores in the present study and the nature of the relationship between ATG-avoidance and emotional

wellbeing, therapeutic implications are discussed only with regard to the dimension of ATG-anxiety.

### **Assessment of ATG-anxiety**

Items on the ATGS-anxiety subscale were drawn predominantly from the AGI, a tool that has been described as potentially useful for clinical assessment (L. B. Cooper et al., 2009). Modifications in the present study resulted in a briefer and more valid measure of ATG-anxiety compared with the original AGI-anxiety subscale. Thus, the ATGS-anxiety subscale may provide a useful clinical assessment tool, although ascertaining this will require validation in clinical samples. In some cases a therapist may desire to follow the ATGS-anxiety subscale with a more in-depth assessment; in such cases, an ATG interview could be used, such as that developed by Proctor (2006). It is important to recognise that both of these ATG assessment tools have been developed based on a Christian framework and have not been validated for use with non-Christian clients. There is a current need for appropriate assessments to be developed for use with clients from other religious traditions.

### **Therapy with Christian clients with high ATG-anxiety**

The present study indicates that ATG-anxiety may lead to reduced emotional wellbeing among Christians, and also suggests a potential mechanism for this effect. Specifically, ATG-anxiety may reduce wellbeing through increasing Christians' likelihood of feeling abandoned/punished by God in the face of negative events. It may be valuable to address such issues when working with Christian clients reporting high ATG-anxiety. In particular, it may be helpful to assist such clients to (a) explore the underlying views and experiences of God that led to these interpretations of negative events, and (b) reappraise the events and experiences of God in a way that restores confidence in God's availability and love (e.g., C. V. Johnson, 2005; Meese, 2002; Thomas, 2009). Similar strategies have been recommended within the human attachment literature (e.g., Kobak et al., 2004). In some cases, simply giving clients the opportunity to express painful emotions and anger toward God for allowing the negative events may have powerful psychological benefits (C. V. Johnson, 2005). In other cases, cognitive techniques may be useful for challenging negative perceptions of God (and of oneself in relation to God) and replacing them with more positive views (Miner, 2008, July; Thomas, 2009).

Helping clients to reappraise negative perceptions of God and events may improve emotional wellbeing and increase resilience to current and future negative events (L. B. Cooper et al., 2009), important goals of therapy. This process may also facilitate development of a more secure ATG (H. J. Chen, 2005). This may be of substantial importance to many clients. In the present study, three-quarters of the sample stated that if they received counselling it would be important to them that their relationship with God was strengthened in the process. Therapeutic approaches directly aimed at promoting more secure ATG have been suggested (e.g., Miner, 2008, July; Moriarty, 2006; Moriarty et al., 2007; Moriarty et al., 2004). Research demonstrates that ERG variables relevant to ATG can show improvement over the course of therapy (e.g., Arnette et al., 2007; Avants et al., 2005; Bay et al., 2008; Cheston, Piedmont, Eanes, & Lavin, 2003; Hawkins, Tan, & Turk, 1999; Lindgren & Coursey, 1995; Margolin et al., 2007; W. R. Miller et al., 2008; Sharkey, 2006; Tarakeshwar et al., 2005; Tisdale et al., 1997). Only one study has yet explored the effects of an intervention specifically targeting ATG, however. Thomas (2009) reported improved ATG (decreased ATG-anxiety and avoidance) following a group intervention focused on improving God image and ATG. The eight-week intervention was based on a manualised therapy entitled “Discovering God” and was trialled with 26 Christians experiencing problems in their relationship with God. Aspects of this therapy that participants identified as helpful for improving their image of God included: (a) the use of cognitive techniques to increase awareness of negative views of God and replace these with more adaptive beliefs, for example through the use of scripture, and (b) psychoeducation regarding how participants’ relationships with their parents may have influenced their views of God.

### **Therapy with Christian clients with secure ATG**

Findings of the present study highlight the potentially positive psychological effects of low ATG-anxiety. Although findings of cross-lagged analyses were discussed in terms of the detrimental effects of higher ATG-anxiety, the reverse interpretation also holds, namely that lower ATG-anxiety predicted improved wellbeing. Additionally, those with low ATG-anxiety showed resilience to the harmful effects of negative events. This suggests that low ATG-anxiety may provide a resource for treatment and recovery. More specifically, a *secure* ATG (i.e., a combination of low ATG-anxiety and low ATG-avoidance) may provide such a resource. Individuals

with high levels of ATG-avoidance (even if combined with low ATG-anxiety) are unlikely to experience benefits from their relationship with God, given their tendency to emotionally distance themselves from this relationship. Those with a secure ATG, on the other hand, typically experience a close relationship with God marked by a sense of God's love, acceptance and consistent availability and responsiveness.

Potential therapeutic resources provided by secure attachment relationships have been discussed in the human attachment literature. For example, the provision of a 'safe haven' experience can assist the process of emotional regulation. This is of particular importance for clients who experience negative emotion as overwhelming and tend to use harmful strategies in an effort to cope (S. Johnson, 2004). Through enhancing emotional regulation, secure attachment relationships also promote more effective processing of painful and traumatic experiences, another important goal of therapy (S. Johnson, 2004; Kobak et al., 2004). A secure ATG may serve similar functions, providing clients with a source of comfort, support and reassurance of self-worth that may facilitate exploration of painful issues and development of effective emotional regulation (H. J. Chen, 2005; Miner, 2008, July; Reinert, 2005).

A secure ATG may be of particular importance and benefit for those clients who lack secure human attachment figures (Granqvist & Hagekull, 1999). For such people, God may even serve as 'surrogate' attachment figure (Granqvist & Kirkpatrick, 2004; Kirkpatrick, 1998). Even those with secure human attachment figures may benefit from a secure ATG however, given that this relationship may provide resources unavailable in human relationships (e.g., Bennett, 1997; Feher & Maly, 1999; Kaufman, 1981; Proctor & McLean, 2009). Although God's non-physical nature may limit the secure attachment experience by preventing physical interaction, a number of qualities ascribed to God within the Christian faith are thought to render him the 'ultimate' secure attachment figure (Bennett, 1997; Kaufman, 1981). Such qualities include God's omnipresence, omniscience, perfect wisdom, trustworthiness and unconditional love.

While human attachment figures cannot be constantly present or available, a secure ATG may provide a sense of comfort and companionship at all times, potentially allaying the feelings of loneliness and isolation that plague many clients. Human attachment figures may also be unable to cope with the emotional needs of some clients, and may find it too painful or disturbing to listen to clients' traumatic experiences (Kobak et al., 2004). By contrast, it is impossible to 'drive God away'.

This was alluded to in a qualitative study of women coping with cancer (Feher & Maly, 1999), who described how God provided a source of emotional support over and above human companions who could become burdened by their needs and fears. The benefits of a secure ATG may become particularly salient during negative events, when human sources of support are most likely to become insufficient (Bishop, 2008; Granqvist & Kirkpatrick, 2008). Severe negative events can awaken a sense of innate finitude and fragility that is unable to be resolved by reassurance from human attachment figures (Kaufman, 1981). Kaufmann suggests that only a relationship with God can alleviate this distressing sense of insecurity, because only God is viewed as perfectly available and dependable in every situation. This unlimited availability and trustworthiness allows God to provide the ‘ultimate’ safe haven and secure base (Bennett, 1997; Kaufman, 1981; Proctor & McLean, 2009). Findings of the present study provide indirect support for this possibility, in that the effect of ATG-anxiety became stronger in times of higher stress. Finally, a secure ATG may provide an even greater source of self-worth than secure human attachments. According to Christian theology, God is all-knowing, perfect in his judgements, and the creator of human life. As such, God is in the ultimate position to determine the self-worth of individuals. Thus, the belief that one is loved and valued deeply by God may be a powerful source of self-esteem (Ellison, 1991; George et al., 2000; Koenig & Larson, 2001; Pargament et al., 1990; Spilka et al., 1985).

These potential benefits of a secure ATG suggest a number of ways in which this relationship could constitute a protective factor for Christian clients. Clients who present for therapy with a secure ATG, or who are assisted to develop a secure ATG over the course of therapy, may be encouraged to recognise and draw on these benefits. For example, therapists might encourage such clients to draw on their relationship with God for companionship in times of loneliness, for assisting in the processing of painful experiences and emotions, for coping with negative events (thus enhancing resilience), and for providing a basis for positive self-esteem. Ultimately, such strategies may promote improved mental health and other therapy outcomes. Although the potential for secure ATG to improve therapy outcomes has not been directly tested, one recent study supports this possibility. Specifically, in a sample of 136 adults being treated for depression, participants reporting a closer and more positive relationship with God (akin to secure ATG) at baseline showed a significantly

greater reduction in depression over an eight week period, after controlling for initial depression levels (P. E. Murphy & Fitchett, 2009).

### **The influence of emotional wellbeing and negative events on ATG-anxiety**

There is a call for researchers to examine the possible effect of mental health problems on people's spiritual wellbeing, including their relationship with God, given the potential therapeutic implications this may have (Arnette et al., 2007). The present study found that higher levels of negative emotional wellbeing, in the context of sufficient negative events, predicted increased ATG-anxiety. This suggests the possibility that Christian clients experiencing distress/low mood, particularly in combination with recent negative events, may be vulnerable to negative changes in their relationship with God. These changes may further increase distress, particularly for those clients who formerly experienced their relationship with God as a source of support and wellbeing. Thus, it may be useful for therapists to inquire about increases in ATG-anxiety experienced by Christian clients as a result of their distress/mental health problem. It may also be advisable to assess for changes in ATG-anxiety over the course of therapy, particularly following periods of significantly low mood or the occurrence of negative events.

Christian clients experiencing heightened anxiety regarding God's love and acceptance may benefit from therapists' normalisation of this experience. Some Christians may feel guilty or depressed about negative changes in their relationship with God, further compounding the problem and increasing distress. The results of the present study suggest that increases in ATG-anxiety may be a natural sequela of low mood and negative events, even in non-clinical samples. Informing clients about this may help to counter distressing perceptions that their experience is abnormal and/or signifies spiritual weakness. It is possible that for some clients, ATG-anxiety will naturally decrease as the low mood resolves. In other cases it may be necessary to specifically target ATG-anxiety in therapy, particularly if this contributes a salient source of distress and/or the client specifies a desire to develop a more secure relationship with God. In such cases, it may be useful to help clients identify and reappraise maladaptive beliefs about their mental health problem or negative events. For example, some Christian clients believe their depression signifies spiritual failure or is a sign that God has abandoned them (Heggen & Long, 1991; Stanford, 2007), potentially resulting in increased ATG-anxiety. Such clients may be assisted to

reappraise mental health problems in a more positive light, for example, as providing opportunities to experience God's love more deeply and to develop spiritually (Heggen & Long, 1991).

### **Summary**

The present study strengthens the rationale for therapeutic application of ATG by providing evidence that ATG is related to emotional wellbeing, at least with regard to the dimension of ATG-anxiety. Findings highlight the potential usefulness of assessing ATG-anxiety and incorporating this into therapy conceptualisations when working with Christian clients. Specifically, high levels of ATG-anxiety may constitute a risk factor for reduced emotional wellbeing and heightened vulnerability to negative events, while secure ATG may constitute a protective factor. Additionally, findings suggest the potential for mental health problems to result in an increase in ATG-anxiety, a possibility that therapists should be cognisant of.

It is important to acknowledge that the effects of ATG-anxiety on emotional wellbeing and vice versa were limited to specific genders in the present study. However, this is the first study to explore gender differences in the relationship between ATG and emotional wellbeing, and it is possible that these gender differences do not occur across all samples or when examining other mental health variables. Further research is needed to investigate gender differences, including in clinical samples, before determining whether such differences have therapeutic implications. It should also be noted that while therapeutic applications are discussed here with regard to work with *Christian* clients, this is not to infer that such applications are necessarily limited to Christians. Rather, this is in recognition of the fact that study findings are based on a Christian sample and thus more likely to generalise to Christian clients than to those of other faiths. Again, this is a matter requiring investigation in future research. There is also a need to develop appropriate ATG assessment tools for use in research and clinical work with other religious groups.

The potential therapeutic applications stemming from the findings of this study may be useful for those involved in pastoral care as well as mental health professionals. Christians frequently turn to religious leaders for support with mental health problems, and the support these individuals provide can be very beneficial (Stanford, 2007). However, a substantial minority of Christians report negative experiences when they seek help from religious leaders, exacerbating distress and

potentially leading the individual to abandon their faith (Stanford, 2007). One of the reasons for this may be that some religious leaders hold problematic views, such as the belief that mental health problems are a result of spiritual failure such as sinfulness or inadequate faith (Stanford, 2007). The present study highlights the possibility that (a) Christians' anxieties regarding God's rejection may reduce wellbeing, and (b) Christians experiencing heightened levels of distress and negative events may be more prone to feeling rejected or abandoned by God. It is important that those providing pastoral care are aware of these effects, and avoid promoting negative views of God that may exacerbate ATG-anxiety. Instead, it may be helpful to emphasise the unconditional nature of God's love and forgiveness, which may assist Christian clients in establishing a secure ATG, providing a potential resource for coping and recovery.

Finally, it is important to note that consideration of the spiritual domain in therapeutic assessment and intervention must be conducted in a way that is sensitive and appropriate to the client's desires and needs, and must be within the therapist's area of competence (Gonsiorek, 2009). It is also important that therapists recognise that ATG will not be an area of importance or relevance for all Christian mental health clients. A discussion of ethical issues involved in addressing spirituality in psychotherapeutic and clinical settings is beyond the scope of this thesis; however, useful ethical guidelines have been provided by many authors (see for example, Eck, 2002; Genia, 2000; McMinn, 2009; Richards and Bergin, 1997; Tan, 2003).

### **Contributions and Strengths of the Study**

Interest in the relationship between spirituality and mental health has generated a large body of research. Much of this research has examined the association between generalised indicators of spirituality and mental health. However, more recently there is a growing call for investigations of more specific aspects of spirituality, with consideration of positive and negative effects on mental health and potential mechanisms for these effects (e.g., Haber et al., 2007; Hill et al., 2003; Koenig, 2000). The present study responds to this call by exploring a specific and important aspect of spirituality, namely, individuals' experience of their relationship with God (ERG). ERG is explored in the present study using the conceptual framework of ATG. By adopting the ATG framework, this thesis makes a number of contributions to the growing body of literature on ATG. Most saliently, methodological strengths of the study result in a more rigorous test of the ATG-mental health relationship than has

previously been provided. Other important contributions include highlighting key limitations regarding measurement of ATG and addressing some of these limitations, identifying two moderators in the relationship between ATG and mental health, and identifying two of the mechanisms by which ATG may influence mental health. Each of these contributions is discussed in more detail shortly.

One overarching contribution of the present study is that it helps to raise awareness of the potential salience of ERG for Christian' psychological health, and, by extension, the potential salience of ERG for therapy with Christian clients. Some Christians fear that mental health practitioners will discount, belittle or fail to understand their beliefs (Cutland, 2000; Macmin & Foskett, 2004; McMinn et al., 1998; Mitchell & Baker, 2000). This may be one reason for why some Christian communities continue to underutilise mental health services (Matlock-Hetzel, 2005). Although there is a growing awareness of the need to address the spiritual domain in therapy, this does not yet appear to be a routine aspect of clinical practice for many clinicians (Hathaway, Scott, & Garver, 2004). It is hoped that by providing some evidence for the potential implications of ATG for Christians' mental health, this study may stimulate further movement toward provision of effective spiritual care for mental health clients. Specific ways in which findings of the thesis may contribute to the development of therapeutic applications of ATG have been discussed previously. It is hoped that such recommendations will help to promote better integration of spirituality into therapy for those clients who desire this.

Key strengths and contributions of the thesis are now discussed in more detail.

### **Improved research methodology**

The present study progresses theory and research on the relationship between ATG and mental health through providing the most methodologically rigorous exploration of this relationship to date. This is largely attributable to the use of a cross-lagged research design. Prior to this study, all but three studies were conducted using cross-sectional research designs, and one of the three prospective studies failed to control for baseline mental health (Kelley, 2003). Additionally, no prospective studies had controlled for human attachment style or examined the possibility that mental health may influence ATG. The present study addresses these limitations through the use of a cross-lagged research design, statistical control of human attachment style, and consideration of a 'reverse effect' of emotional wellbeing on ATG. The sample

size of the present study was also substantially greater than previous prospective studies. The significant effects of ATG-anxiety on emotional wellbeing found amongst certain sample groups in the present study thus provides the most sound evidence to date suggesting that ATG-anxiety may influence mental health. The finding that poorer emotional wellbeing predicted increased ATG-anxiety amongst women experiencing high negative events is also important. This finding highlights the need for future studies to take this 'reverse effect' into account, and may also have therapeutic implications, as discussed.

The methodological quality of the study is also enhanced through the use of an advanced data-analytic procedure, structural equation modelling (SEM). SEM has a number of advantages over other multivariate data analytic strategies, including its ability to directly test all hypothesised relationships in a model simultaneously. This was an advantage in the present study given that hypotheses often specified relationships among a large number of variables. Testing these relationships simultaneously afforded a more accurate picture of effects. Furthermore, SEM tests model fit to indicate the overall plausibility of the specified pattern of relationships (Byrne, 2001). This information is not provided by more traditional analytic strategies. Models tested in the study showed adequate fit overall. Although this does not prove that models necessarily provide the best representation of relationships between variables, it does suggest that the representation is plausible, allowing more confidence to be placed in study findings. This advantage of SEM was particularly important with regard to the testing of cross-lagged models. Specifically, this allowed the fit of the hypothesised model, in which ATG predicted emotional wellbeing, to be compared with three plausible competing models. In this way SEM provided a valuable method for exploring both possible directions of the relationship between ATG and mental health.

The measurement of emotional wellbeing in the present study was also enhanced through the use of SEM. Specifically, SEM indicated that (a) the measures of depression and negative affect essentially tapped the same underlying construct, and (b) the three emotional wellbeing measures were best viewed as tapping two components of emotional wellbeing: negative emotional wellbeing (e.g., negative symptoms, thoughts and emotions), and positive emotional wellbeing (cognitive and behavioural markers of happiness). By assessing the extent to which items uniquely tapped intended constructs, the use of SEM also enabled selection of the best subset of

indicators for each construct. As a result of this process, the final latent variables used to measure emotional wellbeing showed excellent fit and conceptual distinctiveness. This was a significant improvement over the original model in which the three measures were assumed to tap distinct aspects of emotional wellbeing.

The use of SEM also permitted explicit testing of assumptions of measurement invariance over time and groups. The metric invariance of the models increases the likelihood that findings relating to changes over time and group differences in relationships are accurate. Few studies examining human attachment and mental health (and no ATG studies) have addressed this issue. Another significant advantage of SEM lies in modelling constructs as latent variables (free of error variance) rather than relying solely on observed scores (Byrne, 2001; Quintana & Maxwell, 1999; J. B. Ullman, 2006). By removing the effects of error variance, SEM afforded a more accurate examination of the relationship between ATG and mental health than has been provided in most previous research. A final advantage of SEM relevant to the present study is that it provides a particularly robust test of mediation effects (Cheung & Lau, 2008; Wu & Zumbo, 2008).

### **Development of an improved ATG measure and identification of ATG measurement issues**

The present study contributes to the field of ATG research through the development of an improved measure of ATG. Although many ATG measures have been developed, few are based on the two-dimensional structure currently thought to best represent the dimensions underlying attachment. Two ATG scales with this structure were available at the time of the study: the Attachment to God Inventory (AGI; R. Beck and McDonald, 2004), and Rowatt and Kirkpatrick's unnamed measure of ATG (Rowatt & Kirkpatrick, 2002). Items from these scales were administered and subjected to a testing process that included examination of content validity and psychometric properties, and the use of CFA to examine factor structure and identify ineffective items. This process allowed items showing greatest evidence of validity to be selected in order to form the ATGS. The factor structure of the ATGS showed evidence of generalisability when tested in a cross-validation sample, and both ATGS subscales demonstrated the expected pattern of relationships with a number of relevant measures. ATGS items also did not appear to tap emotional wellbeing, a possibility that had not been considered in previous ATG research. This was important to consider

in light of criticisms that measures of spirituality may be contaminated with references to mental health, leading to spurious correlations with mental health measures (Koenig, 2008). The brevity of the ATGS is another advantage of the scale, enhancing its utility for use in clinical work and research. Additionally, items focus on individuals' experience of their relationship with God, as opposed to a number of ATG measures which focus on perceptions of God. In this way the ATGS is less likely to tap 'surface-level' cognitions about God which may not correspond to respondents' genuine internal experience (Hill & Hall, 2002).

Overall, the testing process used in the present study resulted in a measure of ATG-anxiety/avoidance that shows improved validity over the original constituent measures, an important contribution of the present study. However, while the ATGS-anxiety subscale appears suitable for use in future research, evidence for the validity of the ATGS-avoidance subscale is inadequate. Although this subscale represents an improvement over the constituent measures, it appears that it may not purely tap ATG-avoidance, suggesting the need for further modification. This represents a second contribution of the present study with respect to ATG measurement: identification of strengths and weaknesses of the ATGS and its constituent measures. This information has the potential to guide researchers in (a) selecting measures of ATG, (b) refining existing ATG measures, and (c) developing new ATG measures. The information may also help to explain non-significant findings of past research on the ATG-mental health relationship, which may be due in part to the poor validity of ATG measures.

With respect to the dimension of ATG-anxiety, the testing process used in the present study suggested that the majority of AGI-anxiety and RK-anxiety items appeared valid. However, a small number of AGI-anxiety items showed poor content validity or redundancy, and the RK-anxiety subscale seems inappropriate for use on its own given that it taps a limited aspect of ATG-anxiety. The ATGS-anxiety subscale may provide a better option for future researchers, given that it removes items from the constituent measures that showed poor validity or redundancy. With respect to the dimension of ATG-avoidance, both RK-avoidance and AGI-avoidance subscales showed problematic items. RK-avoidance items assess perceptions of God's availability and responsiveness which were shown to be related to both ATG dimensions rather than being specific to avoidance. The AGI-avoidance subscale showed three key problems: (1) a number of items referred to the 'emotional' nature of respondents' relationship with God, which did not appear to be a valid indicator of

ATG-avoidance; (2) items typically assessed levels of closeness/dependency as opposed to levels of *discomfort* with closeness/dependency; (3) a number of items referenced high levels of closeness/dependency that may partly tap unhealthy dependence on God. The ATGS-avoidance subscale largely rectifies the first of these problems, but does not address the latter issues.

These findings suggest specific recommendations regarding future development of ATG-avoidance subscales. Firstly, researchers should avoid items referring to (a) general perceptions of God's availability and responsiveness, (b) the 'emotional' nature of participants' relationship with God, and (c) extreme levels of closeness/dependency. Additionally, items should specifically refer to *discomfort* with closeness/dependency as opposed to only referencing *levels* of closeness/dependency. As an example, the ATGS-avoidance item, "I am totally dependent upon God for everything in my life" (reverse-scored) might be re-written, "I am uncomfortable depending on God for almost anything in my life". Future researchers may alternately consider using the God Attachment Measure (GAM; Proctor, 1998) or the ACSS-God Attachment Scale (ACSS-GAS; Proctor et al., 2009). The GAM assesses the dimensions of Closeness and Dependence (both of which tap a similar dimension to ATG-avoidance) and Anxiety. The ACSS-GAS is based on the work of Bartholomew and Horowitz (1991) and modelled from the Relationships Styles Questionnaire (Griffin & Bartholomew, 1994a). Thus dimensions are interpreted in terms of views of self and God as opposed to avoidance and anxiety; however, items are largely relevant to the latter dimensions. These scales were unavailable at the time the present study was conducted. An examination of items indicates that they may avoid the aforementioned problems affecting other ATG-avoidance subscales; however, the validity of these measures has not yet received substantial testing. Thus, whether future research uses these measures of ATG-avoidance, modifies the ATGS or other scales, or develops new scales, it is imperative that the scales are adequately validated. Findings of this study highlight the complexities involved in validating ATG-avoidance items. Although the relationships between ATGS-avoidance and a number of relevant constructs were assessed in the present study as a means of validation, this was not adequate to determine precisely what items were tapping. For example, these relationships do not ascertain whether the lower scores on the measure partially tap unhealthy dependence on God or are related to negative psychological traits such as low self-efficacy. Thus, more extensive validation may be required in future research.

One useful method of validation might involve comparing ATG-avoidance scores with interview-based assessment of ATG style, which tends to be more accurate and in-depth (Proctor et al., in press).

### **Identification of moderators in the relationship between ATG and mental health**

The present study tested the potential moderating effects of gender and negative events in the relationship between ATG and mental health. These effects had not been explored in any published research. Findings indicate that, as with human attachment style, the effects of ATG on mental health may increase during times of greater adversity, at least amongst males. This advances ATG theory by providing some indication that ATG may function in a psychologically similar way to human attachment style. The gender differences found in the present study were unexpected, and pave the way for future research to explore these effects and their underlying causes. The moderating effects of gender and negative events found in the present study also contribute to the literature by indicating a possible reason for the discrepant findings of past research. Specifically, it is possible that non-significant relationships between ATG and mental health may be partly due to the use of samples dominated by females and/or those who are not currently experiencing a level of negative events sufficiently high to ‘activate’ the ATG system. The findings underscore the necessity of explicitly taking these variables into account in future research.

### **Identification of mechanisms by which ATG-anxiety may influence mental health**

The present study advances ATG theory by providing some indications regarding mechanisms by which ATG-anxiety may affect mental health. Specifically, this study provides the strongest evidence to date to suggest that ATG-anxiety may affect emotional wellbeing through influencing the way people respond to negative events. This was indicated by two findings: (a) the effect of ATG-anxiety on emotional wellbeing was mediated by a form of religious coping, namely appraising negative events as indicating God’s abandonment/punishment (APA), and (b) ATG style moderated the effects of negative events on negative wellbeing, with low levels of ATG-anxiety buffering these effects. These findings show similarities with human attachment research, and provide some evidence that ATG may function in psychologically similar ways to human attachment. The findings also have potential therapeutic applications, as discussed previously. Another contribution is to the wider

literature examining the relationship between spirituality and mental health. A number of researchers have suggested that a key mechanism by which spirituality may promote better mental health is through providing a coping resource that buffers the effects of negative events (e.g., Fallot, 1997; Idler, 2004; McIntosh et al., 1993; T. B. Smith et al., 2003). The findings of this study provide support for this and pinpoint one specific dimension of spirituality that may account for this effect: a relationship with God marked by low ATG-anxiety. The study also suggests that high levels of ATG-anxiety may promote maladaptive forms of coping that increase vulnerability to negative events and contribute to poorer mental health. This is important to recognise, as some discussions appear to assume that spirituality consistently provides a resource for psychological wellbeing. The findings of this study suggest that it is naïve to assume that a relationship with God (or spirituality in general) will necessarily promote greater resilience to adversity, as the effect depends on the specific nature of this relationship.

Findings also contribute to the growing body of literature on religious coping. One gap in this literature is the lack of understanding of what factors lead certain individuals to draw on different religious coping strategies (Belavich & Pargament, 2002). The literature on human attachment has established strong theoretical and empirical links between attachment style and individual differences in coping behaviour. It has been suggested that ATG may similarly play an important role in explaining choice of religious coping methods (Belavich & Pargament, 2002); however, little previous research had tested this. The present study contributes support for this view, in finding that ATG-anxiety and avoidance are predictors of abandoning/punishing appraisals (APA) and seeking support from God (SSG) respectively. These relationships also provide insight as to what is measured by the Brief RCOPE subscales, from which the APA and SSG measures were derived. The Brief RCOPE is rapidly gaining popularity among religious coping researchers, and may be the most widely used religious coping measure at present. Despite this, there has been little theoretical discussion of precisely what is measured by the subscales. Typically, they are described as simply assessing a range of religious coping behaviours with positive or negative implications for mental health (e.g., Pargament et al., 1998). The strong relationships between ATG and religious coping found in the present study provide some insight as to what the subscales may measure. Specifically, findings indicate that the Negative Religious Coping subscale essentially taps expressions of ATG-anxiety (i.e., a sense of abandonment or rejection by God), in

times of adversity. The Positive Religious Coping subscale appears to essentially tap the proximity-seeking/safe haven-seeking behaviours that mark low ATG-avoidance<sup>9</sup>. These insights may provide researchers with a theoretical framework from which to derive hypotheses regarding the effects of positive and negative religious coping on mental health. Future researchers may also consider removing the items less relevant to ATG, given that this was found to improve the statistical fit and conceptual clarity of the scale.

## **Suggestions for Future Research**

### **Improved measurement of ATG-avoidance**

A number of suggestions for future research can be made on the basis of findings of the present study. A necessary first step is to address the ATG measurement issues raised in this study. Suggestions for improving measurement of ATG-avoidance in future studies have been outlined in previous sections. These improvements will allow future studies to ascertain the true nature of the relationship between ATG-avoidance and mental health. If ATG-avoidance predicts poorer mental health as hypothesised, researchers could then investigate the mechanisms hypothesised in the present study to account for this effect. Specifically, research could investigate whether ATG-avoidance affects mental health through reducing individuals' tendency to seek support from God and increasing vulnerability to negative events. Because ATG-avoidance did not show the hypothesised relationship with emotional wellbeing in the present study, these mechanisms could not be explored.

### **Testing the generalisability of findings**

Knowledge regarding the ATG-mental health relationship could be advanced by determining whether findings of the present study generalise to (a) other Christian samples, (b) members of other religious traditions and (c) clinical samples. Firstly, it

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<sup>9</sup> Although the subscales were modified in the present study by deleting the items less relevant to APA and SSG, the full subscales appear to tap expressions of ATG-anxiety and avoidance in the same way. This is indicated by the high correlations between (a) the full Negative Religious Coping subscale and ATG-anxiety ( $r = .67$ ), and (b) the full Positive Religious Coping subscale and ATG-avoidance ( $r = .72$ ). Further evidence is provided by CFA findings, which demonstrated that (a) the highest loading items on the negative and Positive Religious Coping subscales were those most relevant to the constructs of ATG-anxiety and avoidance, (b) the lowest loading items were those least relevant to these constructs, and (c) the fit of the scale improved when items less relevant to ATG were deleted.

would be beneficial to explore the ATG-mental health relationship in Christian samples with greater representation of high ATG-anxiety/avoidance levels, as this may affect the magnitude of the relationship. In order to locate such a sample, it may be necessary to target Christian counselling/support groups focused on spiritual problems. It is also possible that some individuals with insecure ATG are no longer affiliated with religious organisations (H. J. Chen, 2005), or with the Christian faith at all (R. Beck, 2006b). It may be prudent for future studies to extend their samples to include such individuals, although it will be important to ensure that these individuals still retain views consistent with the Christian conceptualisation of ATG. It may also be helpful to test the generalisability of findings to Christian samples representing a range of denominational and ethnic groups. Although no published evidence to date suggests denominational or ethnic differences in the ATG-mental health relationship, this cannot be determined conclusively without explicit testing. Future research conducted in Christian samples might also consider assessing attachment to different members of the trinity (God the Father, Jesus, the Holy Spirit). In a recent critique of ATG theory, Miner (2007) suggests that Christians' attachment bonds may differ across these three relationships. Thus, it would be useful to determine whether the ATG-mental health relationship also differs depending on which member of the trinity is referenced in ATG measures.

Secondly, it is of interest to explore the ATG-mental health relationship amongst members of other faith traditions (e.g., Muslim, Hindu and Buddhist samples). Given differences between religious traditions, such research will firstly require the development of appropriate measures for assessing ATG in such groups. Thirdly, the ATG-mental health relationship should be explored in clinical populations. Research in this field is most likely to achieve 'real world' outcomes if the role of ATG in clinical populations and therapy is better understood. This may involve exploring questions such as:

- i. Whether ATG-anxiety/avoidance precipitate or perpetuate the development of mental health problems in clinical populations.
- ii. Whether secure ATG predicts better therapeutic outcomes (e.g., faster recovery or lowered risk of relapse), and if so, the mechanisms through which this occurs.
- iii. Whether it is possible to facilitate improvement in clients' ATG through therapeutic intervention, and if so, whether such changes improve therapy outcomes.

Such research would provide invaluable insights to guide the incorporation of ATG into assessment and treatment of religious clients.

In addition to exploring the generalisability of study findings to other samples, it would also be useful to explore whether findings generalise to other forms of mental health besides emotional wellbeing. Relationships between spiritual variables and mental health have been found to differ depending on the mental health variable measured (e.g., Dew et al., 2008; Gartner, 1996; Payne et al., 1991), as have relationships between human attachment style and mental health (e.g., L. S. Brown & Wright, 2003; Burge et al., 1997; Overbeek et al., 2004; Pianta, Egeland, & Adam, 1996). It is possible that the relationship between ATG and mental health also differs depending on the specific dimension of mental health assessed.

### **Further exploration of moderators and mediators**

The moderating effect of gender on the relationship between ATG-anxiety and mental health found in the present study was contrary to prior theory and research. To determine whether this reflects a widespread pattern or an anomaly of the present study, future studies could test gender differences using different (a) sample groups, (b) ATG measures, and (c) time frames over which the effect is examined. If the gender differences are replicated, it would be of interest to determine the underlying reasons for these differences. Possible explanations proposed in the discussion (e.g., relating to differing levels of social support) may help to guide such explorations.

The present study found that the relationship between ATG-anxiety and emotional wellbeing was mediated by APA. Other coping styles could be explored in future studies, given that ATG is thought to influence a range of religious and also secular coping styles (Belavich & Pargament, 2002; Gall, 2000). It would be particularly useful to explore the coping styles associated with *low* ATG-anxiety, given that low ATG-anxiety appeared to buffer the effects of negative events in the present study. Theory from relevant fields also suggests other variables that may mediate the ATG-mental health relationship, including self-esteem (e.g., Gall et al., 2007; George et al., 2000; Proctor et al., in press), and human relationship functioning (e.g., Cutland, 2000; V. W. Harris, Marshall et al., 2008). Identification of mediators is important for advancing our understanding of the relationship between ATG and mental health and may also contribute to the development of therapeutic applications.

### **Additional time points and covariates**

The present study has established initial evidence suggesting that ATG may influence mental health, and this would be strengthened by studies measuring ATG and emotional wellbeing over a greater number of time points. Such an approach would allow individual differences in rates of change to be taken into account, through the use of latent growth curve modelling or multilevel modelling (Duncan & Duncan, 2004; Quintana & Maxwell, 1999). This approach would also facilitate further exploration of the reverse effect found in the present study, whereby negative wellbeing predicted increased ATG-anxiety. For example, if this effect is replicated, it would be helpful to understand whether the change in ATG tends to be temporary or enduring. Such questions would be most effectively answered with multiple assessment points, covering over a longer timeframe than that of the present study. Other predictors of change in ATG could also be explored, as this may be of particular relevance to therapy. For example, identifying environmental or person-related factors that promote a decrease in ATG-anxiety may inform development of therapeutic strategies for improving ATG. A study using multiple time points could also strengthen findings regarding the mediating effect of religious coping. Specifically, by assessing religious coping at multiple time points, the direction of the relationship between religious coping and mental health could also be assessed.

Findings of future prospective research could be further strengthened by identifying and controlling additional variables that may account for prospective relationships between ATG and mental health (i.e., variables that causally affect both ATG and mental health). As yet, the only variable clearly identified as meeting these criteria is human attachment style, which was taken into account in the present study. However, other such variables may exist. One possibility worthy of exploration in future research relates to personality factors (Miner, 2009), which may influence the development of ATG style as well as having a causal impact on emotional wellbeing. As research on ATG develops, other potential confounding variables may be identified and can be taken into account in future studies.

## Conclusion

A substantial body of research has explored the relationship between spirituality and mental health, yet few of these studies have focused on people's experience of their relationship with God (ERG). This is regrettable given the centrality of ERG to spirituality, particularly within monotheistic religions such as Christianity. ERG may also be more strongly associated with mental health than a number of other, more frequently measured variables such as religious affiliation and attendance. An understanding of the relationship between ERG and mental health also has important therapeutic implications. Specifically, addressing ERG in mental health assessment and treatment may enable clinicians to provide more culturally sensitive and appropriate care for religious clients, and may promote a more holistic understanding of the factors impacting clients' mental health. These factors suggest the value of exploring the ERG-mental health relationship.

In order to guide research on the ERG-mental health relationship, and integration of ERG into therapy, it is imperative that researchers and clinicians work from a sound theoretical framework. Although no single framework is able to fully capture ERG or its relationship with mental health, ATG theory offers a coherent, valuable framework with a number of benefits for therapeutic application. Evidence suggests that a relationship with God can be meaningfully conceptualised as an attachment bond, particularly for members of monotheistic religions such as Christianity. To date however, little research has examined the relationship between ATG and mental health, and prior studies have shown a number of methodological limitations. The present study advances knowledge through exploring the relationship between ATG and emotional wellbeing in a sample of 531 Christians, using a cross-lagged research design.

In the present study, ATG was measured in terms of the two dimensions currently thought to best represent the factors underlying attachment style: ATG-anxiety and avoidance. Contrary to hypotheses, higher levels of ATG-avoidance prospectively predicted better emotional wellbeing amongst males, and did not predict emotional wellbeing amongst females. These unexpected findings may reflect problems with the ATGS-avoidance subscale used in the present study. Specifically, items assessed individuals' degree of dependence/intimacy rather than their level of *comfort* with dependence/intimacy. Also, some items referred to levels of dependence

which may have been unhealthy. As a result, low ATGS-avoidance scores may partially reflect an unhealthy form of dependence on God and/or detrimental psychological traits such as low self-efficacy. This highlights a potential limitation of the ATGS-avoidance subscale and the measure from which items were derived (AGI-avoidance), and provides important recommendations for future development of ATG measures.

The present study provided some evidence to suggest that higher levels of ATG-anxiety may lead to poorer emotional wellbeing. However, this effect was non-significant amongst females, an unanticipated finding requiring further investigation. Another unexpected finding was that negative wellbeing predicted an increase in ATG-anxiety amongst females experiencing a high severity of negative events. The possibility that ATG may be influenced by mental health has never been explicitly discussed. This 'reverse' effect highlights the problem with cross-sectional research, which is unable to examine the direction of the relationship, and suggests the need for future studies to take this into account. The finding suggests that poor mental health, in the context of negative events, may lead people to question God's love and to feel condemned or abandoned by God. This possibility had been discussed in related fields (e.g., Exline et al., 1999; T. A. Hall, 1995; Koenig, 2005; Moriarty, 2006) but had not been tested directly.

Although direct calculations of effect size were not possible, the effects of ATG-anxiety appeared to be of a meaningful magnitude amongst males. Effects were stronger amongst males who experienced a higher severity of negative events. This suggests that negative events may activate the ATG system, increasing the salience of the beliefs and coping strategies associated with ATG-anxiety, and thereby increasing the effect of ATG-anxiety on mental health. In the present study, participants with higher ATG-anxiety were more likely to appraise negative events as indicating God's abandonment/punishment. This provides a possible explanation for why the effects of ATG-anxiety on mental health increased under the presence of more severe negative events. Indeed, these abandonment/punishment appraisals were found to fully mediate the effect of ATG-anxiety on emotional wellbeing in the present study. This suggests that one mechanism through which ATG-anxiety may influence emotional wellbeing is by influencing the way in which people interpret negative events. In line with this, respondents with high ATG-anxiety (combined with low ATG-avoidance) appeared to be more vulnerable to the harmful effects of negative events, compared with

respondents reporting low ATG-anxiety. Amongst those with low ATG-anxiety, the effect of negative events on emotional wellbeing was non-significant. This may suggest that a relationship with God experienced as a source of acceptance and security has the potential to buffer the effects of negative events. These findings may have implications for therapy with Christian clients, as discussed.

The present study advances knowledge regarding the association between Christians' experience of their relationship with God and their mental health, by deriving and testing hypotheses based on ATG theory. Research on ATG is still in its infancy, and the present study represents only one step in developing our understanding of the implications of ATG for psychological functioning. Many questions remain unanswered, including those raised by a number of unexpected findings of the present study. The study also has a number of limitations, for example relating to measurement of ATG-avoidance and the small proportion of participants exhibiting high levels of ATG-anxiety and avoidance. Nonetheless, the present study represents the most methodologically rigorous exploration of the ATG-mental health relationship to date. Findings suggest the potential salience of ATG for the psychological health of Christians, and it is hoped that this will spark interest for future researchers to investigate this important field. Ultimately, it is hoped that findings may motivate further movement toward the goal of providing mental health care that addresses clients' spiritual needs in an ethical, respectful and effective way.

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## APPENDIX A

### Time 1 Questionnaire

Thank you for participating in this study. Your honesty in answering the following questions about yourself is extremely important. All of your responses are completely anonymous.

#### Attachment to God Scale<sup>10</sup>

Items are taken from Rowatt and Kirkpatrick's unnamed measure of ATG (Rowatt & Kirkpatrick, 2002) and the Attachment to God Inventory (AGI; R. Beck and McDonald, 2004)

*The following statements concern your feelings and experiences of your current relationship with God. Please indicate the degree to which you agree with the following statements, using the scale below:*

<b>SA</b>	<b>A</b>	<b>N</b>	<b>D</b>	<b>SD</b>
<b>Strongly agree</b>	<b>Agree</b>	<b>Neutral/mixed</b>	<b>Disagree</b>	<b>Strongly disagree</b>

#### AGI-anxiety<sup>11</sup>

1.	I crave reassurance from God that God loves me	SA	A	N	D	SD
2.	I worry a lot about damaging my relationship with God	SA	A	N	D	SD
3.	Even if I fail, I never question that God is pleased with me	SA	A	N	D	SD
5.	I often feel angry with God for not responding to me when I want	SA	A	N	D	SD
13.	If I can't see God working in my life, I get upset or angry	SA	A	N	D	SD
15.	Almost daily I feel that my relationship with God goes back and forth from "hot" to "cold"	SA	A	N	D	SD
17.	I am jealous when others feel God's presence when I cannot	SA	A	N	D	SD
20.	I am jealous at how God seems to care more for others than for me	SA	A	N	D	SD
21.	I worry a lot about my relationship with God	SA	A	N	D	SD
25.	I am jealous at how close some people are to God	SA	A	N	D	SD
26.	I often worry about whether God is pleased with me	SA	A	N	D	SD
27.	Sometimes I feel that God loves others more than me	SA	A	N	D	SD
32.	I get upset when I feel God helps others, but forgets about me	SA	A	N	D	SD
35.	I fear God does not accept me when I do wrong	SA	A	N	D	SD

<sup>10</sup> Note that the actual questionnaire did not contain the names of measures.

<sup>11</sup> AGI = Attachment to God Inventory. In the questionnaire, subscale names for this measure were not shown, and items were not grouped in subscales but ordered by item number (shown to the left).

AGI-Avoidance

4.	My prayers to God are very emotional	SA	A	N	D	SD
8.	I am totally dependent upon God for everything in my life	SA	A	N	D	SD
9.	My experiences with God are very intimate and emotional	SA	A	N	D	SD
10.	Without God I couldn't function at all	SA	A	N	D	SD
11.	I believe people should not depend on God for things they should do for themselves	SA	A	N	D	SD
12.	It is uncommon for me to cry when sharing with God	SA	A	N	D	SD
14.	I prefer not to depend too much on God	SA	A	N	D	SD
16.	Daily I discuss all of my problems and concerns with God	SA	A	N	D	SD
18.	I am uncomfortable allowing God to control every aspect of my life	SA	A	N	D	SD
22.	I am uncomfortable being emotional in my communication with God	SA	A	N	D	SD
24.	I let God make most of the decisions in my life	SA	A	N	D	SD
29.	My prayers to God are often matter-of-fact and not very personal	SA	A	N	D	SD
30.	I just don't feel a deep need to be close to God	SA	A	N	D	SD
34.	I am uncomfortable with emotional displays of affection to God	SA	A	N	D	SD

RK-Anxiety<sup>12</sup>

7.	God sometimes seems responsive to my needs, but sometimes not	SA	A	N	D	SD
19.	God's reactions to me seem to be inconsistent	SA	A	N	D	SD
23.	God sometimes seems very warm and other times very cold to me	SA	A	N	D	SD

RK-Avoidance

6.	God seems impersonal to me	SA	A	N	D	SD
28.	God seems to have little or no interest in my personal problems	SA	A	N	D	SD
31.	God seems to have little or no interest in my personal affairs	SA	A	N	D	SD
34.	God knows when I need support	SA	A	N	D	SD
36.	I have a warm relationship with God	SA	A	N	D	SD

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<sup>12</sup>RK = Rowatt and Kirkpatrick's unnamed measure of ATG.

**Affectometer 2** (Kammann & Flett, 1983a)

*Below is a list of statements dealing with how you might have felt about your life over the past few weeks. Please describe your honest feelings as best as you can. Indicate how often you have felt this way over the past few weeks, using this scale:*

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Not at all</b>	<b>Occasionally</b>	<b>Some of the time</b>	<b>Often</b>	<b>All the time</b>

- |  |   |   |   |   |   |
|--|---|---|---|---|---|
| 1. My life is on the right track                                   | 1 | 2 | 3 | 4 | 5 |
| 2. I seem to be left alone when I don't want to be                 | 1 | 2 | 3 | 4 | 5 |
| 3. I feel I can do whatever I want to                              | 1 | 2 | 3 | 4 | 5 |
| 4. I think clearly and creatively                                  | 1 | 2 | 3 | 4 | 5 |
| 5. I feel like a failure   | 1 | 2 | 3 | 4 | 5 |
| 6. Nothing seems very much fun anymore                             | 1 | 2 | 3 | 4 | 5 |
| 7. I like myself   | 1 | 2 | 3 | 4 | 5 |
| 8. I can't be bothered doing anything                              | 1 | 2 | 3 | 4 | 5 |
| 9. I feel close to people around me                                | 1 | 2 | 3 | 4 | 5 |
| 10. I feel as though the best years of my life are over            | 1 | 2 | 3 | 4 | 5 |
| 11. My future looks good   | 1 | 2 | 3 | 4 | 5 |
| 12. I have lost interest in other people and don't care about them | 1 | 2 | 3 | 4 | 5 |
| 13. I have energy to spare   | 1 | 2 | 3 | 4 | 5 |
| 14. I smile and laugh a lot  | 1 | 2 | 3 | 4 | 5 |
| 15. I wish I could change some parts of my life                    | 1 | 2 | 3 | 4 | 5 |
| 16. My thoughts go around in useless circles                       | 1 | 2 | 3 | 4 | 5 |
| 17. I can handle any problems that come up                         | 1 | 2 | 3 | 4 | 5 |
| 18. My life seems stuck in a rut                                   | 1 | 2 | 3 | 4 | 5 |
| 19. I feel loved and trusted                                       | 1 | 2 | 3 | 4 | 5 |
| 20. I feel there must be something wrong with me                   | 1 | 2 | 3 | 4 | 5 |

**Positive and Negative Affect Scale (PANAS; Waston et al., 1988)<sup>13</sup>**

The following words describe different feelings and emotions. Read each item then circle the appropriate number next to each word. Indicate to what extent you have felt this way during the past few weeks.

1	2	3	4	5
Very slightly (or not at all)	A little	Moderately	Quite a bit	Extremely

Interested	1 2 3 4 5	Alert	1 2 3 4 5
<b>Distressed</b>	1 2 3 4 5	<b>Ashamed</b>	1 2 3 4 5
Excited	1 2 3 4 5	Inspired	1 2 3 4 5
<b>Upset</b>	1 2 3 4 5	<b>Nervous</b>	1 2 3 4 5
Strong	1 2 3 4 5	Determined	1 2 3 4 5
<b>Guilty</b>	1 2 3 4 5	Attentive	1 2 3 4 5
<b>Scared</b>	1 2 3 4 5	<b>Jittery</b>	1 2 3 4 5
<b>Hostile</b>	1 2 3 4 5	Active	1 2 3 4 5
Enthusiastic	1 2 3 4 5	<b>Afraid</b>	1 2 3 4 5
<b>Irritable</b>	1 2 3 4 5		

**Relationship Questionnaire (RQ; Bartholomew & Horowitz, 1991)**

Following are four general relationship styles that people often report. Please rate each relationship style to indicate how well or poorly it corresponds to your general relationship style. Use the rating scale below.

1	2	3	4	5	6	7
<b>Disagree Strongly</b>			<b>Neutral/ Mixed</b>			<b>Agree Strongly</b>

- A. It is easy for me to become emotionally close to others. I am comfortable depending on them and having them depend on me. I don't worry about being alone or having others not accept me. 1 2 3 4 5 6 7
- B. I am uncomfortable getting close to others. I want emotionally close relationships, but I find it difficult to trust others completely, or to depend on them. I worry that I will be hurt if I allow myself to become too close to others. 1 2 3 4 5 6 7
- C. I want to be completely emotionally intimate with others, but I often find that others are reluctant to get as close as I would like. I am uncomfortable being without close relationships, but I sometimes worry that others don't value me as much as I value them. 1 2 3 4 5 6 7
- D. I am comfortable without close emotional relationships. It is very important to me to feel independent and self-sufficient, and I prefer not to depend on others or have others depend on me. 1 2 3 4 5 6 7

<sup>13</sup>Only items from the negative affect subscale were used in the present study. These are shown in bold type here for clarity.

**Items assessing the emotional quality of participants' relationship with God**

*To what extent is your current relationship with God a source of: (circle the answer that best applies)*

- |                      |            |          |             |              |
|----------------------|------------|----------|-------------|--------------|
| 1. Distress/anxiety: | Not at all | Somewhat | Quite a bit | A great deal |
| 2. Happiness:        | Not at all | Somewhat | Quite a bit | A great deal |
| 3. Comfort/peace:    | Not at all | Somewhat | Quite a bit | A great deal |
| 4. Sadness:          | Not at all | Somewhat | Quite a bit | A great deal |

**Centre for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977)**

*Below is a list of the ways you might have felt or behaved. Please indicate how often you have felt this way during the past week.*

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>Rarely or none of the time (less than 1 day)</b>	<b>Some or a little of the time (1-2 days)</b>	<b>Occasionally or a moderate amount of time (3-4 days)</b>	<b>Most or all of the time (5-7 days)</b>

- |   |   |   |   |   |
|---|---|---|---|---|
| 1. I was bothered by things that usually don't bother me                                | 1 | 2 | 3 | 4 |
| 2. I did not feel like eating; my appetite was poor                                     | 1 | 2 | 3 | 4 |
| 3. I felt that I could not shake off the blues even with help from my family or friends | 1 | 2 | 3 | 4 |
| 4. I felt I was just as good as other people  | 1 | 2 | 3 | 4 |
| 5. I had trouble keeping my mind on what I was doing                                    | 1 | 2 | 3 | 4 |
| 6. I felt depressed   | 1 | 2 | 3 | 4 |
| 7. I felt that everything I did was an effort   | 1 | 2 | 3 | 4 |
| 8. I felt hopeful about the future  | 1 | 2 | 3 | 4 |
| 9. I thought my life had been a failure   | 1 | 2 | 3 | 4 |
| 10. I felt fearful  | 1 | 2 | 3 | 4 |
| 11. My sleep was restless   | 1 | 2 | 3 | 4 |
| 12. I was happy   | 1 | 2 | 3 | 4 |
| 13. I talked less than usual  | 1 | 2 | 3 | 4 |
| 14. I felt lonely   | 1 | 2 | 3 | 4 |
| 15. People were unfriendly  | 1 | 2 | 3 | 4 |
| 16. I enjoyed life  | 1 | 2 | 3 | 4 |
| 17. I had crying spells   | 1 | 2 | 3 | 4 |
| 18. I felt sad  | 1 | 2 | 3 | 4 |
| 19. I felt that people dislike me   | 1 | 2 | 3 | 4 |
| 20. I could not get "going"   | 1 | 2 | 3 | 4 |



## APPENDIX B

### Additional Relevant Measures Administered at Time 2

#### Psychiatric Epidemiology Research Interview Life Events Scale

(PERI; Dohrenwend et al., 1978)

*Listed below are a number of negative events which sometimes bring about changes in the lives of those who experience them. Please place a cross in the boxes beside all of the events you have experienced over the past 12 months.*

#### Housing and Finance

- Moved to a worse residence or neighborhood
- Foreclosure of a mortgage or loan
- Repossession of a car, furniture or other items bought on installment plan
- Took a cut in wage/salary (without a demotion) or did not get expected wage/salary increase
- Suffered a financial loss or loss of property not related to work
- Went on welfare
- Lost a home through fire, flood or other disaster

#### Work/School/Training program

- Had problems in school/training program
- Failed school/training program
- Changed jobs for a worse one
- Had trouble with a boss
- Demoted at work, or conditions at work got worse
- Laid-off or fired
- Suffered a business loss or failure

#### Accidents, injuries, illness

- Accident in which there were no injuries
- Physical illness
- Injury
- Unable to get treatment for illness/injury
- Assaulted or robbed

**Legal**

- Involved in a law suit or court case, or accused of a crime
- Arrested or convicted of a crime
- Lost drivers license

**Relationships**

- Relations with spouse/partner changed for the worse, without separation or divorce
- Separated from spouse/partner
- Divorce
- Marital/partner infidelity
- Serious family argument with someone other than spouse/partner
- Trouble with in-laws
- Someone stayed on in the household after they were expected to leave
- Miscarriage or stillbirth
- Abortion
- Found out you cannot have children
- Spouse/partner died
- Child died
- Family member other than spouse/partner/child died
- Close friend died
- Pet died
- Engagement was broken
- Broke up with a friend

**Other**

- Was not able to take a planned vacation
- Dropped a hobby/sport/recreational activity
- Other (specify) \_\_\_\_\_
- Other (specify) \_\_\_\_\_
- Other (specify) \_\_\_\_\_

**Brief Measure of Religious Coping** (Brief RCOPE; Pargament et al., 1998)

*The following items deal with different ways people try to cope with negative events in their life. Think about the most negative events you have faced over the past year and indicate how often you did each of the following, during that time. Don't answer on the basis of whether it worked or not – just how often you did it. Circle the answer that best applies to you.*

1	2	3	4
Not at all	Somewhat	Quite a bit	A great deal

- |  |   |   |   |   |
|--|---|---|---|---|
| 1. Looked for a stronger connection with God                               | 1 | 2 | 3 | 4 |
| 2. Sought God's love and care  | 1 | 2 | 3 | 4 |
| 3. Wondered whether God had abandoned me                                   | 1 | 2 | 3 | 4 |
| 4. Sought help from God in letting go of my negative feelings              | 1 | 2 | 3 | 4 |
| 5. Felt punished by God for my lack of devotion                            | 1 | 2 | 3 | 4 |
| 6. Tried to put my plans into action together with God                     | 1 | 2 | 3 | 4 |
| 7. Wondered whether my church had abandoned me                             | 1 | 2 | 3 | 4 |
| 8. Decided the devil made this happen                                      | 1 | 2 | 3 | 4 |
| 9. Tried to see how God might be trying to strengthen me in this situation | 1 | 2 | 3 | 4 |
| 10. Questioned God's love for me   | 1 | 2 | 3 | 4 |
| 11. Asked forgiveness for my sins  | 1 | 2 | 3 | 4 |
| 12. Focused on God to stop worrying about my problems                      | 1 | 2 | 3 | 4 |
| 13. Wondered what I did for God to punish me                               | 1 | 2 | 3 | 4 |
| 14. Questioned the power of God  | 1 | 2 | 3 | 4 |

## APPENDIX C

### Information Sheets

#### (1) Time 1 Information Sheet Accompanying Paper Questionnaire

You are invited to participate in this research project being undertaken by Sarah Calvert and Yolanda Duncan from Massey University.

This study aims to examine Christians' wellbeing and their relationships with God. Your participation has the potential to help counselors to improve their work with Christian clients. The questionnaire takes approximately 15 minutes to complete.

- **Your responses are completely anonymous**
- **Your participation is entirely voluntary**
- **You may choose not to answer any questions that cause you discomfort**
- **Completion and return of the questionnaire implies consent**
- **Anyone who identifies as a Christian and is 16 years or older may take part**

It would be a great help to us if you could complete a similar questionnaire in 3 months time. This is an important part of the research we are doing, as it will help us to explore potential changes that occur over time. If you are willing to do so, please complete the address sheet attached, and return it in the second envelope provided. Using a separate envelope means that your contact details will not be linked with your responses. In this way we can send you a second copy of the questionnaire in 3 months, while still protecting the anonymity of your responses.

No identifying information will be gathered, and only summary data will be used for research projects and publications. Questionnaires will be stored under locked conditions in the School of Psychology for five years and then will be destroyed.

If you would like to receive a summary of the results of the study, please send an e-mail to: Sarah.Calvert.2@uni.massey.ac.nz, with "Results request" in the subject line. I will e-mail a summary to you when the study is complete.

If you experience discomfort or distress as a result of completing the questionnaire, please contact your pastor. If you have any concerns regarding this research, please contact either of the supervisors: Dr Dave Clarke, (09) 414 0800 x 41214, D.Clarke@massey.ac.nz, or Dr. Paul Merrick, (09) 414 0800 x 41231, P.L.Merrick@massey.ac.nz.

*Thank you for your contribution to this research,  
your responses are greatly valued.*

This project has been reviewed and approved by the Massey University Human Ethics Committee, ALB application 06/017 and 06/018. If you have any concerns about the conduct of this research, please contact Associate Professor Kerry Chamberlain, Chair, Massey University Campus Human Ethics Committee: Albany, telephone 09 414 0800 x 41226, e-mail humanethicsalb@massey.ac.nz.

## (2) Time 1 Information Sheet Accompanying Online Questionnaire

You are invited to participate in this research project being undertaken by Sarah Calvert and Yolanda Duncan from Massey University. This study aims to examine Christian's wellbeing and their relationships with God. Your participation will help counselors to improve their work with Christian clients.

The questionnaire takes approximately 15 minutes to complete. Your responses are **completely anonymous**. No identifying information will be gathered, and only summary data will be used for research projects and publications. You can choose not to answer any questions that you are uncomfortable with.

The only criteria for taking part in this survey are that you identify as a Christian, and are **16 years or older**.

If you would like to receive a summary of the results of the study, please send an e-mail to: sarah.calvert.2@uni.massey.ac.nz, with "Results request" in the subject line. I will e-mail a summary to you when the study is complete.

It would be a great help to us if you could complete a similar questionnaire in 3 months time. This is an important part of the research we are doing, as it will help us to explore potential changes that occur over time. If you are willing to do so, please complete the address sheet that will appear at the end of the survey. Your contact details cannot be linked to your survey, so completing them will not affect the anonymity of your responses.

If you experience discomfort or distress as a result of completing this questionnaire, please contact your pastor. If you have any concerns regarding this research, please contact the Supervisor: Dr Dave Clarke, (09) 414 0800 x 41214, d.clarke@massey.ac.nz.

Please click **HERE** to begin the survey

This project has been reviewed and approved by the Massey University Human Ethics Committee, ALB application 06/017 and 06/018. If you have any concerns about the conduct of this research, please contact Associate Professor Kerry Chamberlain, Chair, Massey University Campus Human Ethics Committee: Albany, telephone 09 414 0800 x 9078, e-mail humanethicsalb@massey.ac.nz.

### (3) Time 2 Information Sheet Accompanying Paper Questionnaire

Around three months ago you very generously participated in a research study on Christians' relationship with God. Thank you once again for your willingness to contribute to this research.

When you returned your survey, you indicated that you might be willing to participate in the second stage of this project. If you are still willing to do so, that would be greatly appreciated. The second questionnaire is enclosed, along with a postage-paid, return addressed envelope. Alternatively, you can do the survey online at [www.christian-survey.co.nz](http://www.christian-survey.co.nz).

As with the first survey:

- **Your responses are completely anonymous**
- **Your participation is entirely voluntary**
- **You may choose not to answer any questions that you cause discomfort**
- **Completion and return of the questionnaire implies consent**

Given the very large number of responses to the first questionnaire and the interest people have shown in the study, we have decided to extend this study to include a third time-point. It would be a great help if you could complete a similar (but shorter!) questionnaire in approximately 9 months time<sup>14</sup>. **You are in no way obligated to do this**, but if you are willing to do so, please complete the address sheet attached and return it in the second envelope provided.

No identifying information will be gathered, and only summary data will be used for research projects and publications. Questionnaires will be stored under locked conditions in the School of Psychology for five years and then will be destroyed.

If you would like to receive a summary of the results of the study and have not already e-mailed me, please send an e-mail to: [Sarah.Calvert.2@uni.massey.ac.nz](mailto:Sarah.Calvert.2@uni.massey.ac.nz), with "Results request" in the subject line. I will e-mail a summary to you when the study is complete.

If you experience discomfort or distress as a result of completing the questionnaire, please contact your pastor. If you have any concerns regarding this research, please contact either of the supervisors: Dr Dave Clarke, (09) 414 0800 x 41214, [D.Clarke@massey.ac.nz](mailto:D.Clarke@massey.ac.nz), or Dr. Paul Merrick, (09) 414 0800 x 41231, [P.L.Merrick@massey.ac.nz](mailto:P.L.Merrick@massey.ac.nz).

Thank you very much for your willingness to consider participating again in this study. In doing so, you will be contributing in an important way to much-needed research in this area.

Warmest wishes,

Yolanda Duncan and Sarah Calvert

This project has been reviewed and approved by the Massey University Human Ethics Committee, ALB application 06/017 and 06/018. If you have any concerns about the conduct of this research, please contact Associate Professor Kerry Chamberlain, Chair, Massey University Campus Human Ethics Committee: Albany, telephone 09 414 0800 x 41226, e-mail [humanethicsalb@massey.ac.nz](mailto:humanethicsalb@massey.ac.nz).

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<sup>14</sup> Note that these data were not collected.

#### (4) Time 2 Information Sheet Accompanying Online Questionnaire

Thank you so much for participating in the second part of this study on Christians' relationship with God. As with the first survey:

- **Your responses are completely anonymous**
- **Your participation is entirely voluntary**
- **You may choose not to answer any questions that you cause discomfort**
- **Submission of the questionnaire implies consent**

Given the very large number of responses to the first questionnaire and the interest people have shown in the study, we have decided to extend this study to include a third time-point. It would be a great help if you could complete a similar (but shorter!) questionnaire in approximately 9 months time.

**You are in no way obligated to do this**, but if you are willing to do so, please complete the form at the end of the survey. This form cannot be linked with your survey, so your responses will still remain anonymous.

No identifying information will be gathered, and only summary data will be used for research projects and publications. Questionnaires will be stored under locked conditions in the School of Psychology for five years and then will be destroyed.

If you would like to receive a summary of the results of the study and have not already e-mailed me, please send an e-mail to: Sarah.Calvert.2@uni.massey.ac.nz, with "Results request" in the subject line. I will e-mail a summary to you when the study is complete.

If you experience discomfort or distress as a result of completing the questionnaire, please contact your pastor. If you have any concerns regarding this research, please contact either of the supervisors: Dr Dave Clarke, (09) 414 0800 x 41214, D.Clarke@massey.ac.nz, or Dr. Paul Merrick, (09) 414 0800 x 41231, P.L.Merrick@massey.ac.nz.

**Thank you so much for participating again in this study. In doing so, you will be contributing in an important way to much-needed research in this area.**

Warmest wishes,

Sarah Calvert and Yolanda Duncan

Please click **[HERE](#)** to begin the survey

This project has been reviewed and approved by the Massey University Human Ethics Committee, ALB applications 06/017 and 06/018. If you have any concerns about the conduct of this research, please contact Associate Professor Kerry Chamberlain, Chair, Massey University Campus Human Ethics Committee: Albany, telephone 09 414 0800 x 41226, e-mail humanethicsalb@massey.ac.nz.

## APPENDIX D

### Review of Content Validity of ATG Items

#### ATG-Anxiety Items

At its core, attachment anxiety involves excessive preoccupation and anxiety concerning rejection or abandonment by attachment figures, and expressions of distress/anger when attachment figures are perceived as unresponsive (Fraley & Shaver, 2000; Wei, Russell, Mallinckrodt, & Vogel, 2007). The AGI-anxiety subscale includes items capturing these core facets, for example, “Sometimes I feel that God loves others more than me”, “I fear God does not accept me when I do wrong”, and “I often feel angry with God for not responding to me when I want”. Although items do not explicitly reference ‘abandonment’, they focus on anxieties regarding being rejected or unloved, which tap a sense of emotional abandonment. Some AGI-anxiety items appear less relevant to attachment anxiety. The item, “I worry a lot about damaging my relationship with God” may be less relevant given that attachment anxiety emphasises fears regarding the attachment figure’s responsiveness and care, rather than damage to the relationship. The item, “Almost daily I feel that my relationship with God goes back and forth from "hot" to "cold"” also does not seem to tap core aspects of ATG-anxiety. Additionally, the meaning of this item is somewhat ambiguous (e.g., does it mean that the respondent feels ‘hot’ then ‘cold’ about their relationship with God, or that God himself seems “hot” and “cold”?). Items may show poor psychometric properties as a result of the heterogeneity of interpretations (L. A. Clark & Watson, 1995).

The item, ‘Even if I fail, I never question that God is pleased with me (R)’ may be problematic if respondents equate failure with sin (i.e., moral failure). Many would assert (based on scripture) that God is not ‘pleased’ with them at that point, despite still loving them. Attachment anxiety is related more to concerns about whether one is loved or accepted than whether the attachment figure is pleased. Thus, even someone with a very secure (non-anxious) ATG may feel that God is displeased with them when they sin. The use of the word ‘pleased’ may also be problematic in the item, “I often worry about whether God is pleased with me”.

Three AGI-anxiety items index jealousy. In a factor analysis of attachment measures, scales indexing jealousy loaded highly on the ‘anxiety’ factor (Brennan et al., 1998), indicating that this is a valid indicator. However, given that jealousy is not typically considered a core feature of attachment anxiety, it may be prudent to reduce the number of items indexing jealousy to ensure that the scale does not over-represent this facet. Of the three, the item “I am jealous when others feel God's presence when I cannot” seems inferior given that it may tap jealousy regarding others’ perceived level of ‘spirituality’ (i.e., indicated by the ‘spiritual experience’ of sensing God’s presence). The other two items refer to jealousy regarding others’ closeness to God or God’s love for them, which is more directly relevant to ATG-anxiety.

The three RK-anxiety subscale items index a perception of God as inconsistent and unpredictable in his responsiveness and love (e.g., “God sometimes seems very warm and other times very cold toward me”). These perceptions capture only a limited aspect of attachment anxiety, but seem conceptually relevant. Items tapping similar perceptions (e.g., “Sometimes romantic partners change their feelings about me for no apparent reason”) are found on the anxiety subscale of the Experiences in Close Relationships Scale-Revised (ECR-R), suggesting their validity.

### **ATG-Avoidance Items**

The core of attachment avoidance is discomfort with, and a tendency to avoid, interpersonal closeness (including reluctance to self-disclose) and dependency (manifested as an excessive need for self-reliance; Brennan et al., 1998; Fraley and Shaver, 2000; Lopez, Mitchell, and Gormley, 2002; Wei, Russell, Mallinckrodt, and Vogel, 2007). A number of AGI-avoidance items seem to capture these core facets with respect to a relationship with God (e.g., “I prefer not to depend too much on God”).

One potential limitation of the AGI-avoidance subscale is that a number of items assess the ‘emotional’ nature of one’s relationship with God (e.g., “I am uncomfortable being emotional in my communication with God”, “I am uncomfortable with emotional displays of affection to God”). The authors used the term “emotional” in an attempt to capture respondents’ level of emotional participation in the relationship, as an indicator of intimacy (R. Beck, personal communication, May 04, 2008). However, by referring to the emotional nature of the relationship, ratings of these items may be influenced by factors not directly relevant to ATG-avoidance. Such

factors include the degree to which the participant typically (and currently) experiences strong emotion, and individual differences in emotional expression (i.e., extraneous factors related to personality, culture, and current circumstances). Notably, no ECR items index this concept or even use the term “emotional”. Instead, the ECR captures this facet using items such as, “I feel comfortable sharing my private thoughts and feelings with my partner (R)”. An additional problem with items indexing emotional communication is that they may be gender-biased, given that women tend to express more emotion in their communication compared with males (Searle & Meara, 1999), a difference apparently extending to relationships with God (Ozorak, 1996). The item, “It is uncommon for me to cry when sharing with God” is also problematic in this regard, given that crying is more common among females than males (Lombardo, Cretser, Lombardo, & Mathis, 1983; Salokangas, Vaahtera, Pacriev, Sohlman, & Lehtinen, 2002; Williams & Morris, 1996). Furthermore, there does not seem to be any firm basis for the assumption that intimacy with God is typically manifested in crying, for either gender.

The item, “I believe people should not depend on God for things they should do for themselves” may also be problematic. Firstly, this item refers to an opinion/judgement regarding people’s behaviour as opposed to one’s personal level of comfort depending on God. Secondly, responses may be influenced by participants’ degree of exposure to those who appear overly dependent on God. The lengthiness of this item is also problematic; longer items are more easily misinterpreted and more likely to contain several sources of variance (L. A. Clark & Watson, 1995).

Items from the RK-avoidance subscale tap general perceptions of God’s availability and responsiveness, which may be relevant to both attachment dimensions and not specific to ATG avoidance. Indeed, half of the RK-Avoidance items were derived from paragraphs describing secure ATG, which theoretically should reflect low attachment anxiety as well as avoidance. For example, one such item reads, “I have a warm relationship with God”. This seems likely to receive similarly low ratings from participants with high ATG anxiety and avoidance. The lack of conceptual distinctiveness of items is reflected in the subscale’s high correlation with RK-anxiety ( $r = .56$ ; Rowatt and Kirkpatrick, 2002).

## APPENDIX E

### Additional Details Relating to Analyses of the ATGS

#### Items Deleted in Forming the ATGS

Table E1

*First Set of Items Deleted from the ATG Scales*

Item number and content	Rationale for deletion
<i>ATG-anxiety items</i>	
(2) I worry a lot about damaging my relationship with God	<ul style="list-style-type: none"> <li>• Poor content validity</li> <li>• High cross-loading</li> </ul>
(3) Even if I fail, I never question that God is pleased with me	<ul style="list-style-type: none"> <li>• Poor content validity</li> <li>• Low factor loading in CFA and PCA</li> <li>• Low item-total correlation<sup>a</sup></li> <li>• Alpha for the subscale increases if the item is deleted</li> </ul>
(17) I am jealous when others feel God's presence when I cannot	<ul style="list-style-type: none"> <li>• High correlation (<math>r = .67</math>) with item 26, 'I am jealous at how close some people are to God'. Inter-item correlations of this magnitude suggest redundancy (Pett &amp; Johnson, 2005). Both items showed similar item properties and CFA/PCA loadings, but item 26 has superior content validity.</li> </ul>
<i>ATG-avoidance items</i>	
(4) My prayers to God are very emotional	<ul style="list-style-type: none"> <li>• Poor content validity</li> <li>• Low factor loading in CFA</li> <li>• High cross-loading</li> <li>• Low item-total correlation</li> </ul>
(11) I believe people should not depend on God for things they should do for themselves	<ul style="list-style-type: none"> <li>• Poor content validity</li> <li>• Low loading in CFA and PCA</li> <li>• Low item-total correlation</li> <li>• Alpha for the subscale increases if the item is deleted</li> </ul>
(12) It is uncommon for me to cry when sharing with God	<ul style="list-style-type: none"> <li>• Poor content validity</li> <li>• Low loading in CFA</li> <li>• Low item-total correlation</li> </ul>

<sup>a</sup>Items that correlate below 0.30 with the total scale score are considered poor (Meir & Gati, 1981).

Table E2

*Second Set of Items Deleted from the ATG Scales*

Item number and content	Rationale for deletion
<i>ATG-anxiety items</i>	
(1) I crave reassurance from God that God loves me	<ul style="list-style-type: none"> <li>• Low loading in all seven groups<sup>a</sup>, with a particularly low loading in males</li> <li>• High cross-loading in five groups</li> </ul>
(7) God sometimes seems responsive to my needs, but sometimes not	<ul style="list-style-type: none"> <li>• Low loading in six groups</li> </ul>
(13) If I can't see God working in my life, I get upset or angry	<ul style="list-style-type: none"> <li>• Low loading in males</li> <li>• Item indexes a facet of attachment anxiety (expressions of distress/anger when attachment figures are perceived as unresponsive) already tapped by items 5 and 33. The overlapping content with item 5 was further indicated by the correlated error terms of these items. Items 5 and 33 showed higher loadings and superior content validity. Specifically, item 5 refers to directly to God's responsiveness, and item 33 to a sense of having been 'forgotten' (akin to rejected) by God.</li> </ul>
(15) Almost daily I feel that my relationship with God goes back and forth from "hot" to "cold"	<ul style="list-style-type: none"> <li>• Poor content validity and confusing item wording</li> <li>• Low loading in four groups</li> </ul>
(25) I am jealous at how close some people are to God	<ul style="list-style-type: none"> <li>• Similar in content to item 20, "I am jealous at how God seems to care more for others than for me", and showed a lower loading than item 20 in all groups</li> </ul>
(26) I often worry about whether God is pleased with me	<ul style="list-style-type: none"> <li>• Potentially poor content validity</li> <li>• Low loading in males</li> <li>• High cross-loading in males</li> <li>• Error term was correlated with error terms from items 21 and 36, suggesting content overlap. Given the greater conceptual relevance of items 21 and 36, item 27 was deleted</li> </ul>

Table E2 Continued

Item number and content	Rationale for deletion
<i>ATG-avoidance items</i>	
(10) Without God I couldn't function at all	<ul style="list-style-type: none"> <li>• Low loadings in five groups</li> <li>• High cross-loadings in five groups</li> </ul>
(18) I am uncomfortable allowing God to control every aspect of my life	<ul style="list-style-type: none"> <li>• High cross-loading in five groups, particularly in males</li> </ul>
(22) I am uncomfortable being emotional in my communication with God	<ul style="list-style-type: none"> <li>• Poor content validity</li> <li>• Low loading in all groups, particularly males</li> </ul>
(33) I am uncomfortable with emotional displays of affection to God	<ul style="list-style-type: none"> <li>• Low loading in six groups</li> <li>• High cross-loading in males</li> </ul>

<sup>a</sup>Groups were: females, males, Pentecostals, Evangelicals, members of other denominations, high religious commitment, low religious commitment.

### Unstandardised Factor Loadings for ATGS Items

Table E3

*Unstandardised Factor Loadings (B) with Standard Errors and p-values for ATGS  
(see Figure 10)*

Item number and content	B	SE	p
ATG-anxiety factor			
(20) I am jealous at how God seems to care more for others than for me	1.40	0.12	.002
(27) Sometimes I feel that God loves others more than me	1.53	0.14	.002
(32) I get upset when I feel God helps others, but forgets about me	1.36	0.12	.002
(18) God's reactions to me seem to be inconsistent	1.17	0.11	.002
(22) God sometimes seems very warm and other times very cold to me	1.12	0.09	.003
(35) I fear God does not accept me when I do wrong	1.17	0.12	.002
(5) I often feel angry with God for not responding to me when I want	1.00	-	-
(21) I worry a lot about my relationship with God	1.13	0.11	.002
ATG-avoidance factor			
(14) I prefer not to depend too much on God	0.90	0.07	.002
(8) I am totally dependent upon God for everything in my life (R)	1.00	-	-
(30) I just don't feel a deep need to be close to God	0.75	0.07	.002
(16) Daily I discuss all of my problems and concerns with God (R)	0.86	0.07	.002
(9) My experiences with God are very intimate and emotional (R)	0.77	0.06	.003
(24) I let God make most of the decisions in my life (R)	0.74	0.06	.002
(29) My prayers to God are often matter-of-fact and not very personal	0.71	0.08	.002

*Note.* Items are ordered by standardised factor loadings, corresponding with Figure 10. Indicators with no SE and *p* values were reference items for the scale (i.e., their factor loadings were fixed to 1.0). (R) = reverse-scored item.

## Cross-validation of the ATGS

Table E4

*Test of Measurement Invariance of ATGS Across Development (n = 629) and Cross-Validation (n = 629) Samples*

Level of invariance	$\chi^2$	<i>df</i>	$\Delta\chi^2$	CFI	$\Delta$ CFI
Configural	693.27, <i>p</i> = .000	178		.91	
Metric	704.96, <i>p</i> = .000	191	11.69, <i>p</i> = .554	.91	.000
Scalar	725.93, <i>p</i> = .000	206	32.66, <i>p</i> = .249	.91	.001

### Relationships Between the ATGS and Relevant Measures

One form of evidence for the validity of a scale is provided by demonstrating that the scale relates as hypothesised to relevant constructs. It is also important to ensure that the scale does not tap relevant constructs so closely as to suggest they are indistinguishable. Latent correlations of .80 or greater are generally considered to indicate poor discriminant validity (T. A. Brown, 2006). Based on prior theory and research, a number of hypotheses were specified with regard to relationships between ATG dimensions and relevant constructs:

1. ATG-avoidance should predict a lower tendency to seek God's support in coping with adversity (e.g., Belavich & Pargament, 2002). This will be reflected in a negative correlation with a measure of 'seeking support from God' (derived from the Positive Religious Coping subscale of the Brief RCOPE).
2. ATG-anxiety should predict a greater tendency to appraise negative events as indicating God's abandonment/punishment (e.g., Kelley, 2003). This will be reflected in a positive correlation with a measure of 'abandoning/punishing reappraisals' (derived from the Negative Religious Coping subscale of the Brief RCOPE).
3. Respondents with higher levels of ATG-anxiety and avoidance should experience their relationship with God as a greater source of negative emotion and a lesser source of positive emotion, as has been found in human attachment research (Barry et al., 2007; J. A. Simpson, 1990). Specifically, interactions with attachment figures in a secure attachment relationship are believed to provide a direct source of positive emotional experiences, while negative emotions naturally result when

attachment figures are unresponsive or unavailable, failing to provide a safe haven/secure base (B. C. Feeney & Collins, 2004; Mikulincer & Sheffi, 2000). In line with this, research has found that higher levels of attachment anxiety/avoidance are associated with experiences of the attachment relationship as a greater source of negative emotion (e.g., anger, fear, sadness) and a lesser source of positive emotion (e.g., joy, contentedness; Barry et al., 2007; J. A. Simpson, 1990). In the present study this will be reflected in ATG-anxiety/avoidance showing (a) positive correlations with participants' ratings of the extent to which their relationship with God is a source of distress and sadness, and (b) negative correlations with participants' ratings of their relationship with God as a source of peace and happiness.

4. ATG-anxiety and avoidance should predict lower levels of religious commitment (e.g., H. J. Chen, 2005; Cicirelli, 2004; Sim & Loh, 2003). This will be reflected in negative correlations with the RCI-10. The relationship should be substantially stronger for ATG-avoidance, given that those with avoidant ATG should experience discomfort with activities that focus on their relationship with God and thus should typically avoid the types of activities described in the RCI-10.
5. ATG-anxiety and avoidance should show positive relationships with corresponding human attachment style dimensions (e.g., R. Beck & McDonald, 2004; Rowatt & Kirkpatrick, 2002). This will be reflected in positive correlations between ATG-anxiety and human attachment anxiety, and between ATG-avoidance and human attachment avoidance.

These predictions were tested using SEM. In addition to raw latent correlations ( $r$ ), standardised latent regression weights ( $\beta$ ) are reported, controlling for the opposite ATG dimension. Table E5 displays the results of these analyses. Most predictions were confirmed. All raw latent correlations between the ATG-anxiety/avoidance dimensions were in the hypothesised direction and significant. Correlations were below .80, providing some evidence for the discriminant validity of the ATGS.

Table E5  
*Latent Relationships Between ATG Dimensions and Relevant Constructs*

Variable	ATG-Anxiety		ATG-Avoidance	
	$r^a$	$\beta^b$	$r$	$\beta$
Religious coping				
SSG	-.28*	.04	-.72*	-.73*
APA	.67*	.74*	.16	-.17*
Emotional experiences stemming from relationship with God				
Distress	.45*	.43*	.25*	.05
Sadness	.39*	.40*	.20*	.04
Peace	-.47*	-.28*	-.52*	-.38*
Happiness	-.44*	-.24*	-.53*	-.41*
Religious commitment	-.42*	-.12*	-.68*	-.62*
Human attachment anxiety	.39*	.41*	.16*	-.04
Human attachment avoidance	.17*	.08	.22*	.18*

*Note.* Analyses were conducted using the Time 1 sample ( $N = 1,260$ ), with the exception of relationships with religious coping variables, which were analysed in the Time 2 sample ( $N = 509$ ). Exact sample sizes varied slightly depending on missing data. SSG = Seeking support from God; APA = Abandoning/punishing appraisals. <sup>a</sup>Raw latent correlations. <sup>b</sup>Standardised latent regression coefficients, controlling for the other ATG dimension.

\*  $p < .01$ .

As hypothesised, ATG-avoidance predicted a lower tendency to seek God's support in coping with adversity, and ATG-anxiety predicted a greater tendency to appraise negative events as indicating God's abandonment/punishment. The ATGS also showed hypothesised relationships with respondents' reports of the emotional experiences stemming from their relationship with God. ATG-anxiety and avoidance predicted experiences of one's relationship with God as a greater source of negative emotion (distress and sadness). This relationship was weaker for ATG-avoidance (compared with ATG-anxiety), and became non-significant after controlling for ATG-anxiety. This may reflect the inhibited acknowledgement of negative emotions that is typical of those with high levels of attachment avoidance (Goldberg, 1997). ATG-anxiety and avoidance also predicted experiences of one's relationship with God as a lesser source of positive emotion (peace and happiness). As predicted, ATG-anxiety and avoidance were negatively related to religious commitment, and this relationship was stronger for the avoidance dimension. Finally, ATG-anxiety and avoidance were positively correlated with corresponding human attachment style dimensions. These

relationships were of similar magnitude to previous studies (e.g., R. Beck & McDonald, 2004; Reinert, 2005; Rowatt & Kirkpatrick, 2002).

### Exploring Whether ATGS Items Tap Emotional Wellbeing

Many measures of 'spirituality' have been criticised for being contaminated with references to mental health/wellbeing, leading to spurious correlations with mental health measures (Koenig, 2008). A number of items in the ATGS (particularly the anxiety subscale) use terms relating to mental health (e.g., 'worry', 'upset'), suggesting the possibility that such items may tap mental health in addition to ATG. SEM was used to explore this possibility in two ways. Firstly, latent correlations between ATG dimensions and emotional wellbeing variables (positive wellbeing, depressive symptoms and negative affect) were estimated using SEM. No correlations between ATGS subscales and emotional wellbeing variables were overly high (latent correlations ranged from -.52 to +.52). Moreover, there was no evidence of substantial cross-loadings of ATGS items onto emotional wellbeing constructs. Secondly, SEM was used to explore the relationship between ATGS-anxiety and the PANAS-N in more depth. This was due to cautions that scales containing negative affect terms (e.g., "worry" or "upset") may tap neuroticism (L. A. Clark & Watson, 1995). Although the PANAS-N is not a direct measure of neuroticism, it is closely related to this variable (Watson et al., 1988). A two-factor model in which ATGS-anxiety items loaded onto one factor and negative affect items loaded onto a separate factor was compared with a model in which all items loaded onto one factor. The single-factor model fit was poor in comparison to the two-factor model (see Table E5), and the latent correlation between the factors was .46, indicating that ATG-anxiety is a distinct construct from negative affect. Furthermore, there was no sign of substantial cross-loadings between the factors, suggesting that ATG-anxiety items were not tapping negative affect.

Table E6  
*Fit Statistics for Models of ATG-Anxiety and Negative Affect*

Model	$\chi^2$	<i>df</i>	<i>p</i>	CFI	TLI	RMSEA (90% CI)	SRMR	ECVI
One-factor	2,277.83	131	.000	.76	.72	.11 (.110 - .118)	.11	1.91
Two-factor	668.41	130	.000	.94	.93	.06 (.053 - .062)	.05	0.63

## APPENDIX F

### Additional Details Relating to Analyses of Emotional Wellbeing Measures

#### Individual CFAs of Emotional Wellbeing Measures

##### CES-D

The CES-D has been shown to exhibit a ‘higher-order’ factor structure in which items load onto four ‘first-order’ factors, and the first-order factors load onto a single higher order factor (J. C. Cole et al., 2004). Only three of the four ‘first-order’ factors are used in the present study (Depressed Affect, Somatic Symptoms, Positive Affect), due to deletion of the interpersonal subscale (as detailed in the Method section)<sup>15</sup>. The top row of Table F1 shows fit statistics for this model. Although the SRMR was high, other fit indices indicated adequate model fit. Standardised factor loadings for items ranged from .49 to .89 and all were significant. Loadings of first order factors onto the general depression factor were .94 (Depressed Affect), .94 (Somatic Symptoms), and .90 (Positive Affect).

Table F1

*Fit Statistics for CES-D Models*

Model	$\chi^2$	<i>df</i>	<i>p</i>	CFI	TLI	RMSEA (90% CI)	SRMR	ECVI
Higher-order factor structure	509.52	118	.000	.90	.89	.07 (.067-.080)	.14	0.99
Summed- subscale scores	4.91	1	.027	.99	.98	.08 (.022-.15)	.02	0.03

Given the need to reduce the number of indicators in the present study, a second model was tested in which the lower order factors were represented by summed

<sup>15</sup> With only three first-order factors, the higher order factor structure is just-identified, resulting in perfect model fit. To deal with this problem, equality constraints were placed on loadings of two lower-order factors (somatic symptoms and depressed affect) onto the higher-order factor, given that these loadings were not significantly different (according to the critical ratios produced by AMOS). This is the process recommended by Byrne (2001).

subscale scores. Fit statistics for this model are shown in the second row of Table F1. This model showed good fit and will be used in subsequent analyses.

### PANAS-N

The PANAS-N is hypothesised to have a unidimensional factor structure. The fit of this single-factor model in the development sample was poor (see top row of Table F2). However, modification indices showed that the poor fit was largely due to the presence of highly correlated errors between items 3 and 7 (guilty and ashamed), items 1 and 2 (distressed and upset), items 5 and 6 (hostile and irritable) and items 4 and 10 (scared and afraid). It is common for item pairs to share variance related to an unmeasured construct independent of the latent variables in the model, for example due to highly overlapping content (Floyd & Widaman, 1995; Quintana & Maxwell, 1999). The error terms for the pair of items can be specified to correlate, in order to take the shared item variance into account (Floyd & Widaman, 1995). However, it is important that there is a rationale for including these correlated error terms, to prevent ad-hoc modifications that are specific to that sample only. Given that these pairs of items represent similar types of affect, and given that their content overlap or shared error variance has been noted in other studies (e.g., Crawford & Henry, 2004; Mackinnon et al., 1999; Thompson, 2007), the error terms were specified to correlate. The fit of the revised model was good (see bottom row of Table F2). Factor loadings ranged from .46 to .79, and all were significant.

Table F2

#### *Fit Statistics for PANAS Models*

Model	$\chi^2$	<i>df</i>	<i>p</i>	CFI	TLI	RMSEA (90% CI)	SRMR	ECVI
Initial	532.53	35	.000	.81	.75	.15 (.139-.162)	.08	0.94
Revised	150.55	31	.000	.95	.93	.08 (.066-.091)	.05	0.35

### Affectometer 2

The hypothesised unidimensional factor structure of the Affectometer 2 was compared with the alternate two-factor model (positive and negative wellbeing as correlated factors), as recommended by Tennant et al. (2007). The fit of the single factor model (i.e., 16 items loading onto one factor) was adequate but not excellent

(see Table F3). The fit of the two-factor model, shown in the same table, was only slightly better. As described in the Method chapter, the improvement in fit is likely to be due to a ‘method factor’ (i.e., positive vs. negative wording of items) rather than a meaningful distinction between factors. Furthermore, the high correlation between latent factors ( $r = -.89$ ) indicates that they are essentially measuring the same construct, favouring a unidimensional structure. Factor loadings for the unidimensional model range from  $|.31|$  to  $|.79|$  and all were significant.

Table F3  
*Fit Statistics for Affectometer 2 Models*

Model	$\chi^2$	<i>df</i>	<i>p</i>	CFI	TLI	RMSEA (90% CI)	SRMR	ECVI
One-factor	573.34	104	.000	.89	.88	.09 (.078-.092)	.05	1.06
Two-factor	486.84	103	.000	.92	.90	.08 (.075-.068)	.05	0.90

#### Analyses Relating to the Combined Emotional Wellbeing Model

Table F4  
*Unstandardised Factor Loadings (B) with Standard Errors and p-values for Emotional Wellbeing Model (see Figure 11)*

Indicator	B	SE	<i>p</i>
Positive wellbeing factor			
Item 7: I like myself	1.07	0.07	.002
Item 11: My future looks good	1.20	0.07	.002
Item 1: My life is on the right track	1.00	-	-
Item 14: I smile and laugh a lot	0.95	0.07	.002
Item 4: I think clearly and creatively	0.85	0.06	.002
Item 17: I can handle any problems that come up	0.80	0.07	.002
Negative wellbeing factor			
CES-D subscale: Depressed Affect	1.02	0.05	.002
CES-D subscale: Somatic Symptoms	1.00	-	-
PANAS-N total score	1.95	0.13	.002

*Note.* Items are ordered by standardised factor loadings, corresponding with Figure 11. Indicators with no SE and *p* values were reference items for the scale (i.e., their factor loadings were fixed to 1.0). CES-D = Centre for Epidemiological Studies Depression Scale; PANAS-N = Negative Affect subscale of the Positive and Negative Affect Scale

Table F5

*Tests of Measurement Invariance of Emotional Wellbeing Model Across Development (n = 624) and Cross-Validation (n = 622) Samples*

Level of invariance	$\chi^2$	<i>df</i>	$\Delta\chi^2$	CFI	$\Delta$ CFI
Configural	116.93, <i>p</i> = .000	52		.99	
Metric	122.95, <i>p</i> = .000	59	6.02, <i>p</i> = .537	.99	.000
Scalar	135.98, <i>p</i> = .000	68	19.05, <i>p</i> = .266	.98	.001

## APPENDIX G

### Additional Details of Analyses Relating to the Brief RCOPE

Table G1

*Unstandardised Factor Loadings (B) with Standard Errors and p-values for Brief RCOPE Model (see Figure 12)*

Item number and content	B	SE	p
<b>Abandoning/punishing appraisals (APA) factor</b>			
(3) Wondered whether God had abandoned me	1.00	-	-
(10) Questioned God's love for me	0.51	0.06	.002
(5) Felt punished by God for my lack of devotion	0.50	0.10	.003
(13) Wondered what I did for God to punish me	0.33	0.09	.001
<b>Seeking support from God (SSG) factor</b>			
(1) Looked for a stronger connection with God	1.00	-	-
(2) Sought God's love and care	0.95	0.05	.002
(4) Sought help from God in letting go of my negative feelings	0.90	0.07	.002
(6) Tried to put my plans into action together with God	0.81	0.07	.002
(9) Tried to see how God might be trying to strengthen me	0.79	0.07	.002
(12) Focused on God to stop worrying about my problems	0.85	0.09	.001

*Note.* Items are ordered by standardised factor loadings, corresponding with Figure 12. Indicators with no SE and *p* values were reference items for the scale (i.e., their factor loadings were fixed to 1.0).

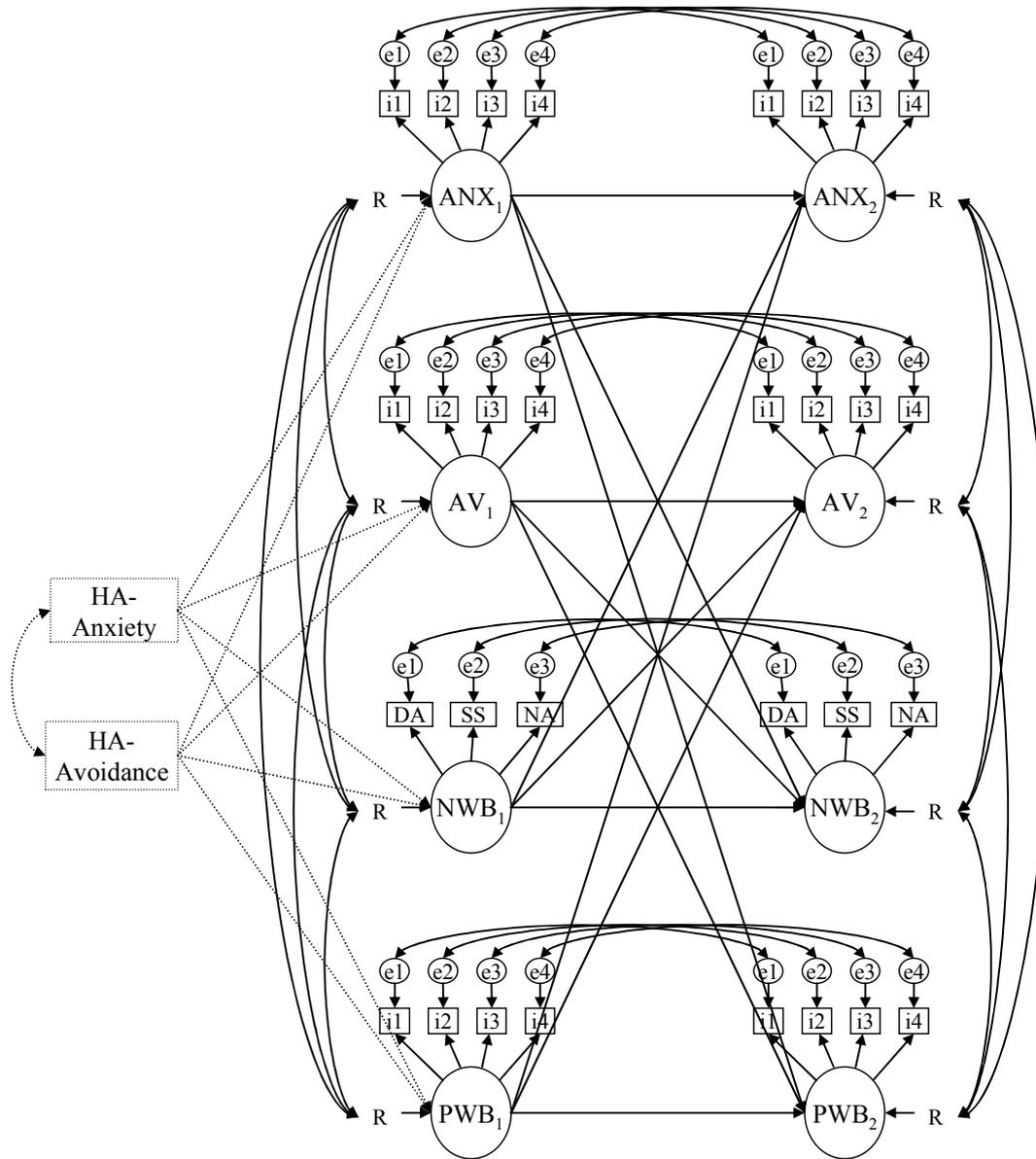
Table G2

*Tests of Measurement Invariance of Brief RCOPE Across Development (n = 266) and Cross-Validation (n = 260) Samples*

Level of invariance	$\chi^2$	df	$\Delta\chi^2$	CFI	$\Delta$ CFI
Configural	173.64, <i>p</i> = .000	68		.95	
Metric	186.57, <i>p</i> = .000	76	12.92, <i>p</i> = .115	.94	.002
Scalar	191.81, <i>p</i> = .000	86	18.17, <i>p</i> = .444	.95	.000

## APPENDIX H

### Additional Details of Analyses Relating to Hypothesis 1 (Cross-Lagged Relationships)



*Figure H1.* The stability model, showing measurement and structural portions. For simplicity only 4 items are shown as indicators of latent variables. Also included in the model, but not shown in the figure for simplicity, are paths from HA-Anxiety and HA-Avoidance to NWB<sub>2</sub> and PWB<sub>2</sub>. HA-anxiety = human attachment anxiety; HA-avoidance = human attachment avoidance; ANX = ATG-anxiety; AV = ATG-avoidance; NWB = negative wellbeing; PWB = positive wellbeing; DA = depressed affect; SS = somatic symptoms; NA = negative affect; R = residual variance term; e = error term; i = item.

Table H1

*Tests of Measurement Invariance Over Time for the Stability Model (N = 513)*

Level of Invariance	$\chi^2$	<i>df</i>	$\Delta\chi^2$	CFI	$\Delta$ CFI
1. Unconstrained	2,060.99, <i>p</i> = .000	1128		.92	
2. Metric invariance	2,079.28, <i>p</i> = .000	1148	18.29, <i>p</i> = .568	.92	.000
3. Scalar invariance	2,128.50, <i>p</i> = .000	1168	67.51, <i>p</i> = .004 <sup>a</sup>	.92	.003
4. Partial scalar invariance <sup>b</sup>	2,100.12, <i>p</i> = .000	1166	39.14, <i>p</i> = .419	.92	.000

<sup>a</sup>The source of the scalar non-invariance was two items on the ATGS.<sup>b</sup>After freeing constraints on the intercepts of two non-invariant items.

Table H2

*Chi-square Test of Competing Models A to D (see Figure 13) in Full Sample (N = 513)*

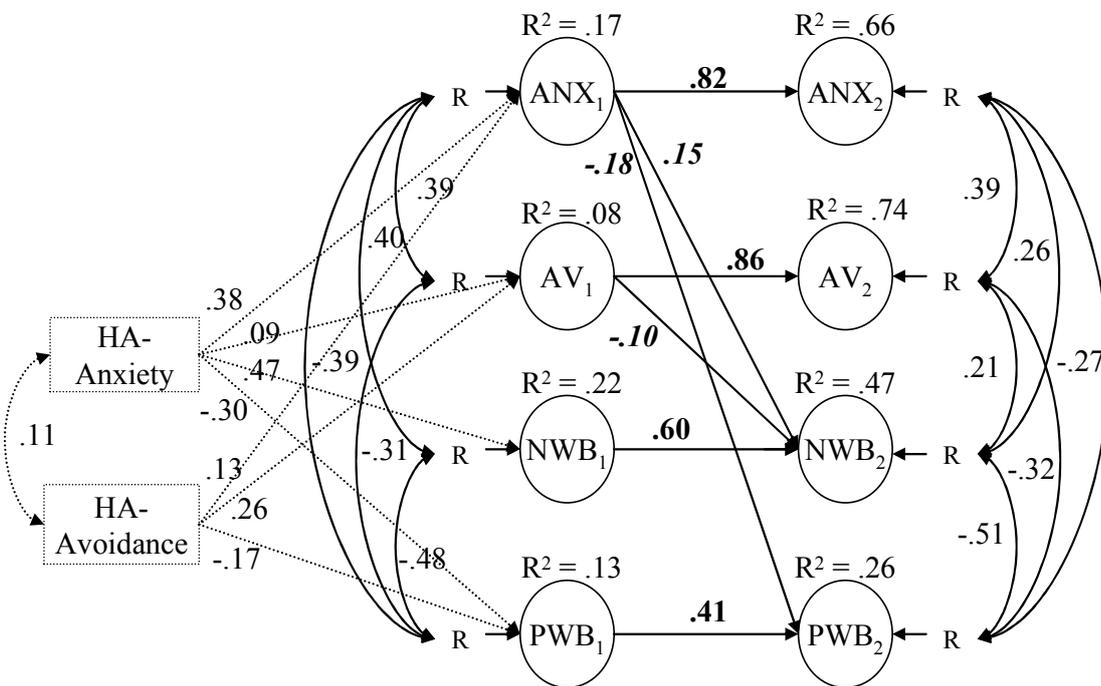
Model	$\chi^2$	<i>df</i>	Models compared	$\Delta\chi^2$
A. Stability	2,100.12, <i>p</i> = .000	1166		
B. Hypothesised effects	2,080.77, <i>p</i> = .000	1162	A vs. B	19.35, <i>p</i> = .001
C. Reverse effects	2,090.77, <i>p</i> = .000	1162	A vs. C	9.36, <i>p</i> = .053
D. Reciprocal effects	2,070.82, <i>p</i> = .000	1158	A vs. D	29.30, <i>p</i> = .000
			B vs. D	9.95, <i>p</i> = .041
			C vs. D	19.98, <i>p</i> = .001

Table H3

*Unstandardised Coefficients (B) with Standard Errors and p-values for Key Paths in Hypothesised Effects Model Tested in the Full Sample (see Figure 14)*

Path	B	SE	p
<b>Cross-lagged coefficients</b>			
ANX (T1) → NWB (T2)	0.79	0.35	.022
ANX (T1) → PWB (T2)	-0.21	0.08	.008
AV (T1) → NWB (T2)	-0.34	0.16	.047
<b>Stability coefficients</b>			
ANX (T1) → ANX (T2)	0.81	0.04	.003
AV (T1) → AV (T2)	0.86	0.04	.002
PWB (T1) → PWB (T2)	0.37	0.07	.002
NWB (T1) → NWB (T2)	0.56	0.06	.002

*Note.*  $N = 513$ . ANX = ATG-anxiety; AV = ATG-avoidance; NWB = negative wellbeing; PWB = positive wellbeing.



*Figure H2.* Full depiction of hypothesised effects model, showing standardised coefficients ( $N = 513$ ). All paths are significant at  $p < .05$ ; non-significant paths have been deleted. HA-anxiety = human attachment anxiety; HA-avoidance = human attachment avoidance; ANX = ATG-anxiety; AV = ATG-avoidance; NWB = negative wellbeing; PWB = positive wellbeing; R = residual variance term.  $R^2$  = squared multiple correlation.

## APPENDIX I

### Additional Details of Analyses Relating to Hypothesis 2 (Gender Moderation)

Table I1

*Means and Standard Deviations of ATG and Emotional Wellbeing Variables for Males and Females*

Variable	Females ( <i>n</i> = 341)		Males ( <i>n</i> = 172)		<i>t</i> test
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
ATGS subscales					
Anxiety T1	16.26	5.65	16.64	4.88	<i>t</i> = -0.81, <i>df</i> = 391, <i>p</i> = .420
Anxiety T2	16.30	5.61	16.40	4.41	<i>t</i> = -0.21, <i>df</i> = 422, <i>p</i> = .837
Avoidance T1	16.09	4.54	18.07	4.91	<i>t</i> = -4.55, <i>df</i> = 511, <i>p</i> = .000
Avoidance T2	16.55	4.59	18.03	4.65	<i>t</i> = -3.44, <i>df</i> = 511, <i>p</i> = .001
Emotional wellbeing variables					
Positive T1	16.22	4.09	16.01	3.79	<i>t</i> = 0.56, <i>df</i> = 511, <i>p</i> = .572
Positive T2	16.21	3.91	16.23	3.39	<i>t</i> = -0.07, <i>df</i> = 511, <i>p</i> = .945
Negative T1	7.11	5.98	6.22	4.36	<i>t</i> = 1.92, <i>df</i> = 447, <i>p</i> = .055
Negative T2	7.00	5.63	6.26	4.60	<i>t</i> = 1.60, <i>df</i> = 410, <i>p</i> = .111

*Note.* ATGS = Attachment to God Scale

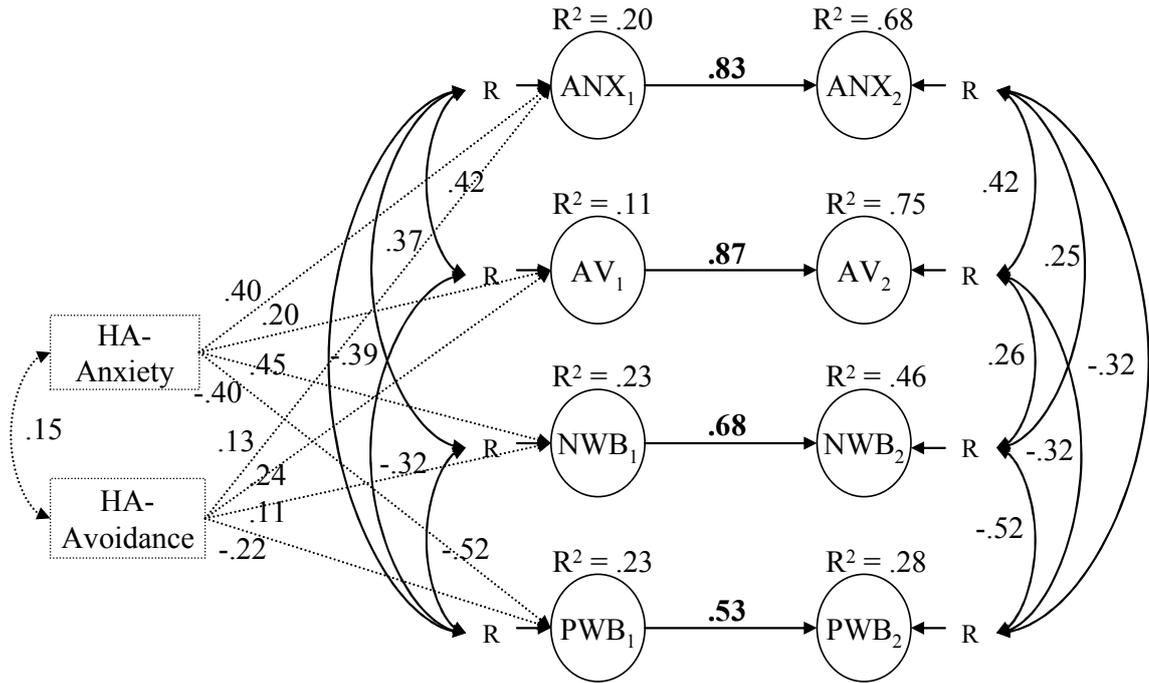
Table I2

*Chi-square Test of Competing Models A to D (see Figure 13) in Females and Males*

Model	$\chi^2$	<i>df</i>	Models compared	$\Delta\chi^2$
Females ( <i>n</i> = 341)				
A. Stability	1,812.63, <i>p</i> = .000	1162		
B. Hypothesised effects	1,808.88, <i>p</i> = .000	1158	A vs. B	3.76, <i>p</i> = .440
C. Reverse effects	1,803.34, <i>p</i> = .000	1158	A vs. C	9.30, <i>p</i> = .054
D. Reciprocal effects	1,798.88, <i>p</i> = .000	1154	A vs. D	13.76, <i>p</i> = .088
			B vs. D	10.00, <i>p</i> = .040
			C vs. D	4.46, <i>p</i> = .347
Males ( <i>n</i> = 172)				
A. Stability	1,703.03, <i>p</i> = .000	1162		
B. Hypothesised effects	1,686.60, <i>p</i> = .000	1158	A vs. B	16.43, <i>p</i> = .002
C. Reverse effects	1,697.87, <i>p</i> = .000	1158	A vs. C	5.16, <i>p</i> = .271
D. Reciprocal effects	1,682.59, <i>p</i> = .000	1154	A vs. D	20.44, <i>p</i> = .009
			B vs. D	4.01, <i>p</i> = .404
			C vs. D	15.28, <i>p</i> = .004

*Note.* All models retained the time invariance constraints used in the full sample.

**Females**



**Males**

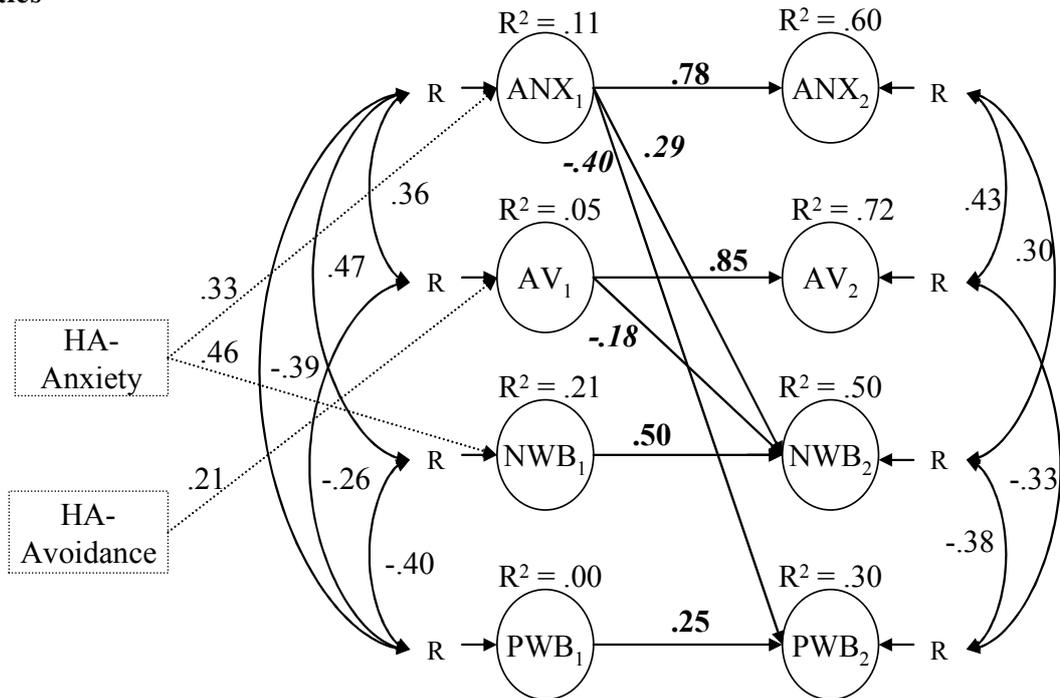


Figure 11. Full depiction of stability model in females ( $n = 341$ ) and hypothesised effects model in males ( $n = 172$ ). Coefficients are standardised. All paths are significant at  $p < .05$ ; non-significant paths have been deleted. HA-anxiety = human attachment anxiety; HA-avoidance = human attachment avoidance; ANX = ATG-anxiety; AV = ATG-avoidance; NWB = negative wellbeing; PWB = positive wellbeing; R = residual variance term.  $R^2$  = squared multiple correlation.

Table I3

*Unstandardised Coefficients (B) with Standard Errors and p-values for Key Paths in Favoured Models Tested in the Female and Male samples (see Figure 15)*

Path	Females ( <i>n</i> = 341)			Males ( <i>n</i> = 172)		
	B	SE	<i>p</i>	B	SE	<i>p</i>
Cross-lagged coefficients						
ANX (T1) → NWB (T2)	-	-	-	1.56	0.57	.006
ANX (T1) → PWB (T2)	-	-	-	-0.45	0.11	.000
AV (T1) → NWB (T2)	-	-	-	-0.49	0.21	.018
Stability coefficients						
ANX (T1) → ANX (T2)	0.84	0.04	.003	0.71	0.06	.000
AV (T1) → AV (T2)	0.91	0.05	.002	0.79	0.06	.000
PWB (T1) → PWB (T2)	0.50	0.06	.002	0.22	0.07	.003
NWB (T1) → NWB (T2)	0.61	0.06	.002	0.54	0.10	.000

*Note.* SE and *p* values for males were not derived using bootstrapping given that *n* < 200. ANX = ATG-anxiety; AV = ATG-avoidance; NWB = negative wellbeing; PWB = positive wellbeing.

Table I4

*Standardised Coefficients for Cross-Sectional Latent Relationships Between ATG and Emotional Wellbeing Variables in Females and Males, Controlling for Human Attachment and the Opposite ATG Dimension*

Variable pair	Females ( <i>n</i> = 795)		Males ( <i>n</i> = 434)	
	$\beta_1$	$\beta_2$	$\beta_1$	$\beta_2$
ATG-anxiety – NWB	.40	.41	.42	.50
ATG-anxiety – PWB	-.36	-.29	-.34	-.30
ATG-avoidance – NWB	.14	-.06, ns	.05, ns	-.17
ATG-avoidance – PWB	-.30	-.16	-.24	-.11, ns

*Note.*  $\beta_1$  values control for human attachment style (i.e., human attachment style was specified as a predictor of ATG and emotional wellbeing variables).  $\beta_2$  values control for human attachment style and also the effects of the opposite ATG dimension on emotional wellbeing (i.e., in the calculation of  $\beta_2$  values, both ATG dimensions were simultaneously used to predict the emotional wellbeing variable). The full Time 1 sample was used in order to provide more accurate estimates and to allow for bootstrapping to be used in the male sample. Coefficients are significant at *p* < .05 unless stated non-significant (ns). NWB = negative wellbeing; PWB = positive wellbeing.

## APPENDIX J

### Additional Details of Analyses Relating to Hypothesis 3 (Negative Events Moderation)

Table J1

*Means and Standard Deviations of ATG and Emotional Wellbeing Variables for High and Low Negative Events Groups*

Variable	Low NE ( <i>n</i> = 257)		High NE ( <i>n</i> = 256)		<i>t</i> test
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
ATGS subscales					
Anxiety T1	16.03	5.19	16.74	5.59	<i>t</i> = -1.48, <i>df</i> = 511, <i>p</i> = .140
Anxiety T2	15.62	4.92	17.05	5.45	<i>t</i> = -3.12, <i>df</i> = 511, <i>p</i> = .002
Avoidance T1	16.73	4.84	16.77	4.68	<i>t</i> = -0.09, <i>df</i> = 511, <i>p</i> = .931
Avoidance T2	16.89	4.60	17.21	4.73	<i>t</i> = -0.79, <i>df</i> = 511, <i>p</i> = .432
Emotional wellbeing variables					
Positive (T1)	16.27	3.99	16.03	3.99	<i>t</i> = 0.69, <i>df</i> = 511, <i>p</i> = .491
Positive (T2)	16.56	3.76	15.88	3.71	<i>t</i> = 2.07, <i>df</i> = 511, <i>p</i> = .039
Negative (T1)	6.17	5.10	7.46	5.82	<i>t</i> = -2.67, <i>df</i> = 502, <i>p</i> = .008
Negative (T2)	5.87	4.92	7.64	5.56	<i>t</i> = -3.80, <i>df</i> = 503, <i>p</i> = .000

*Note.* NE = negative events; ATGS = Attachment to God Scale

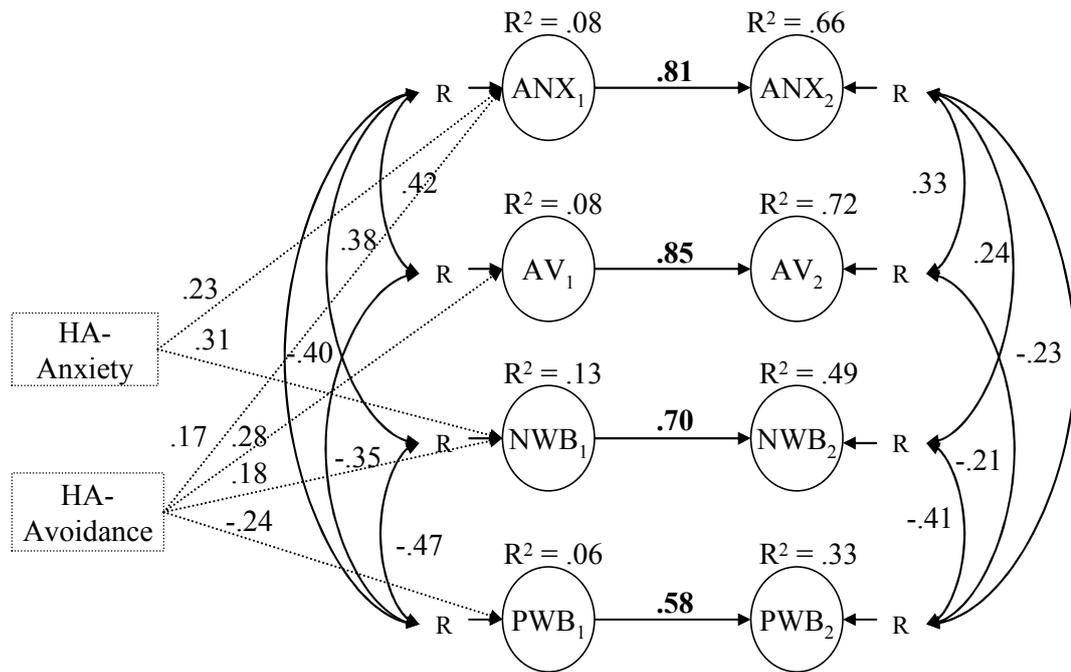
Table J2

*Chi-square Test of Competing Models A to D (see Figure 13) in Low and High Negative Events Groups*

Model	$\chi^2$	<i>df</i>	Models compared	$\Delta\chi^2$
Low negative events ( <i>n</i> = 257)				
A. Stability	1,806.39, <i>p</i> = .000	1165		
B. Hypothesised effects	1,801.50, <i>p</i> = .000	1161	A vs. B	4.89, <i>p</i> = .299
C. Reverse effects	1,800.79, <i>p</i> = .000	1161	A vs. C	5.60, <i>p</i> = .231
D. Reciprocal effects	1,796.02, <i>p</i> = .000	1157	A vs. D	10.37, <i>p</i> = .240
			B vs. D	5.47, <i>p</i> = .242
			C vs. D	4.77, <i>p</i> = .312
High negative events ( <i>n</i> = 256)				
A. Stability	1,748.29, <i>p</i> = .000	1166		
B. Hypothesised effects	1,723.80, <i>p</i> = .000	1162	A vs. B	24.49, <i>p</i> = .000
C. Reverse effects	1,734.51, <i>p</i> = .000	1162	A vs. C	13.78, <i>p</i> = .008
D. Reciprocal effects	1,710.55, <i>p</i> = .000	1158	A vs. D	37.74, <i>p</i> = .000
			B vs. D	13.25, <i>p</i> = .010
			C vs. D	23.96, <i>p</i> = .000

*Note.* All models retained time invariance constraints identical to those in the full sample, with one exception. In the low negative events group, one positive wellbeing indicator showed non-invariant intercepts over time. This constraint was thus removed in the low negative events group.

### Low negative events



### High negative events

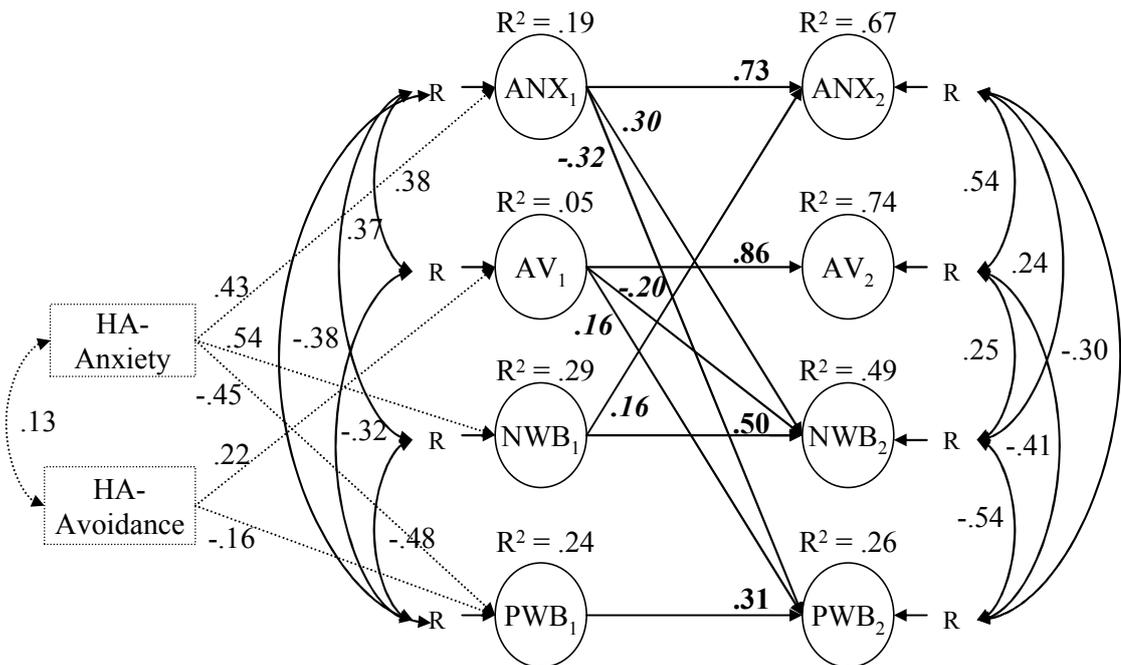


Figure 11. Full depiction of stability model in low negative events group ( $n = 257$ ) and reciprocal effects model in high negative events group ( $n = 256$ ). Coefficients are standardised. All paths are significant at  $p < .05$ ; non-significant paths have been deleted. HA-anxiety = human attachment anxiety; HA-avoidance = human attachment avoidance; ANX = ATG-anxiety; AV = ATG-avoidance; NWB = negative wellbeing; PWB = positive wellbeing; R = residual variance term. R<sup>2</sup> = squared multiple correlation.

Table J3

*Unstandardised Coefficients (B) with Standard Errors and p-values for Key Paths in Favoured Models Tested in the Low and High Negative Events Groups (see Figure 16)*

Path	Low negative events ( <i>n</i> = 257)			High negative events ( <i>n</i> = 256)		
	B	SE	<i>p</i>	B	SE	<i>p</i>
<b>Cross-lagged coefficients</b>						
ANX (T1) → NWB (T2)	-	-	-	1.55	0.50	.001
ANX (T1) → PWB (T2)	-	-	-	-0.36	0.12	.003
AV (T1) → NWB (T2)	-	-	-	-0.69	0.27	.004
AV (T1) → PWB (T2)	-	-	-	0.12	0.06	.046
NWB (T1) → ANX (T2)	-	-	-	0.03	0.01	.022
<b>Stability coefficients</b>						
ANX (T1) → ANX (T2)	0.78	0.06	.003	0.73	0.06	.002
AV (T1) → AV (T2)	0.80	0.07	.004	0.89	0.05	.002
PWB (T1) → PWB (T2)	0.54	0.09	.003	0.29	0.10	.003
NWB (T1) → NWB (T2)	0.67	0.08	.003	0.47	0.09	.003

*Note.* ANX = ATG-anxiety; AV = ATG-avoidance; NWB = negative wellbeing; PWB = positive wellbeing.

Table J4

*Chi-square Test of Competing Models A to D (see Figure 13) in Female Members of the High Negative Events Group (*n* = 184)*

Model	$\chi^2$	<i>df</i>	Models compared	$\Delta\chi^2$
A. Stability	1,653.51, <i>p</i> = .000	1162		
B. Hypothesised effects	1,647.77, <i>p</i> = .000	1158	A vs. B	5.73, <i>p</i> = .220
C. Reverse effects	1,637.53, <i>p</i> = .000	1158	A vs. C	15.98, <i>p</i> = .003
D. Reciprocal effects	1,631.99, <i>p</i> = .000	1154	A vs. D	21.51, <i>p</i> = .006
			B vs. D	15.78, <i>p</i> = .003
			C vs. D	5.53, <i>p</i> = .237

*Note.* All models retained time invariance constraints identical to those in the full sample.

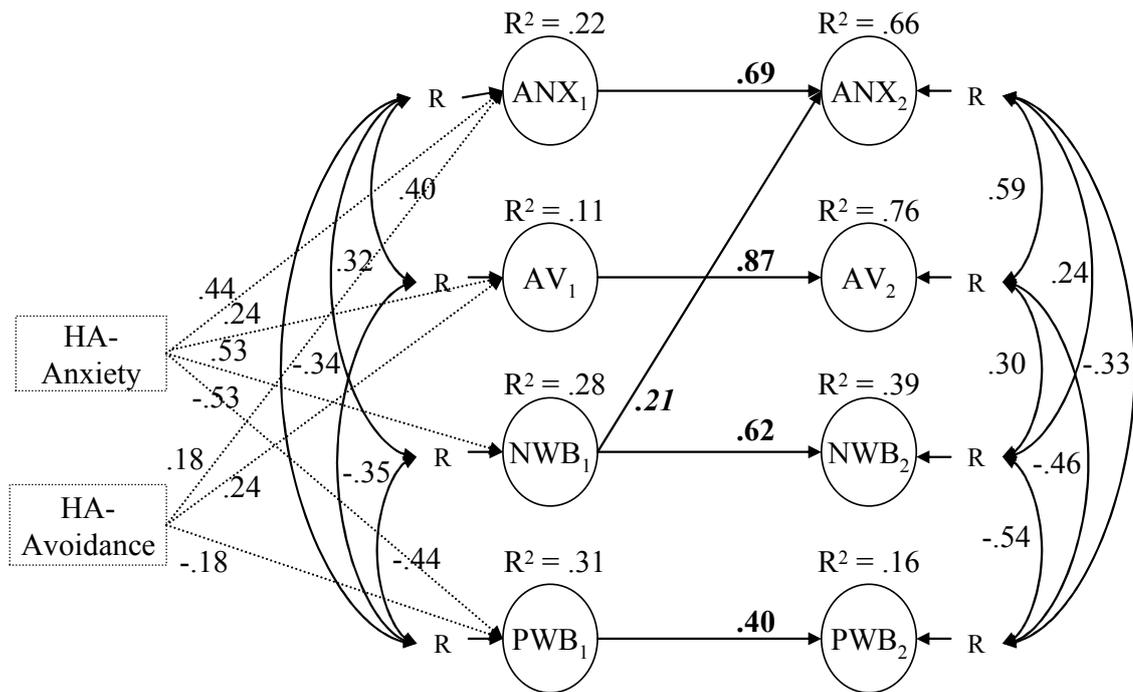


Figure J2. Full depiction of reverse effects model in female high negative events group (n = 184). Coefficients are standardised. All paths are significant at  $p < .05$ ; non-significant paths have been deleted. HA-anxiety = human attachment anxiety; HA-avoidance = human attachment avoidance; ANX = ATG-anxiety; AV = ATG-avoidance; NWB = negative wellbeing; PWB = positive wellbeing; R = residual variance term.  $R^2$  = squared multiple correlation.

Table J5

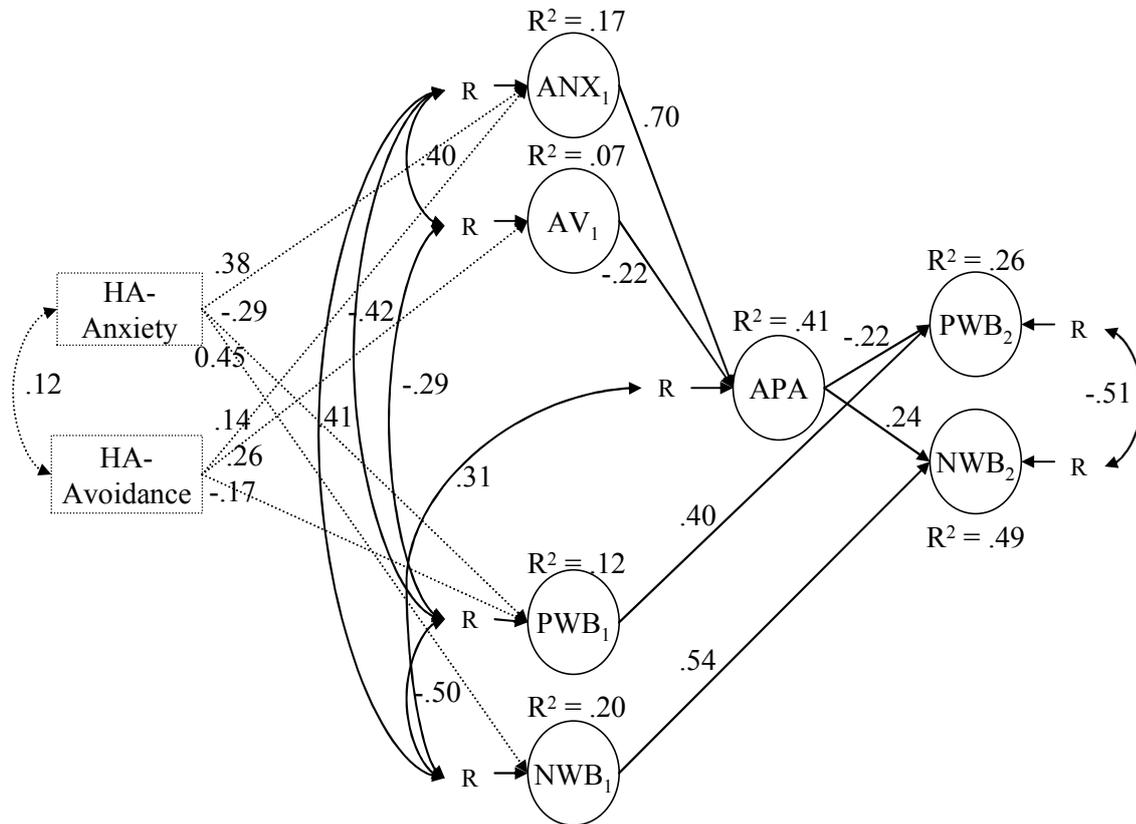
Unstandardised Coefficients (B) with Standard Errors and p-values for Key Paths in Reverse Effects Model in the Female High Negative Events Group (see Figure 17)

Path	B	SE	p
Cross-lagged coefficients			
NWB (T1) → ANX (T2)	0.04	0.01	.001
Stability coefficients			
ANX (T1) → ANX (T2)	0.73	0.07	.000
AV (T1) → AV (T2)	0.94	0.06	.000
PWB (T1) → PWB (T2)	0.36	0.07	.000
NWB (T1) → NWB (T2)	0.53	0.06	.000

Note. n = 184. SE and p values were not derived using bootstrapping given that  $n < 200$ . ANX = ATG-anxiety; AV = ATG-avoidance; NWB = negative wellbeing; PWB = positive wellbeing.

## APPENDIX K

### Additional Details of Analyses Relating to Hypothesis 4 (Religious Coping Mediation)



*Figure K1.* Full depiction of model in which APA mediates the relationship between baseline ATG-anxiety and Time 2 emotional wellbeing, controlling for baseline emotional wellbeing and ATG-avoidance ( $N = 506$ ). Coefficients are standardised. All coefficients are significant at  $p < .05$ ; non-significant paths have been deleted. HA-anxiety = Human attachment anxiety; HA-avoidance = Human attachment avoidance; ANX = ATG-anxiety; AV = ATG-avoidance; PWB = positive wellbeing; NWB = negative wellbeing; APA = abandoning/punishing appraisals; R = residual variance term.  $R^2$  = squared multiple correlation.

Table K1

*Unstandardised Coefficients (B) with Standard Errors and p-values for Key Paths in Mediation Model (see Figure 18)*

Path		B	SE	<i>p</i>
ANX (T1)	→ APA (T2)	0.90	0.09	.002
APA (T2)	→ PWB (T2)	-0.19	0.06	.001
APA (T2)	→ NWB (T2)	0.99	0.35	.002
AV (T1)	→ APA (T2)	-0.19	0.05	.001
PWB (T1)	→ PWB (T2)	0.37	0.06	.002
NWB (T1)	→ NWB (T2)	0.51	0.07	.003

*Note.* ANX = ATG-anxiety; APA = abandoning/punishing appraisals; NWB = negative wellbeing; PWB = positive wellbeing; AV = ATG-avoidance.

## APPENDIX L

### Additional Details of Analyses Relating to Hypothesis 5 (ATG Moderation)

Table L1

*Means and Standard Deviations of Negative Events Severity and Emotional Wellbeing Variables for Secure/Dismissing and Preoccupied ATG Groups*

Variable	Secure/Dismissing ( <i>n</i> = 235)		Preoccupied ( <i>n</i> = 194)		<i>t</i> test
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
NES	863.76	797.70	922.64	898.08	<i>t</i> = -0.72, <i>df</i> = 427, <i>p</i> = .473
NWB (T1)	4.84	3.82	8.43	6.10	<i>t</i> = -7.14, <i>df</i> = 311, <i>p</i> = .000
NWB (T2)	5.04	4.04	8.47	6.29	<i>t</i> = -6.56, <i>df</i> = 316, <i>p</i> = .000
PWB (T1)	17.67	3.74	15.27	3.66	<i>t</i> = 6.70, <i>df</i> = 427, <i>p</i> = .000
PWB (T2)	17.26	3.60	15.58	3.75	<i>t</i> = 4.73, <i>df</i> = 427, <i>p</i> = .000

*Note.* NES = negative events severity; NWB = negative wellbeing; PWB = positive wellbeing.

Table L2

*Tests of Measurement Invariance Across Time and Groups (Secure/Dismissing ATG, n = 235, vs. Preoccupied ATG, n = 194)*

Model constraints	$\chi^2$	<i>df</i>	$\Delta\chi^2$	CFI	$\Delta$ CFI
(1) Unconstrained	715.92, <i>p</i> = .000	448		.93	
(2) Loadings constrained equal over time	742.85, <i>p</i> = .000	462	26.93, <i>p</i> = .020 <sup>a</sup>	.92	.004
Invariance tests after deletion of invariant positive wellbeing items					
(1) Unconstrained	468.11, <i>p</i> = .000	288		.94	
(2) Loadings constrained equal over time	478.42, <i>p</i> = .000	298	10.31, <i>p</i> = .414	.94	.000
(3) Intercepts constrained equal over time	484.30, <i>p</i> = .000	306	16.19, <i>p</i> = .580	.94	+.001
(4) Loadings constrained equal over ATG groups	516.80, <i>p</i> = .000	313	48.69, <i>p</i> = .003 <sup>b</sup>	.93	.008
Invariance tests after deletion of depressed affect indicator					
(1) Unconstrained	338.76, <i>p</i> = .000	220		.94	
(2) Loadings constrained equal over time	346.69, <i>p</i> = .000	228	7.93, <i>p</i> = .440	.94	.000
(3) Intercepts constrained equal over time	351.98, <i>p</i> = .000	234	13.22, <i>p</i> = .509	.94	.000
(4) Loadings constrained equal over ATG groups	369.84, <i>p</i> = .000	240	31.08, <i>p</i> = .054	.94	.006
(5) Intercepts constrained equal over ATG groups	371.18, <i>p</i> = .000	244	32.43, <i>p</i> = .117	.94	.004

<sup>a</sup>The non-invariance of factor loadings over time precluded further invariance tests.

The source of this non-invariance was two indicators of positive wellbeing.

<sup>b</sup>The non-invariance of factor loadings over groups precluded further invariance tests.

The source of this non-invariance was the depressive affect indicator of the negative wellbeing factor.

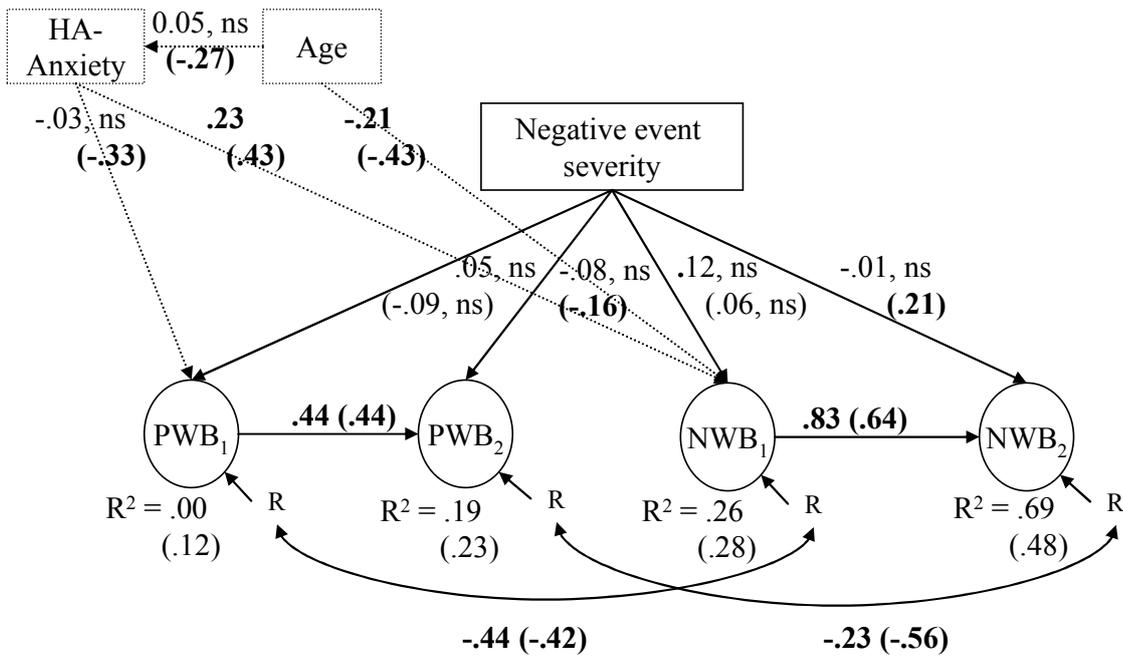


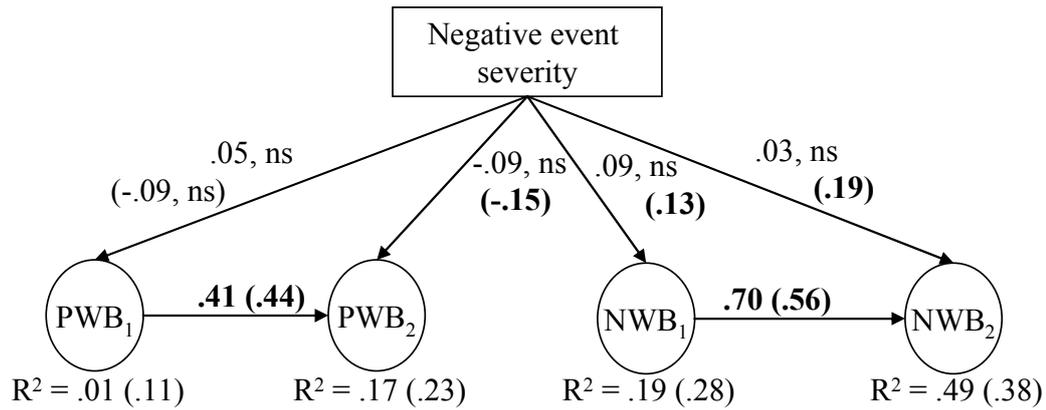
Figure L1. Full depiction of model testing the effects of negative events on emotional wellbeing in secure/dismissing ( $n = 236$ ) and preoccupied ( $n = 194$ ) ATG groups, showing standardised coefficients. Model uses only invariant indicators of latent variables. Coefficients for preoccupied ATG group are in brackets. Coefficients in bold type are significant at  $p < .05$ . ns = non-significant. PWB = positive wellbeing; NWB = negative wellbeing; HA-anxiety = human attachment anxiety; R = residual variance term; R<sup>2</sup> = squared multiple correlation.

Table L3

Unstandardised Coefficients (B) with Standard Errors and p-values for Key Paths in Model Depicting Negative Events Predicting Emotional Wellbeing in Secure/Dismissing vs. Preoccupied ATG groups (see Figure 19)

Path	Secure/dismissing ATG ( $n = 236$ )			Preoccupied ATG ( $n = 194$ )		
	B	SE	p	B	SE	p
NES → NWB (T1)	0.00	0.00	.075	0.00	0.00	.396
NES → PWB (T1)	0.00	0.00	.507	0.00	0.00	.271
NES → NWB (T2)	0.00	0.00	.837	0.00	0.00	.001
NES → PWB (T2)	0.00	0.00	.314	0.00	0.00	.028
NWB (T1) → NWB (T2)	0.88	0.09	.002	0.63	0.07	.000
PWB (T1) → PWB (T2)	0.45	0.14	.002	0.44	0.08	.000

Note. Model uses invariant indicators of latent constructs only. SE and p values for the preoccupied ATG group were not derived using bootstrapping given that  $n < 200$ . NES = negative events severity; NWB = negative wellbeing; PWB = positive wellbeing.



$\chi^2$	<i>df</i>	<i>p</i>	CFI	TLI	RMSEA (90% CI)	SRMR
571.76	342	.000	.94	.92	.04 (.034 - .045)	.08

Figure L2. Standardised coefficients and fit statistics for model testing the effects of negative events on emotional wellbeing in secure/dismissing ( $n = 236$ ) and preoccupied ( $n = 194$ ) ATG groups using full set of indicators for latent variables. Coefficients for the preoccupied ATG group are in brackets. Coefficients in bold type are significant at  $p < .05$ . ns = non-significant. Two covariates (human attachment anxiety and age) were also included in the models but are not shown in the diagram for simplicity. PWB = positive wellbeing; NWB = negative wellbeing; R = residual variance term.  $R^2$  = squared multiple correlation.

Comparing parameters for the model shown in Figure L2 with that of Figure 19 indicates that the nature of the positive wellbeing construct is relatively unchanged by the deletion of the two non-invariant indicators. Specifically, the magnitude of paths from negative events severity to positive wellbeing are similar across the models, as is the stability coefficient for positive wellbeing. In both models (a) negative events severity did not significantly predict Time 1 positive wellbeing in either group, and (b) higher negative events severity predicted significantly lower Time 2 positive wellbeing in the preoccupied group but not the secure/dismissing group. In contrast, the nature of the negative wellbeing construct appears to have been altered somewhat by deletion of the depressed affect factor. For example, the stability coefficient for negative wellbeing is lower in the full-indicator model. This may partially account for the stronger effect of negative events on Time 1 negative wellbeing for the preoccupied group in the full-indicator model compared with the invariant indicator model. (That

is, negative events may have a stronger impact on the less stable components of depression, which should be less resistant to change.) Despite the greater effect of negative events severity on Time 1 negative wellbeing in the preoccupied group in the full-indicator model, it is unlikely that this would alter overall conclusions of the analysis. This is because it is unlikely that this path would differ significantly between the two groups in the full-indicator model, given the small difference in the size of the paths (.09 versus .13). Also, the paths from negative events severity to Time 2 negative wellbeing were similar in both models. Thus it appears that the overall conclusions of the analysis may have been unaffected by deletion of non-invariant indicators.