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**CROSS-CULTURAL STUDY OF POSTTRAUMATIC
GROWTH FOLLOWING CHILDBIRTH**

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Thesis submitted for the degree of Doctor of Philosophy

University of Sussex

January 2011

Statement

I hereby declare that this thesis has not been, and will not be, submitted in whole or in part to another University for the award of any other degree.

Alexandra Elizabeth Sawyer

7th January 2011

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UNIVERSITY OF SUSSEX

Alexandra Elizabeth Sawyer

Thesis submitted for the degree of Doctorate of Philosophy

**CROSS-CULTURAL STUDY OF POSTTRAUMATIC GROWTH FOLLOWING
CHILDBIRTH****Summary**

Posttraumatic growth describes positive changes following challenging events. Although such changes are well documented there remain a number of important areas for further research, some of which are addressed in this thesis. In particular, this thesis aimed to clarify the relationship between growth and adjustment following health events, explore growth in different cultures (UK and Africa), and examine growth following childbirth using a prospective design.

First, two systematic reviews were carried out to examine (i) growth following health events and (ii) maternal wellbeing in African women. The first meta-analytic review found that growth following cancer and HIV/AIDS was associated with higher levels of positive mental health, higher subjective physical health, and lower levels of negative mental health. Moderating variables were time since the event, age, ethnicity, and type of negative mental health outcome. The second review found that maternal psychological problems in African women have a similar or slightly higher prevalence than reported in developed countries. Risk factors were broadly comparable although some culture-specific factors were also found.

Three research studies were conducted. The first study qualitatively explored 55 Gambian women's experiences of pregnancy, childbirth, and the postnatal period. Thematic analysis identified five themes: (1) transition to adulthood, (2) physical difficulties, (3) value of children in relation to others, (4) children as a strain, and (5) going through it alone. Prospective studies of growth following childbirth were then carried out in the UK ($N=125$) and The Gambia ($N=101$). Women completed questionnaires during their third trimester of pregnancy and up to 12 weeks after birth. A proportion of women in both countries reported growth following childbirth. In the UK, higher levels of growth were associated with caesarean sections and prenatal posttraumatic stress symptoms. In The Gambia, higher growth was associated with lower income, lower education, and higher postnatal social support.

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1 Introduction

The relationship between challenging life events and psychological distress is well established. In addition to their association with distress, it is now well documented that challenging life events can also be associated with positive changes. The term posttraumatic growth (PTG; Tedeschi, Park, & Calhoun, 1998) has been used to describe reports of positive changes following challenging events. PTG has been reported in individuals following many different events, including a range of challenging health events. Within the PTG literature there is little prospective research because most challenging events are unpredictable. Childbirth provides a valuable opportunity to explore growth and its correlates prospectively. In addition, positive outcomes following childbirth have been largely ignored. This chapter provides an overview of research on PTG and the limited literature of growth following childbirth. The chapter starts by considering the definition and concept of PTG. Dominant theories of growth, evidence on factors associated with PTG, and concerns and issues within the research are then discussed. The chapter concludes with consideration of PTG after childbirth and the aims of the current thesis.

1.1 Posttraumatic Growth: Definition and Conceptual Issues

The notion that individuals may grow through struggle and adversity has long been recognised in philosophy, literature, and religion (Calhoun & Tedeschi, 2006; Linley, 2003; Tedeschi & Calhoun, 1995). It has been reported that between 30 and 90% of individuals report some form of positive change following challenging and traumatic events (Tedeschi & Calhoun, 1995; Tedeschi et al., 1998). Such positive changes have been empirically documented in a range of individuals following a variety

of stressful events, including sexual assault (e.g. Frazier, Conlon & Glaser, 2001; Grubaugh & Resick, 2007), heart disease (e.g. Affleck, Tennen, Croog, & Levine, 1987; Petrie, Buick, Weinman, & Booth, 1999; Sheikh, 2004), breast cancer (e.g. Bellizzi & Blank, 2006; Carver & Antoni, 2004; Cordova, Cunningham, Carlson, & Andrykowski, 2001; Lechner, Carver, Antoni, Weaver, & Phillips, 2006; Manne et al., 2004; Sears, Stanton, & Danoff-Burg, 2003; Tomich & Hegelson, 2004), prostate cancer (e.g. Kinsinger et al., 2006; Thornton & Perez, 2006), HIV/AIDS (e.g. Milam, 2004, Milam, 2006a; Milam, 2006b; Siegel & Schrimshaw, 2000; Updegraff, Taylor, Kemeny, & Wyatt, 2002), arthritis (e.g. Dirik & Karanci, 2008), war (e.g. Fontana & Rosenheck, 1998; Lee, Luxton, Reger, & Gahm, 2010; Powell, Rosner, Butollo, Tedeschi, & Calhoun, 2003), terrorist attacks (e.g. Butler et al., 2005; Linley, Joseph, Cooper, Harris & Meyer, 2003), bereavement (e.g. Davis, Wohl, & Verberg, 2007), immigration (e.g. Berger & Weiss, 2002, Weiss and Berger, 2006), infertility (e.g. Paul et al., 2010), and natural disasters (e.g. McMillen, Smith, & Fisher, 1997; Yu et al., 2010). Therefore it seems that a wide range of stressful or traumatic life events can precipitate positive change and personal growth. Considering such a range of events that precede growth, the subjective experience of the event is thought to be important rather than the type of event or its objective characteristics (Linley & Joseph, 2004).

PTG is defined as the experience of positive psychological change as a result of the struggle with life crises or traumatic life events (Tedeschi & Calhoun, 1996). PTG describes the experience of individuals who are transformed by their struggle with adversity, rather than those who recover from trauma but return back to pre-trauma functioning after experiencing emotional distress (Zoellner & Maercker, 2006). Different terms within the literature have been used to describe PTG such as stress-related growth (Park, Cohen, & Murch, 1996), perceived benefits (McMillen, Zuravin,

& Rideout, 1995), thriving (Abraido-Lanza, Guier, & Colon, 1998), positive adaptation (Linley, 2003), positive by-products (McMillen & Cook, 2003), and positive meaning (Thompson, 1985). These terms have been used interchangeably, and there is no single agreed term among researchers that is used within the literature (Joseph & Linley, 2006). However, as suggested in the previous paragraph even highly stressful events, which are not necessarily traumatic, like some illnesses (Dirik & Karanci, 2008), work-related stress (Paton, 2005), and immigration (Berger & Weiss, 2002) have been shown to facilitate PTG. Therefore throughout this thesis we will refer to ‘growth’ and ‘posttraumatic growth’ interchangeably, to describe the experience of positive change following a challenging event.

1.1.1 Dimensions of growth

Within the general growth literature three common categories of growth outcomes have been identified (Tedeschi et al., 1998). These are changes in interpersonal relationships, changes in self-perception, and changes in philosophy of life. First, changes in interpersonal relationships often reflect increased compassion or altruism, or a greater sense of closeness in relationships. Second, changes in self-perception include a greater sense of personal strength, resilience, or self-reliance, coupled with developing a new path or opportunities. Third, changes in life involve a greater appreciation for each day, and may include possible changes in religious or spiritual/existential beliefs.

There is however debate concerning whether growth is best considered as a unitary or multidimensional construct. A number of questionnaires (e.g. Changes in Outlook Scale, Joseph, Williams, & Yule, 1993, and the Stress Related Growth Scale, Park et al., 1996) are used to yield a single score for growth. The Posttraumatic Growth

Inventory (PTGI; Tedeschi & Calhoun, 1996), which is the most widely used measure of growth, reports five factors related to growth. The PTGI is a 21-item scale which gives a total score and five subscale scores that assess growth across new possibilities, relating to others, personal strength, spiritual change, and appreciation of life. A number of factor analytic studies of the PTGI have been reported and although many studies support a five factor model (e.g. Brunet, McDonough, Hadd, Crocker, & Sabistom, 2010; Hooper, Marotta, & Depuy, 2009; Lee et al., 2010; Maercker & Langner, 2001; Morris, Shakespeare-Finch, Rieck, & Newbery, 2005; Taku et al., 2007), a number of studies do not (e.g. Bellizzi et al., 2010; Weiss & Berger, 2006). For example, Powell et al. (2003) conducted an exploratory principal components analysis using a Bosnian translation of 20 of the 21 items from the PTGI, with refugees from the war in former Yugoslavia. They reported a three factor structure, labelled as changes in self/positive life attitude, philosophy of life, and relating to others. It should however be noted that the sample size was relatively small for factor analytic studies. Linley, Andrews, and Joseph (2007) tested both the three factor model suggested by Powell et al. (2003) and Tedeschi and Calhoun's (1996) five factor model using confirmatory factor analysis. The results supported a five factor structure but also a single higher order construct with five first order latent variables. This study implies that the PTGI may be multidimensional, although factors were highly correlated indicating that PTG could be understood as comprising one underlying general factor.

Joseph and Linley (2008b) emphasise the need to develop a common definition of growth to inform future measurement development and one way of doing this would be to examine commonalities across existing positive change measures. Joseph, Linley, and Harris (2005) addressed this question through exploratory principal components analysis of three multidimensional growth measures (PTGI; Thriving Scale, Abraido-

Lanzo et al., 1998; and the Perceived Benefits Scale, McMillen & Fisher, 1998), which in total provided 20 positive change subscales. The results indicated that all the subscales loaded highly onto a single construct, thus supporting a unitary conception of PTG. This study provides some support that, despite differences in terminology and structural conceptualisations, these instruments are effectively measuring the same construct. Nonetheless, considering the differences reported, Bellizzi et al. (2010) recommend that the factor structure of growth measures is explored in each sample prior to analysis.

1.1.2 Validity of growth

One of the biggest areas of debate within the growth literature is the extent to which self-reports of growth reflect actual permanent positive change. There are concerns that growth may reflect self-presentational concerns and motivated illusions. People may describe positive changes resulting from a stressor because they want to appear to be coping well or because they think this is what their social network members want to hear (Frazier & Kaler, 2006). According to Taylor's (1983) theory of cognitive adaptation to threat, growth is perceived as a "positive illusion" with an adaptive function for psychological adjustment. The perception of growth is one possible self-enhancing appraisal that helps cope with threat (Taylor & Brown, 1988). A recent set of studies directly examined the self-enhancement motives for the experience of growth (McFarland & Alvaro, 2000). These studies provided evidence that people report they have changed following a stressful event, not because they have actually changed but because they derogate their past selves, which suggests an illusory component of growth. In a series of three studies Frazier and Kaler (2006) also

demonstrated very little evidence of validity of growth, indicating that, at least quite often, reports of growth are illusory.

Therefore, one particular challenge is firmly establishing that growth actually occurs. Researchers have attempted to demonstrate the validity of growth through several methods, some of which will be briefly discussed. A number of studies have asked informants, such as family and friends, to report on the growth experienced by the individual (McMillen & Cook, 2003; Moore et al., 2010; Park et al., 1996; Shakespeare-Finch & Enders, 2004), although it should be noted that these reports are limited by the visibility of some of the domains of change assessed. Weiss (2002) asked married women with breast cancer to complete the PTGI, and also their husbands but with regard to their wives' growth after illness. There were substantial correlations between wives' and husbands' reports (r s from .28 to .65 across the different domains of growth). However, a recent study of breast cancer survivors ten years after diagnosis found little evidence for corroboration between benefits by significant others (Helgeson, 2010). More recent studies have tried to identify physiological changes associated with growth. Rabe, Zoellner, Maerecker, and Karl (2006) found neurological correlates of growth in people who had been in severe accidents, which provides some biological evidence of the validity of growth reports. Studies have also attempted to distinguish between veridical reports of growth from self-reported growth by examining cognitive processing (e.g. McCulloch, Root, & Cohen, 2006; Weinrib, Rothrock, Johnsen, & Lutgendorf, 2006). Weinrib et al. (2006) asked community dwelling women to write essays about their experience of a stressful event and to complete the PTGI. They found that growth was associated with greater depth of processing in the essays. Reports of growth were also not associated with socially desirable responding as assessed by the Marlow Crowne Desirability Scale. Helgeson (2010) also compared breast cancer

survivors' reports of growth to reports on relevant dimensions that reflected the specific area of growth. Significant correlations were identified between individual's reports of changes and measurement on corresponding dimensions, providing further evidence for the validity of growth. For example, survivors' open ended reports of spirituality were associated with reports of greater faith on questionnaire measures. Therefore, despite concerns, it appears that at some times growth reports may actually reflect changes that individuals have actually undergone. Future research should continue to endeavour to distinguish reports of actual change in comparison to non-veridical reports of growth. Frazier and Kaler (2006) recommend the use of prospective studies, behavioural studies, and studies of coping with future life events to fully assess the validity of reports of growth.

1.2 Theories of Growth

Many models of growth have been described in the literature. O'Leary, Alday, and Ickovics (1998) carried out a review of early models of growth and identified three models of growth which described intentional and incremental change: Nerken's (1993) Model of Resolution and Growth following bereavement, Mahoney's (1982) Model of Human Change Processes, Hager's (1992) Model of Chaos and Growth. Five additional models were identified which described transformative, unintentional change: Miller and C'deBaca's Model of Quantum Change; O'Leary and Ickovics' (1995) Resilience and Thriving Model, Aldwin's (1994) Transformational Coping Theory, Schaefer and Moos' (1992) Model of Life Crises and Personal Growth, and Tedeschi and Calhoun's (1995) Functional Descriptive Model. More recent models of growth include Maercker and Zoellner's (2004) Janus Face Model, Christopher's (2004) Biopsychosocial-

Evolutionary Theory, and Joseph and Linley's (2005) Organismic Valuing Theory of Growth.

The following section outlines the Functional Descriptive Model (Tedeschi & Calhoun, 1995, 2004) and the Organismic Valuing Theory (Joseph & Linley, 2005), which are the most comprehensive models of growth. Janoff-Bulman's (1992) Shattered Assumptions Theory, although developed prior to the establishment of this field, has provided the fundamental basis for these two theories of growth. Janoff-Bulman proposes that individuals hold a number of fundamental assumptions about the self and the world. According to this theory, the experience of a highly stressful event shatters these beliefs about the self and the world and some type of meaning making or cognitive processing to rebuild these beliefs and goals occurs. Although this model has been influential in the development of later theories of growth, some researchers have criticised the model for exaggerating the damaging impact of trauma upon the self (McMillen, 2004).

1.2.1 Functional Descriptive Model (Tedeschi & Calhoun, 1995, 2004)

The Functional Descriptive Model is shown in Figure 1.1 and has been described as the most comprehensive theoretical model to date (Joseph & Linley, 2005, 2006). According to this model, traumatic events are distressing because they act as seismic challenges to pre-trauma schemata by shattering prior goals and beliefs and ways of managing emotional distress. In an attempt to rebuild these previously held assumptions, and to deal with their emotional reactions, ruminative activity takes place. Tedeschi and Calhoun (2004) perceive these ruminations as evidence of cognitive processing. Initially rumination is more automatic than deliberate (this is consistent with the re-experiencing and avoidance symptom clusters within posttraumatic stress

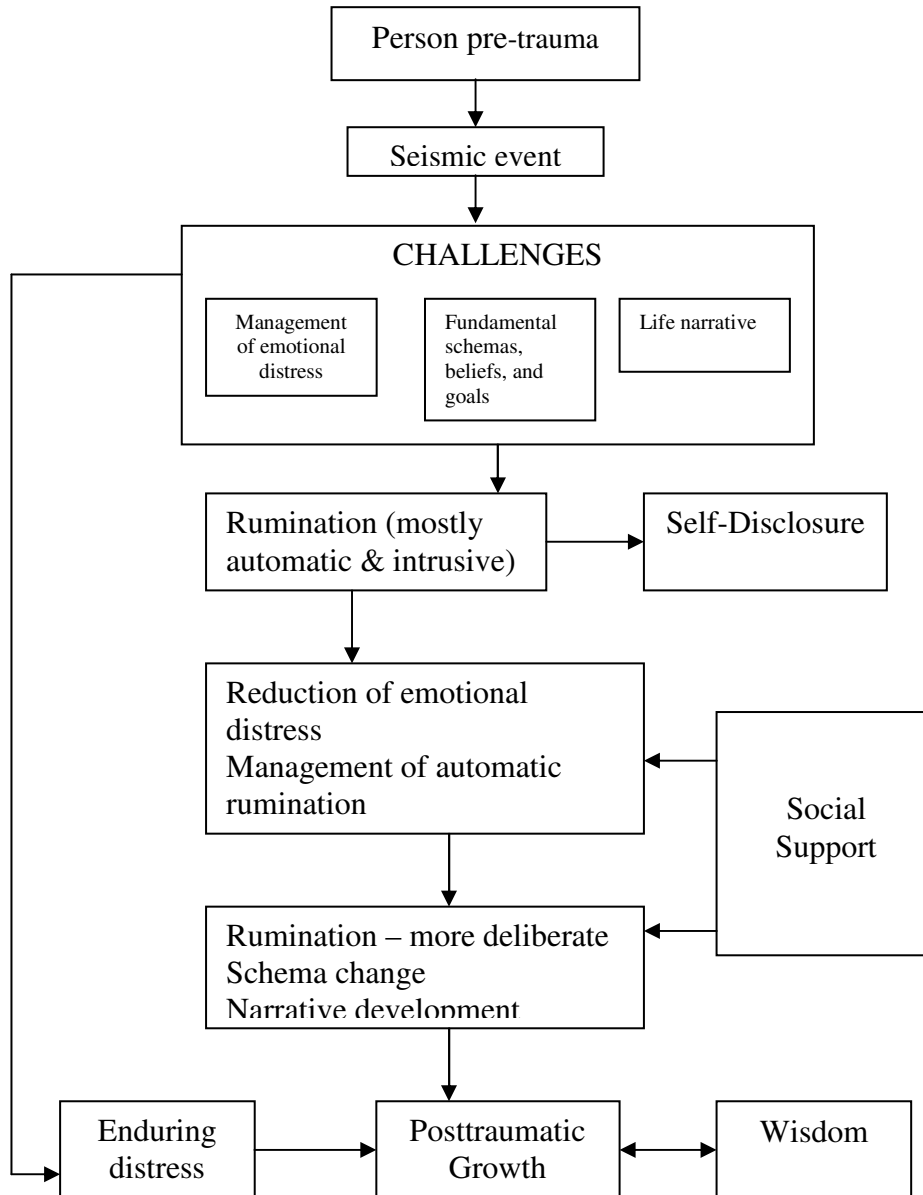


Figure 1.1 Tedeschi and Calhoun's (2004) functional descriptive model of growth.

disorder; [PTSD]) (American Psychiatric Association [APA], 1994), and is characterised by frequent thinking of the event and related issues. Although this automatic ruminative activity is often distressing it is a sign that cognitive processing aimed at rebuilding pre-trauma schemata is occurring. Eventually, if this process is successful, it leads to a reduction in emotional distress and disengagement from previous goals and beliefs as it becomes clear that the old way of living is no longer tenable. Tedeschi and Calhoun (2004) posit that this process may take some time. Rumination then becomes more deliberate and reflective as the individual tries to make sense out of what has happened. It is this type of activity that is thought to play a key role in the development of growth. Rebuilding of assumptions that take into account the changed reality of one's life after trauma produces schemas that include the trauma and possible events in the future, and that are more resistant to being shattered (Tedeschi & Calhoun, 2004). Thus, following a stressful life event, people develop new assumptions about the self, the world, and the future, and these results are experienced as growth.

Fundamental to this model is that growth does not result as a direct consequence of trauma, but rather the individual's struggle with the new reality in the aftermath of trauma. Indeed, within the latest revision of the model Calhoun, Cann, and Tedeschi (2010) make it explicit that it is the disruption of one's assumptive beliefs, rather than the objective characteristics of the event itself, that initiates the processes that can eventually lead to growth. The model recognises that there are a number of factors that influence the coping process and therefore the emergence of growth. Pre-trauma variables within the individual are important. Tedeschi and Calhoun (2004) highlight three personality characteristics, extraversion, openness to experience, and optimism, which may positively influence growth. Social support systems are also particularly important in this model of growth. The presence of supportive others may promote self-

disclosure, stimulate cognitive processing, and offer new perspectives, which can assist people to find positive meaning and perceive growth.

Strengths of Tedeschi and Calhoun's model (1995, 2004) include its comprehensive integration of a wide range of relevant research findings, its detailed explanation of the cognitive processes that have shown to be associated with growth, and its basis in clinical experience (Sheikh, 2008). However, the theory is mostly descriptive and lacks explanatory power. For example, it does not explain *why* people are motivated towards growth (Joseph & Linley, 2005). The model has also been criticised for an over-reliance on cognitive explanations (McMillen, 2004; Park, 2004; Stanton & Low, 2004). Specifically critics have questioned the shattering and rebuilding of assumptions as necessary for growth to occur. Park (2004) also argues that although Tedeschi and Calhoun describe individual characteristics that facilitate growth there are other characteristics that require more attention such as gender, age, and religiousness. Stanton and Low (2004) also highlight the potential role of positive emotions in the experience of growth, which are absent from Tedeschi and Calhoun's model.

1.2.2 Organismic Valuing Theory (Joseph & Linley, 2005)

The organismic valuing theory of growth (Figure 1.2) stems from a person-centred approach and states that all humans are oriented towards growth (Joseph & Linley, 2005). Similar to Tedeschi and Calhoun's (1995, 2004) model, this theory views the confrontation with an adverse event as having a shattering effect on the person's assumptive world, although Joseph and Linley (2005) also recognise that growth can take place through a more gradual disruption and rebuilding of beliefs. When this occurs

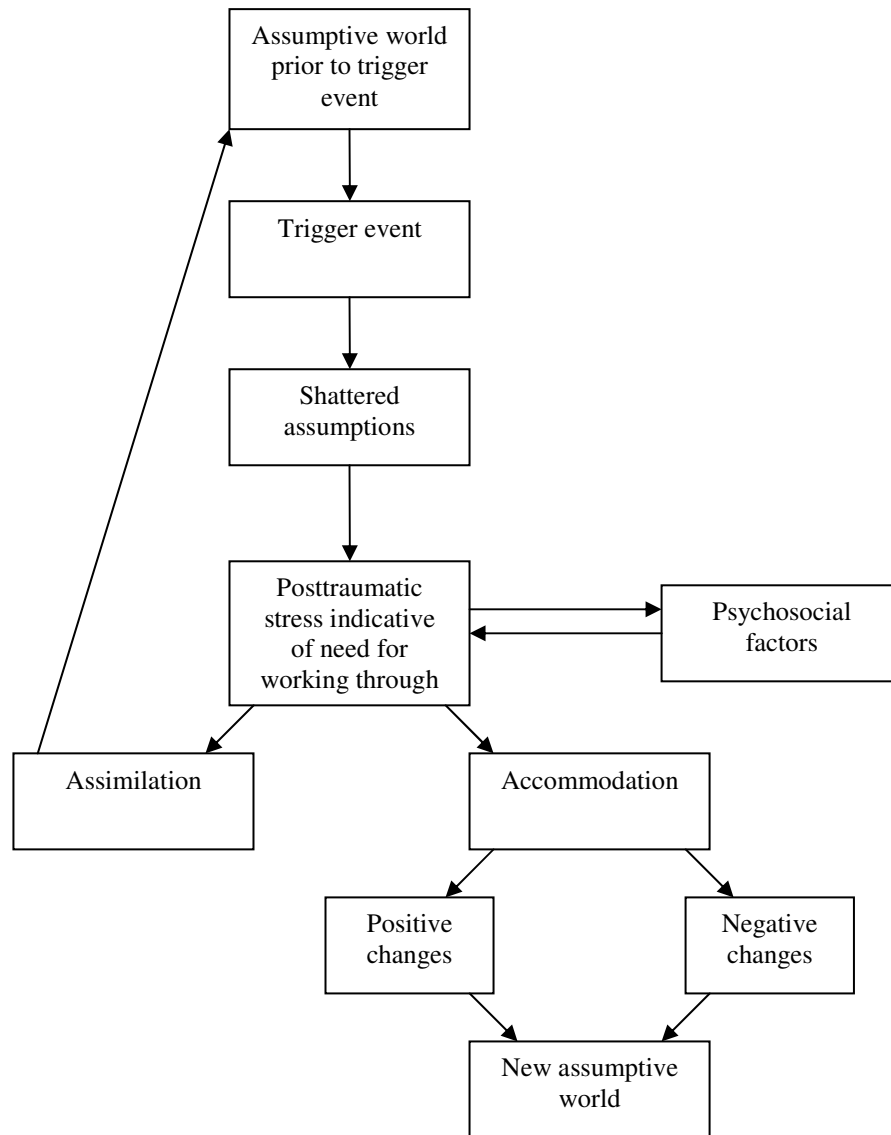


Figure 1.2. Joseph and Linley's (2005) organismic valuing theory of growth following adversity

there is a need to integrate this trauma related information, which is known as the completion tendency (Horowitz, 1986). The organismic valuing theory of growth views the completion tendency as an aspect of the organismic valuing process (OVP). The OVP describes people's innate ability to know what is important to them and what is necessary for a fulfilling life (Joseph & Linley, 2005, 2006) and is a central tenet to the organismic valuing theory. This process of integration leads to the intrusive and avoidant states characteristic of PTSD. An oscillation between intrusive and avoidance states continues until a baseline is reached, which indicates that the information has been processed. This theory is able to explain specifically *how* information has to be processed if growth is to occur, which has been lacking from previous theories. According to this theory, new trauma-related information can be processed in one of two ways. The new information can either be assimilated within existing models of the world, or existing models of the world must accommodate the new trauma-related information. As such, accommodation requires individuals to change their worldviews (Janoff-Bulman, 1992). Accommodation can either be in a negative (e.g. a depressogenic reaction of hopelessness and helplessness), or positive direction (e.g. that life is to be lived to the full in the here and now) dependent on the meaning attributed to the traumatic event (Payne, Joseph, & Tudway, 2007).

Although the role of meaning is central to theories of growth, previous theories have not adequately explained the role of meaning in growth. Janoff-Bulman and Frantz (1997) distinguished between meaning as comprehensibility (i.e. understanding why an event happened) and meaning as significance (i.e. understanding the philosophical, spiritual, world view implications of the event). Individuals may initially be concerned with questions about comprehensibility, but over time they will ask questions about significance. Although both types of meaning are important in understanding growth, it

is meaning as significance which is necessary for growth. By definition, cognitive accommodation requires changes in meaning as significance. In circumstances when the individual does not engage in meaning as significance and retains their pre-trauma schema the individual will tend towards assimilation. As such, according to this theory there are three possible cognitive outcomes to the psychological resolution of trauma. First, experiences can be assimilated and pre-event assumptions are maintained despite evidence to the contrary, which leads to a return to pre-trauma baseline and can leave individuals vulnerable to future distress. Second, experiences can be accommodated in a negative direction, which can lead to psychopathology. Third, experiences can be accommodated in a positive direction, which can lead to growth.

This theory also makes explicit the distinction between psychological wellbeing (PWB) and subjective wellbeing (SWB). SWB refers to people's balance of affective states, satisfaction, and happiness. In comparison PWB represents the engagement with the existential challenges of life and refers to self-acceptance, environmental mastery, personal growth, autonomy, positive relations with others, and having a purpose in life (Ryff & Singer, 1996). These dimensions of PWB are likened to the three main domains of growth (changes in life philosophy, changes in perception of self, and changes in relationships with others). Therefore, understood in this way, growth is about PWB rather than SWB.

The organismic valuing theory highlights a number of factors, which can explain individual differences in trauma responses. First, the degree of disparity between the trauma and pre-existing expectations and beliefs. Specifically, the greater the incongruence and conflict between the person's previous assumptive world and the trauma-related information, the greater the potential for posttraumatic stress reactions and growth. Second, accommodation or assimilation can be influenced by the extent to

which people have a supportive social environment. The theory states that when the social environment is able to provide for the basic human needs, autonomy, competence, and relatedness (Ryan & Deci, 2001), then growth will be promoted. If the social environment is not supportive of these needs their OVP will be thwarted, and individuals may be likely to experience assimilation or negative accommodation. Personality variables are also important. A rigid personality schema that does not allow information to be processed that is in contrast to that already held by the individual would lead to assimilation. In contrast an individual with a malleable personality schema will be able to accommodate this new information through changes in personality schema (Joseph & Linley, 2008a).

This theory is still in the early stages of development. However, studies have provided initial support for some of the constructs described in this theory. Payne et al. (2007) conducted a qualitative study and found evidence of assimilation and accommodation processes in individuals who had experienced a prior traumatic event. Although this theory is valuable because of its explanatory nature, which has previously been lacking in theories of growth, criticisms of Tedeschi and Calhoun's model of growth are also relevant to Joseph and Linley's (2005) model. For example, the overemphasis on cognitive processes and the lack of clarification regarding other variables the empirical literature has shown to be important. Moreover, some of the concepts in their model are challenging to operationalise and test. For example, it is difficult to quantitatively examine assimilation and accommodation processes in individuals.

In conclusion both these models provide a detailed account of the growth process and explanations are provided to account for individual differences. Nevertheless, to date there have been limited empirical tests of these two models of growth. There are however, numerous studies which have tested specific hypotheses and relevant correlates that can be derived from the models. These will be discussed in the section below along with other factors that have been studied in the literature.

1.3 Factors Associated with Growth

The use of quantitative measures has allowed researchers to examine the correlates and predictors of growth. The subsequent section will briefly review the sociodemographic, individual, and event factors shown to be associated with growth.

1.3.1 Sociodemographic variables

Many studies suggest that younger respondents, once they have reached a certain level of mental maturation, are more likely to report growth (Linley & Joseph, 2004). For example, Manne et al. (2004) found that younger breast cancer patients scored higher on the PTGI shortly after surgery, as well as nine and 18 months later. Similar results have been reported in individuals following bone marrow transplantation (Widows, Jacobson, Booth-Jones, & Fields, 2005), HIV/AIDS patients (Milam, 2004), and in war refugees (Powell et al., 2003). Some studies have reported no relationship between age and growth (Kinsinger et al., 2006; McCaslin et al., 2009; Tomich & Helgeson, 2004) and other studies have reported higher levels of growth in later life (e.g. Tallman, Shaw, Schultz, & Altmaier, 2010). Therefore rather than implying that growth does not occur in older people, these findings suggest that young people may be

more likely to report growth when compared to older adults (Aldwin, Levenson, & Kelly, 2009).

Some evidence suggests that women experience higher levels of growth than men. In healthy undergraduate samples women reported significantly higher levels of growth than men (e.g. Tedeschi & Calhoun, 1996) and this pattern has been replicated across multiple types of events such as cancer (Manne et al., 2004), HIV/AIDS (Milam, 2004; Milam, 2006b) and terrorist attacks (e.g. Val & Linley, 2006). Many studies have also reported no gender differences (e.g. Sheikh, 2004; Taku et al., 2007; Widows et al., 2005). Two recent meta-analyses attempted to address this variability in the literature and examined growth following a range of events. Both studies reported a small effect of gender with women reporting higher levels of growth (Helgeson, Reynolds, & Tomich, 2006; Vishnevsky, Cann, Calhoun, Tedeschi, & Demakis, 2010).

In some studies individuals from ethnic minority groups have reported greater growth than white individuals (e.g. Bellizzi et al., 2010; Milam, 2006b; Tomich & Helgeson, 2004). This finding is inconsistent with a number of studies reporting less growth in ethnic minorities (Updegraff et al., 2002) or that ethnicity was unrelated to growth (Sears et al., 2003; Updegraff & Marshall, 2005). A meta-analysis reported a small effect size for the effect of ethnicity on growth, with non-white individuals reporting more growth than white individuals (Helgeson et al., 2006). Drawing conclusions about the relationship between growth and ethnicity is difficult because most studies were not designed to directly compare differences and few studies included balanced numbers of different ethnicities (Lechner & Weaver, 2009).

A number of studies suggest that higher levels of income and education are associated with higher levels of growth. For example, in women with breast cancer income and education has been positively associated with levels of perceived growth

(Bower et al., 2005; Cordova et al., 2001, Sears et al., 2003). However, other studies have reported a negative association between income and education and growth (Bellizzi & Blank, 2006; Kinsinger et al., 2006; Thornton & Perez, 2006; Widows et al., 2005). These divergent findings suggest further research is necessary to clarify the relationship between income, education, and growth.

1.3.2 Personality

Current research suggests that certain personality characteristics are associated with growth. In their review, Linley and Joseph (2004) reported that extraversion, conscientiousness, hardiness, and openness to experience were positively related to growth, while neuroticism was negatively related to growth. However, Helgeson et al. (2006) reported no relationship between neuroticism and growth in their meta-analysis. Optimism has been proposed as a characteristic that may predispose individuals to experience growth following traumatic life events (Tedeschi & Calhoun, 1996) and two meta-analyses have reported a moderate relationship between optimism and growth (Helgeson et al., 2006; Prati & Pietrantonio, 2009).

1.3.3 Coping

The literature suggests that the way an individual copes with adversity contributes to adjustment (Carver, Scheier, & Weintraub, 1989). Certain coping strategies are considered to lead to more positive changes, whilst others to more negative changes. For example, individuals who engage in active approach-oriented coping (e.g. problem focused, acceptance, and positive reinterpretations strategies) are hypothesised to be more likely to report growth following trauma (Tedeschi & Calhoun,

1996), whereas those who engage in more avoidant coping should report fewer positive changes (Schaefer & Moos, 1998). Numerous cross-sectional and longitudinal studies support this association between growth and approach-oriented coping strategies (Armeli, Gunthert, & Cohen, 2001; Sears et al., 2003; Widows et al., 2005).

A further coping related variable that appears to be related to positive change is religiosity. Studies have found religiosity to be positively related to growth (Park et al., 1996; Tedeschi & Calhoun, 1996). A religious outlook may help survivors to make sense and find meaning in the aftermath of a traumatic event (Urcuyo, Boyers, Carver, & Antoni, 2005). Milam (2004) found that religiosity was associated with higher levels of growth among a diverse sample of HIV/AIDS patients.

1.3.4 Social support

Social support is hypothesised to be a key variable in the development of growth according to the Functional Descriptive Model of Growth (Tedeschi & Calhoun, 1995, 2004) and the Organismic Valuing Theory of Growth (Joseph & Linley, 2005). Many studies have documented a positive relationship between social support and growth (e.g. Cadell, Regehr, & Hemsworth, 2003; Dirik & Karanci, 2008; Frazier, Tashiro, Berman, Steger, & Long, 2004; Senol-Durak & Ayvasik, 2010). Also, Weiss (2004) reported that increased contact with another person who had experienced growth increased the probability of them experiencing it as well. However, the relationship between social support and growth is not a straightforward one. In studies involving women with breast cancer growth was unrelated to global indices of social support (Cordova et al., 2001; Sears et al., 2003; Weiss, 2004). A lack of association has also been reported in heart disease patients (Sheikh, 2004). It is thought that rather than the availability of social support *per se*, it is the opportunity that social support offers for cognitive processing of

the traumatic event which is most predictive of growth (Sheikh, 2004). For example, Cordova et al's (2001) findings suggest that despite a lack of a relationship between growth and social support, the extent to which patients had talked about their cancer with others was significantly associated with growth.

1.3.5 Perceived impact of the stressor

Although objective rates of the severity of an event do not show a clear correlation with growth, the subjective perception of threat does seem to be closely associated with growth (Sumalla, Ochoa, & Blanco, 2009). In their model, Tedeschi and Calhoun (1995, 2004) specify that significant threat may be required for the development of growth and a review of the literature found that greater levels of perceived threat and harm were generally associated with higher levels of growth (Linley & Joseph, 2004). However, greater threat may not always be associated with greater growth. There may be circumstances when the threat is too large and overwhelms the possibility of growth (Stanton, Bower, & Low, 2006). For example, Fontana and Rosenheck (1996) reported a curvilinear relationship between traumatic exposure and psychological benefits. Specifically, benefits were stronger at intermediate, rather than low or high levels of threat.

1.3.6 Cognitive processing

A central element of current models of growth is the role cognitive processing plays in the development of growth. The empirical literature supports this with many studies reporting a positive relationship between cognitive processing variables (e.g. rumination, intrusions, and avoidance) and growth (e.g. Helgeson et al., 2006; Linley &

Joseph, 2004). More recent studies have also examined the relationship between specific types of cognitive processing (Phelps, Williams, Raichle, Turner, & Ehde, 2008; Salsman, Segerstrom, Brechting, Carlson, & Andrykowski, 2009; Taku, Cann, Tedeschi, & Calhoun, 2009). For example, Taku et al. (2009) explored the role of four different types of rumination: intrusive rumination soon after the event, intrusive rumination recently, deliberate rumination soon after the event, and deliberate rumination recently. As expected they found that intrusive ruminations that occurred soon after the event predicted growth and recent deliberate rumination also predicted growth.

In summary this brief review of variables related to growth highlights a number of potential or important factors, although many studies also reported conflicting or no relationships. This underlines the need for further research into the correlates associated with growth following challenging events.

1.4 Current Issues within the Literature

1.4.1 Relationship between growth, distress, and wellbeing

An important and common question within the literature is whether growth is associated with other indicators of adjustment. It is frequently assumed that growth is closely related to improvements in positive wellbeing. Indeed a number of studies have reported that growth is related to increased wellbeing such as positive affect (Sears et al., 2003), higher self-esteem (McMillen et al., 1995), and decreased psychological distress such as depression (Milam, 2006b; Urcuyo et al., 2005), anxiety (Ho, Chan, & Ho, 2004), and PTSD symptoms (Frazier et al., 2001). Tedeschi and Calhoun (1995)

assert that the experience of growth is not the same as an absence of distress, and a certain degree of distress is a prerequisite for growth. According to their model, growth and psychological distress are separate dimensions and the experience of growth does not necessarily result in the reduction of psychological distress. A number of studies have supported this and found growth to be associated with lower levels of wellbeing such as poorer quality of life (Tomich & Helgeson, 2004) and higher levels of distress such as PTSD symptoms (Butler et al., 2005; Park et al., 1996). Other studies have also reported no association between growth and adjustment (e.g. Cordova et al., 2001). A recent meta-analysis of growth and adjustment following a range of challenging events adds testament to this inconsistent literature (Helgeson et al., 2006). Growth was related to more positive affect and less depression but also related to more intrusive thoughts about the stressful event. In comparison, growth was unrelated to anxiety, global indices of distress, quality of life, and subjective physical health.

Longitudinal studies allow a stronger test of the association between growth and psychological adjustment. Frazier et al. (2001) found that self-reported positive changes in the initial weeks following a sexual assault predicted lower levels of distress when positive changes were maintained, compared to women who showed reduced levels of positive change or those who never reported positive changes. Ickovics et al. (2006a) conducted one of the few prospective studies in the literature to examine whether growth affected emotional distress after accounting for pre-event distress level.

Adolescents who reported higher growth had less distress up to 12 and 18 months post event. Similar results have been reported in a number of other studies (e.g. Affleck et al., 1987; Danoff-Burg & Revenson, 2005; McMillen et al., 1997; Tallman, Altmaier, & Garcia, 2007). These findings indicate that early reports of growth may predict lower levels of distress in the long-term.

A number of explanations have been put forward to account for this inconclusive pattern of empirical results. One possibility is that growth may not be related to other measures of adjustment in a linear fashion, but in a curvilinear way. Three groups of individuals can be used to help illustrate this relationship. One group may not perceive the event as a crisis, and therefore is not likely to display distress or growth. Another group may experience mostly distress and less growth, and a third group may experience mostly growth and less distress. If all three groups were in a single sample you would expect a curvilinear relationship between growth and distress. Indeed, Lechner et al. (2006) found a curvilinear relationship between growth and adjustment (assessed by state-affectivity and depression) in a sample of women diagnosed with breast cancer. Women who reported low or high levels of growth were better adjusted than those reporting moderate levels of growth. Evidence of a curvilinear relationship has also been reported in assault survivors (Kleim & Ehlers, 2009; Kunst, 2010) and following terrorist attacks (Butler et al., 2005; Levine, Laufer, Hamama-Raz, Stein, & Solomon, 2008).

Another explanation for the inconsistent relationship between growth and adjustment may be that important moderating variables exist, which identify subgroups of individuals who show varying degrees of a relationship between growth and mental health (Park & Helgeson, 2006). For example, in a study of mothers of children undergoing stem cell transplantation, perceived growth predicted positive adjustment six months later only when the mothers were optimists (Rini et al., 2004). Helgeson et al.'s (2006) meta-analysis also examined moderators of the growth-adjustment relationship and important moderators that emerged were ethnicity, time since trauma, and severity of trauma.

The contradictory results could also be explained by the heterogeneity of events that have been examined. For example, the studies included in Helgeson et al.'s (2006) meta-analysis included a wide range of events such as sexual assault, natural disaster, bereavement, childhood abuse, and illness. Characteristics of traumatic events vary considerably and the adaptation process to different kinds of challenging events may well vary from one another (Zoellner & Maercker, 2006). For example, it is possible that health events, such as cancer, heart disease, arthritis, and childbirth pose different challenges and opportunities for growth compared to events such as bereavement or natural disasters.

In conclusion this brief summary highlights the inconsistent relationship between growth and measures of wellbeing and distress. This underscores the importance of the continued examination of these relationships in future studies of growth.

1.4.2 Culture and growth

The current theories of growth have been conceptualised and developed within Western culture. Similarly, the majority of research on growth has been carried out in Western countries, mostly in the United States. Tedeschi and Calhoun's (1995, 2004) model has been criticised for not considering sufficiently the role of cultural influences in the development of growth (McMillen, 2004). However, in a recent revision Calhoun et al. (2010) emphasise the importance of proximate (e.g. people with whom the individual interacts with) and distal (e.g. cultural and societal themes) sociocultural influences in the development of growth. In particular, they believe that these sociocultural influences can play a role in two major components of their growth model: ruminative processes and self-disclosure. They propose that there are at least three

cognitive styles, which may vary within and between cultures that may influence the nature of rumination: personal control, sources of causation, and stability over time. Cultural context may also influence the content of rumination. For example, individuals from a collectivist culture might be expected to consider how their reactions to the event will affect others. Cultural influences are also likely to affect self-disclosure. For example, in certain cultures barriers exist to disclosure about certain traumas e.g. sexual abuse, HIV status, and domestic violence.

Despite the prominence of studies conducted in the United States, research is increasingly examining positive changes following challenging events in different cultures. Studies have been carried out in Israel (e.g. Laufer & Solomon, 2006; Levine et al., 2008), Turkey (e.g. Dirik & Karanci, 2008; Karanci & Erkam, 2007), China (e.g. Ho et al., 2004), Japan (e.g. Taku et al., 2007; Taku et al., 2009), Australia (e.g. Morris et al., 2005), Sri Lanka (e.g. McCaslin et al., 2009), India (e.g. Thombre, Sherman, & Simonton, 2009), Malaysia (Schroevers & Teo, 2008), and South Africa (e.g. Peltzer, 2000; Polatinsky & Esprey, 2000). In spite of methodological differences, an overview of this literature indicates the universality of the experience of growth and some of its correlates (Weiss & Berger, 2010). Nonetheless, manifestations and correlates of growth may also have unique culture-specific characteristics. For example, diverse factor structures of the PTGI have been reported in specific sociocultural contexts (Weiss & Berger, 2010). Levine et al. (2008) conducted a principal components analysis to examine whether the original 5 subscales would be replicated in a sample of 4,054 Israeli youth pooled from two studies (Laufer & Solomon, 2006, $n = 2,999$; Laufer, Raz- Hamama, Levine, & Solomon, 2009, $n = 1,745$). A two-factor solution emerged: “outward bound growth”, which relates to interpersonal relationships, and “intrapersonal growth”, which relates to self-perception and philosophy of life. Cultures

and subcultures also vary in the level of growth reported. As discussed previously, non-white people have reported greater growth than white people (e.g. Bellizzi et al., 2010; Milam, 2006b; Tomich & Helgeson, 2004). Differences in the specific areas of growth have also been reported. For example, in highly atheistic societies such as the Netherlands and Australia, the lowest level of growth was in the spiritual domain (Harms & Talbot, 2007; Jaarsma, Pool, Sanderman, & Ranchor, 2006).

Although there is evidence that supports the cross-cultural experience of growth following challenging events, studies also emphasise specific cultural variations in the experience of growth. This highlights the need to continue to broaden the scope of our understanding of growth across different cultures. For example, Africa has the highest proportion of people living in extreme poverty in the world (Department for International Development, 2008). Trauma is also widespread within Africa (Rasmussen, Smith, & Keller, 2007). In Pretoria, South Africa, more than two thirds of university students reported experiencing a traumatic event, often in the form of witnessing violence (Hoffman, 2002). Another study in Kenya found that more than 80% of students reported exposure to at least one trauma including witnessing violence, being robbed, being in a natural disaster, and sexual assault (Seedat, Nyamai, Njenga, Vythilingum, & Stein, 2004). Only two studies in Africa have examined growth in the aftermath of challenging events, both of which were conducted in South Africa (e.g. Peltzer, 2000; Polatinsky & Esprey, 2000). Therefore, considering the degree of poverty and trauma experienced by many Africans, future research should widen their focus to examine growth following adversity in African countries.

1.4.3 Cross-sectional research

A foremost concern within the literature is the lack of longitudinal research. Cross-sectional studies constrain causal inference regarding the relationship between predictors and growth. A longitudinal perspective can provide information to both researchers and clinicians about the natural trajectory of growth and its individual variability (Manne et al., 2004). An even better approach would be prospective studies that assess people on important domains prior to their experiencing events and then follow them up after the occurrence of the challenging event. Studies of this kind are very difficult to conduct due to most challenging events being unpredictable. Most studies are retrospective or begin after the trauma. As a result very few studies have pre-event measures of mental health or other indicators of wellbeing prior to the stressful event (Ickovics et al., 2006a).

1.5 Growth Following Childbirth

Childbirth is a challenging and significant event, which is experienced by many women every year. In 2009 there were 706,248 live births in England and Wales (Office for National Statistics, 2010). After birth some women are vulnerable to the development of psychological problems such as postnatal depression, anxiety disorders, and bonding difficulties (Brockington, 2004). There is increasing evidence to suggest that the experience of childbirth is an event that could be psychologically traumatic and lead to the development of PTSD (Ayers & Pickering, 2001; Creedy, Shochet, & Horsfall, 2000; Czarnocka & Slade, 2000; Olde, van der Hart, Kleber, & Van Son, 2005; Soderquist, Wijma, Thorbert, & Wijma, 2009; Soet, Brack, Dilorio, 2003; Wijma, Soderquist, & Wijma, 1997). According to the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV; APA, 1994) a traumatic event is defined

as: (1) an event during which the person experienced, witnessed, or was confronted by actual or threatened death or serious injury, or a threat to the physical integrity of self or others, and (2) during which the person's response involved intense fear, helplessness, or horror. Both of these criteria can be met by childbirth. Actual life threat to the woman or the baby occurs in just under 1% of cases in the UK (Baskett & Sternadel, 1998; Murphy & Charlett, 2002). However, studies using DSM-IV criterion A to screen perceptions of birth find that a much larger proportion (up to 45%) of women report genuine fear, helplessness, and horror in response to a perceived threat to themselves or their baby (e.g. Alcorn, O'Donovan, Patrick, Creedy, & Devilly, 2010; Soet et al., 2003). Similar proportions of women subjectively report experiencing a traumatic birth (Creedy et al., 2000; Czarnocka & Slade, 2000; Soet et al., 2003). Using childbirth as the index stressor, current research suggests that the prevalence of PTSD in women after birth in developed countries is approximately 1-2% (Ayers et al., 2008), while up to 30% of women develop symptoms which fall short of full diagnostic criteria for PTSD (e.g. Czarnocka & Slade, 2000; Maggioni, Margola, & Fillip, 2006; Wijma et al., 1997). These findings suggest childbirth can act as a significant stressor for many women and can trigger a posttraumatic stress response in some women.

Most studies on maternal wellbeing have been conducted in Western, developed countries, where delivery is relatively safe. For example, in 2008 the maternal mortality rate in Western Europe was approximately seven per 100,000 live births (Hogan et al., 2010). Comparatively, labour and childbirth are associated with considerable life-risk to the mother and baby in Africa. The World Health Organization (WHO) estimates that women in sub-Saharan Africa have a one in 16 lifetime risk of dying during pregnancy and childbirth, compared with one in 2,800 in developed regions (WHO, 2004a). Moreover, many African women do not use any health services when pregnant and

there is a high rate of homebirths (Adewuya, Ologun, & Ibigami, 2006; Ejembi et al., 2004). Therefore there may be cross-cultural differences in African women's psychological responses to birth in comparison to women in Western and developed countries. Research suggests that women in Africa experience psychological disorders after childbirth at a similar or higher rate in comparison to women in Western, developed countries (Halbreich & Karkun, 2006). A recent study assessed PTSD after childbirth in a sample of Nigerian women (Adewuya et al., 2006). They reported a prevalence of 5.9% of PTSD at eight weeks postpartum, which is slightly higher than reported in Western countries.

A recent article based on a symposium of researchers involved in the study of PTSD following childbirth recommended both that more research was needed in non-Western countries and that research needs to take into account a broader conceptualisation of distress and recognise a range of possible responses, including psychological growth (Ayers et al., 2008). One recent study, which explored women's accounts of a subsequent childbirth after a previous traumatic birth, found evidence of one of the domains of growth: a sense of personal strength (Beck & Watson, 2010). Women felt that their previous experience of birth had provided them with a sense of strength and empowerment when dealing with the subsequent birth. A similar theme was reported in a meta-ethnographic review of qualitative studies which examined birth trauma (Elmir, Schmied, Wilkes, & Jackson, 2010). This review found that one theme reported by women following a traumatic birth was a strength of purpose, such as a determination to succeed as a mother. Another study in Israel examined personal growth during the transition to motherhood for first time mothers (Taubman-Ben-Ari, Ben Shlomo, Sivan, & Dolizki, 2009). This study found that women can experience both positive and negative outcomes in their transition to motherhood. A number of variables

predicted growth during pregnancy and following childbirth including a higher appraisal of motherhood as a challenge, a better marital relationship, problem focused coping, and maternal grandmother's support.

Only one study has specifically examined growth as a result of the childbirth experience in UK women. Sawyer and Ayers (2009) examined growth in a group of 219 women who had given birth within the previous three years. Mean growth scores were comparable to other samples using the PTGI and approximately half of the sample reported at least a moderate degree of positive change following childbirth. Growth was related to the use of higher levels of approach coping and the avoidant strategy of seeking alternative rewards. In comparison, growth was unrelated to control and support during birth, PTSD symptoms, and other avoidant strategies. This study has a number of limitations. First, the sample was recruited from the Internet and as such the results must be considered within the constraints inherent in this methodology. Women without access to the Internet were not represented in this sample, and a self-selection bias toward younger respondents and more highly educated respondents has been reported in Internet based studies (Ross, Mansson, Daneback, Cooper, & Tikkanen 2005). Second, the number of women with PTSD were over represented (12.4% of women met the full criteria for PTSD). Therefore the sample was not representative of the UK birthing population. Third, the design of the study was cross-sectional and women were not assessed on important variables prior to birth. Finally, there were a number of variables that were not measured in this study that may influence growth outcomes. Specifically, support was assessed only in relation to support provided during childbirth, whereas postnatal social support was not examined as a predictor of growth.

1.6 Summary and Rationale

This brief review of growth and psychological wellbeing following childbirth highlights a number of potentially important areas for further research, some of which the present thesis hopes to address. First, the literature regarding the relationship between growth and adjustment is inconsistent and further research is needed to clarify this relationship. As discussed previously, one explanation for the differential relationship between growth and adjustment is the heterogeneity of events examined. One way to address this is to look at the relationship between growth and adjustment following a more homogenous set of events, such as health events. Second, there is a need for a broader focus on psychological adjustment following childbirth. Examining positive psychological outcomes allows a more comprehensive account of psychological reactions following childbirth to be developed. Moreover, there is a lack of longitudinal, prospective studies of growth. From a theoretical viewpoint childbirth is a naturally occurring and predictable event, which allows the role of different variables in the development of growth to be considered prospectively. Third, in an effort to broaden the scope of our understanding of growth, there is a need to examine growth following challenging events in different cultures. To date, only two studies have examined growth in Africa. Most research has examined maternal wellbeing in Western, developed countries. Although initial findings suggest that women in Africa may also experience childbirth as a stressful and traumatic experience, the literature is limited. Finally, further research is needed to explore potential correlates of growth after childbirth. With these principal areas in mind this thesis set out to examine the following:

- 1 To clarify the relationship between growth and adjustment following health events.
 - 1.1 Review existing literature on the relationship between growth and adjustment following health events.
 - 1.2 Explore potential moderators of the relationship between growth and adjustment following health events.
- 2 Review existing findings on maternal psychological wellbeing in Africa.
 - 2.1 Systematically examine the prevalence of psychological disorders during pregnancy and after childbirth in African women.
 - 2.2 Identify factors associated with psychological disorders during pregnancy and after childbirth.
- 3 To prospectively examine growth after childbirth in the UK and The Gambia.
 - 3.1 Qualitatively explore experiences of pregnancy, childbirth, and the postnatal period in Gambian women.
 - 3.2 Explore the prevalence of growth after childbirth in UK and Gambian women.
 - 3.3 Explore pre- and postnatal correlates of growth after childbirth.
 - 3.4 Explore the relationship between growth after childbirth and psychological distress.

These objectives were addressed through a series of reviews and research projects reported in the articles that form Chapters 2 to 6 of this thesis. The specific questions addressed in each article and the main findings are briefly outlined below.

1.7 Outline of Articles

Article 1: Posttraumatic growth and adjustment among individuals with cancer or HIV/AIDS: A meta-analysis

The aim of this article was to review existing literature on growth and various indicators of adjustment following health events. Potential moderators of this relationship were also examined. Given the discrepant findings in the literature a meta-analysis was decided upon as a useful tool to integrate studies in the area. The original paper included studies that had examined growth following any health event (including childbirth). However, due to the heterogeneity of health events and considering most studies were focused on cancer and HIV/AIDS, the focus of this paper was altered following recommendations from reviewers to examine the relationship between growth and adjustment in HIV/AIDS and cancer samples. Analysis of 38 studies found that growth was related to higher levels of positive mental health, lower levels of negative mental health, and higher levels of subjective physical health. Important moderators found were: time since the event, age, ethnicity, and type of negative mental health outcome. Therefore this study points to the potentially adaptive significance of growth.

Article 2: Pre- and postnatal psychological wellbeing in Africa: A systematic review

The aim of this article was to review the current literature on maternal psychological wellbeing in African women. A systematic review examined the prevalence of psychological disorders during pregnancy and after childbirth, and identified variables associated with these disorders. This review indicates that psychological disorders are prevalent in African women during pregnancy and following childbirth. Depression was the most commonly identified disorder of the pre- and postnatal period. Prevalence rates of disorders were similar or slightly higher than

women in developed countries. Risk factors were also broadly comparable with some culture-specific factors also reported such as polygyny. The importance of psychosocial factors in perinatal mental health was also highlighted, in particular, lack of social support, marital conflict, and prenatal depression. This paper illustrates the general paucity of research examining maternal psychological adjustment, with the exception of postnatal depression, in African women.

Article 3: Women's experiences of pregnancy, childbirth, and the postnatal period in The Gambia: A qualitative study.

The third article of the thesis explored 55 women's experiences of pregnancy, childbirth, and the postnatal period in The Gambia to gain a better understanding of the cultural factors that contribute to these experiences. Semi-structured interviews were carried out with women who had given birth within the last year. Thematic analysis identified five themes: 1) transition to adulthood, 2) physical difficulties, 3) value of children in relation to others, 4) children as a strain, and 5) going through it alone. For these women childbirth represented a significant but challenging time in their life. Women were concerned about the health risks associated with pregnancy and childbirth, which could result in them or their baby dying. Women also reported feelings of unhappiness and distress which were often attributed to having a child out of wedlock, getting pregnant at a young age, marital conflict, and a lack of support. In spite of this many women identified the birth of a child as a positive experience, associated with happiness and joy. Therefore this study indicates that childbirth is a significant time in a woman's life which can be associated with both positive and negative change.

Article 4: Posttraumatic Growth after Childbirth in the UK: A Prospective Study

This article reports a quantitative examination of psychological growth in 125 UK women after childbirth. The aim of this study was to identify correlates of posttraumatic growth after birth, specifically focusing on sociodemographic and obstetric variables, social support, and psychological distress, using a prospective, longitudinal design. Women completed questionnaires during their third trimester of pregnancy and eight weeks after birth. The findings suggest that women do report positive changes after childbirth although levels of growth were lower than generally reported in other samples. Posttraumatic stress symptoms during pregnancy and type of delivery (elective or emergency caesarean section) significantly predicted higher levels of growth after childbirth. General distress at both time points and PTSD symptoms in relation to childbirth were not related to growth. These findings emphasise the importance of assessing pre-event mental health when examining growth after a challenging event.

Article 5: Posttraumatic Growth after Childbirth in The Gambia: A Prospective Study

The final article of this thesis quantitatively explored psychological growth after childbirth in 101 Gambian women. Specifically, the aims of this study were to examine PTG in Gambian women following childbirth and to identify correlates of PTG after birth, focusing on sociodemographic and obstetric variables, social support, and psychological distress. Women completed a set of questionnaires during their pregnancy and approximately three months postpartum. The findings suggest that Gambian women do report positive changes after childbirth; however, the adapted measure precludes comparison with other studies. Lower education, unemployment, and postnatal social support predicted higher growth scores after childbirth. Obstetric variables and

psychological distress measures did not predict growth. The results of this study suggest that women from non-Western countries also report growth following childbirth.

2 Posttraumatic Growth and Adjustment among Individuals with Cancer or HIV/AIDS: A Meta-Analysis¹

2.1 Abstract

There is increasing research on posttraumatic growth after life-threatening illnesses such as cancer and HIV/AIDS, although it is unclear whether growth confers any psychological or physical benefits in such samples. Consequently, this meta-analysis explored the relationship between posttraumatic growth and psychological and physical wellbeing in adults diagnosed with cancer or HIV/AIDS and examined potential moderators of these relationships. Analysis of 38 studies ($N = 7,927$) of posttraumatic growth after cancer or HIV/AIDS revealed that growth was related to increased positive mental health, reduced negative mental health, and better subjective physical health. Moderators of these relationships included time since the event, age, ethnicity, and type of negative mental health outcome. It is hoped that this synthesis will encourage further examination of the potentially complex relationship between posttraumatic growth and adjustment in individuals living with life-threatening medical conditions.

¹ Sawyer, A., Ayers, S., & Field, A. P. (2010). Posttraumatic growth and adjustment among individuals with cancer or HIV/AIDS: A meta-analysis. *Clinical Psychology Review, 30*, 436-447.

2.2 Introduction

The diagnosis and treatment of a life-threatening illness is a major stressor for most individuals. Cancer and HIV/AIDS have been shown to parallel other traumatic stressors in many ways. The diagnosis may be sudden and unexpected, the disease and treatment may pose threats to one's life, and the experience may evoke intense emotional responses of fear and helplessness. At the same time living with a life-threatening illness is not an acute, singular stressful experience, but rather a series of unfolding threats and stressors (Cordova, 2008). Cumulatively, these experiences can constitute a traumatic stressor for many individuals with cancer or HIV/AIDS.

Experiencing a life-threatening illness was first recognized as an event that could precipitate posttraumatic stress disorder (PTSD) in the DSM-IV (American Psychiatric Association [APA], 1994). Rates of PTSD in cancer patients range from 5% to 35% (Kangas, Henry, & Bryant, 2002) and in HIV/AIDS patients from 30% to 64% (Botha, 1996; Kelly et al., 1998; Martinez, Israelski, Walker, & Koopman, 2002).

Over the past decade there has been an important shift in emphasis of research from a nearly exclusive focus on the negative aftermath of such events to consideration of possible positive outcomes (Linley, 2003). Researchers have used a number of different terms to describe individuals' reports of benefits in the face of adversity, including posttraumatic growth, adversarial growth, benefit-finding, and thriving. Throughout this paper Tedeschi, Park, and Calhoun's (1998) term posttraumatic growth (PTG) will be used to describe a positive change in one's previous level of functioning as a result of the struggle with highly challenging life circumstances. This term differs from resilience, optimism, and hardiness, which describe individuals who have adjusted successfully despite adversity (O'Leary & Ickovics, 1995), whereas individuals experiencing PTG are transformed by their struggle with adversity.

A rapidly increasing literature now testifies to the prevalence of positive life changes and personal growth following cancer and HIV/AIDS. Equally high rates of positive changes have been reported across both illnesses. Between 59% and 83% of people living with HIV/AIDS have been shown to report positive changes since diagnosis (Milam, 2004; Milam, 2006a; Siegel & Schrimshaw, 2000). Likewise, data suggest that between 60% and 90% of cancer survivors also report positive changes (Collins, Taylor, & Skokan, 1990; Fromm, Andrykowski, & Hunt, 1996; Petrie, Buick, Weinman, & Booth, 1999; Rieker, Edbril, & Garnick, 1985). Within the general PTG literature three common categories of growth outcomes have been identified (Joseph & Linley, 2006; Tedeschi et al., 1998). First, individuals often report that their relationships are enhanced in some way. For example, many individuals with cancer or HIV/AIDS require practical and emotional support, and positive interpersonal experiences may strengthen a person's appreciation of some relationships. Second, people change their views of themselves in some way. For example, patients may develop a greater sense of personal resilience and strength, an acceptance of their vulnerabilities and limitations, which are typified by a heightened awareness of their own mortality and the fragility of life. Third, there are often reports of changes in life philosophy. For example, people diagnosed with cancer or HIV/AIDS are faced with the concern that their disease might progress and shorten their life and these concerns may lead to a shift in priorities and values, and to a different appreciation and approach to day-to-day life. Together these positive changes in psychological wellbeing can lead to a whole new way of living. Finally certain changes have been identified specific to individuals facing a serious illness. A recent focus of the PTG research has been the relationship between PTG and health behaviours (Milam, 2004; Milam, Ritt-Olsen, & Unger, 2004). Luszczynska, Sarkar, and Knoll (2007) found that PTG significantly

predicted adherence to antiretroviral therapy in individuals diagnosed with HIV. Furthermore, women with breast cancer have described making positive changes in health related behaviours and engaging in more careful cancer surveillance as a result of their experience (Sears, Stanton, & Danoff-Burg, 2003). Studies that compare PTG in cancer and HIV/AIDS patients suggest that growth is experienced in the same multidimensional manner across both illnesses (Lechner & Weaver, 2009). Therefore, alongside psychological, interpersonal, and life orientation changes, positive changes in health behaviours may also occur following a life-threatening illness diagnosis.

Several models have now been proposed regarding the occurrence of PTG. The three most detailed models to date include Tedeschi and Calhoun's (1995, 2004) Functional Descriptive Model, Joseph and Linley's (2005) Organismic Valuing Theory, and Christopher's (2004) Biopsychosocial-Evolutionary Theory. Although with some variation, most models hypothesize that the experience of a highly stressful or traumatic event violates an individual's basic beliefs about the self and the world and that some type of meaning making or cognitive processing to rebuild these beliefs and goals occurs, resulting in perceptions that one has grown through the process (Horowitz, 1986; Janoff-Bulman, 2004; Tedeschi & Calhoun, 2004). Although offering different levels of explanation at both the social cognitive and biological evolutionary levels, they are complimentary in that they are underpinned by the notion that people are intrinsically motivated towards growth (Joseph & Linley, 2006).

An important issue to be addressed in the literature is whether PTG following the diagnosis of a life-threatening illness is associated with psychological and physical benefits (Zoellner & Maercker, 2006). However, the current literature is unclear. For example, some studies report there is no significant relationship between PTG and distress (Cordova, Cunningham, Carlson, & Andryowski, 2001; Schulz & Mohamed,

2005), and other studies suggest distress and PTG can co-exist (Tomich & Helgeson, 2004). For example, Barakat, Alderfer, and Kazak (2006) found that PTG and posttraumatic stress symptoms were positively correlated in adolescent survivors of cancer. However, other studies have reported an inverse relationship between measures of PTG and psychological distress (Linley & Joseph, 2004; Updegraff, Taylor, Kemeny, & Wyatt 2002; Uruchyo, Boyers, Carver, & Antoni, 2005).

Therefore, it remains to be established whether the experience of PTG in relation to a life-threatening illness confers any benefit in terms of psychological or physical health. Given the discrepant findings on this relationship a systematic integration of the literature is needed, and a meta-analysis is an ideal tool to do this. A previous meta-analysis conducted by Helgeson, Reynolds, and Tomich (2006) investigated the association between PTG and adjustment after a wide range of events such as sexual assault, natural disaster, bereavement, childhood abuse, and illness. They found that PTG was related to more positive affect and less depression, but also to more intrusive thoughts about the event. PTG was unrelated to anxiety, distress, quality of life, and subjective physical health. As such the aim of the current paper is to present a meta-analysis of the existing literature that will aim to objectively summarize PTG and its relation to adjustment in individuals living with a life-threatening illness (cancer or HIV/AIDS) and to examine potential moderators of this relationship.

One possible explanation for the inconsistency between PTG and adjustment is that the relationship is moderated by other variables. Therefore five possible moderators will be examined that might attenuate or accentuate the growth-adjustment relationship. These were chosen because they are commonly assessed within the literature, and have prior empirical and theoretical foundations. The first variable that might moderate the relationship between PTG and adjustment is the length of time since the diagnosis.

Research and theory suggest that PTG is unlikely to occur shortly after the critical event, but rather takes time to occur and is more likely to be reported in hindsight (Joseph & Linley, 2005; Tedeschi & Calhoun, 1995, 2004). Therefore it is hypothesized that PTG is associated with positive adjustment when a longer time since the health event has elapsed. Three characteristics of the sample will also be examined as moderators: age, gender, and ethnicity. Past research has indicated that women (Bellizzi, 2004; Milam, 2004), younger participants (Kinsinger et al., 2006; Linley & Joseph, 2004; Milam, 2004; Widows, Jacobson, Booth-Jones, & Fields, 2005), and ethnic minorities are more likely to report PTG. However, it is not clear if and how these individual differences differentially relate to PTG and adjustment (Helgeson et al., 2006). Therefore no specific predictions about directionality regarding how these variables might moderate the growth-adjustment relationship will be made. It is also possible that the quality of the study might moderate the relationship between growth and health. For example, studies that use a valid measure of growth should reflect actual PTG, and distinguish from other processes such as self-enhancement, positive illusion, and 'pseudo-growth' (Lechner & Antoni, 2004; Park & Lechner, 2006). Less validated measures may fail to capture PTG, and therefore account for some of the variation in the research. Through examination of these moderators it is hoped that the meta-analysis will identify subgroups of adults whose experience of PTG is likely to be positively or negatively related to mental and physical health.

In summary, the purpose of the present study is two-fold. Primarily it is concerned with estimating the overall effect size of the relationship between PTG following a life-threatening illness (cancer or HIV/AIDS) and various indicators of adjustment. Secondly, this analysis hopes to identify the variability amongst studies and explore potential moderators of the growth and adjustment relationship. It is hoped that

such a review of the extant literature will lead to an enhanced understanding of the impact of PTG on the adjustment process in individuals living with life-threatening illnesses.

2.3 Method

2.3.1 *Selection of studies for the meta-analysis*

A systematic search was conducted to identify studies of PTG in individuals following cancer or HIV/AIDS. The primary search method for the selection of studies was a review of the psychological and medical literature using the following computerized databases up to October 2009: Medline, PsychArticles, PsychInfo, PubMed, and Web of Science. Relevant key words were used to search for articles within these databases. Search terms included key words related to PTG: posttraumatic growth, post-traumatic growth, benefit finding, stress related growth, and adversarial growth. These terms were crossed with the following health-related key terms: health, illness, disease, life-threatening, chronic, medical, terminal, cancer, HIV, AIDS. Additional studies were located through the inspection of the reference sections of obtained papers and reviews. Relevant journals were also manually searched to locate papers that may not have been identified in the databases. These journals were: *Psycho-Oncology*, *Psychology and Health*, *Journal of Traumatic Stress*, *British Journal of Health Psychology*, and *Journal of Consulting and Clinical Psychology*. In addition, active researchers in the field of psychological growth in health samples were contacted to ask for recent papers in the field and for unpublished research to reduce the effect of publication bias. A search of abstracts from relevant conferences was also conducted to

locate additional unpublished work in the area. However, no unpublished studies were retrieved. This literature search yielded a preliminary database of 193 published papers.

2.3.2 Inclusion and exclusion criteria

These 193 papers were examined to determine eligibility for inclusion in the meta-analysis. Studies had to meet eight criteria for inclusion. First, studies were included only if the sample were adults aged 18 or over. This decision was made because the current literature is unclear whether children or adolescents differentially experience PTG in comparison to adults (Ickovics et al., 2006a; Milam et al., 2004), and also only a small number of studies have explored PTG in children and adolescents following illness (too few to include adult vs. child as a moderator variable). This resulted in the exclusion of nine studies. Second, the studies had to use a quantitative measure of PTG, which was assessed in relation to a measure of positive psychological adjustment, negative psychological adjustment, or physical health. Studies that included a purely qualitative assessment of PTG, or papers that were reviews of the literature were excluded from the analysis. This resulted in the exclusion of 87 studies. Third, PTG must be measured in cancer or HIV/AIDS patients. This criterion resulted in the exclusion of 16 studies. Fourth, intervention studies were excluded from the analysis unless they measured PTG at baseline prior to manipulation and effect sizes could be extracted. This resulted in the exclusion of 20 studies. Fifth, controlled comparison studies that did not report relevant data for the patient sample were excluded. This resulted in the exclusion of nine studies. Longitudinal studies which measured PTG at different time points to adjustment measures were excluded. However, when longitudinal studies reported cross-sectional relationships these were included in the analysis. This resulted in the exclusion of seven studies. Studies needed to include the

relevant effect sizes (namely the correlation coefficient r) or sufficient statistical information that could be used to compute this statistic. Authors of papers with unclear statistical information were contacted to enquire about further information and if this was unable to be provided these papers were excluded from the analysis.² Only two papers were excluded as a result of this criterion. Finally, the authors of five non-English articles were contacted for copies of their papers but these were not provided. Figure 2.1 summarizes the results of the systematic search.

2.3.3 *Data coding*

Of the 193 articles yielded by the literature search 38 studies met all of the requirements for inclusion and were therefore used in the meta-analysis. Studies included in the meta-analysis are identified with an asterisk in the reference section and a detailed list of the studies is provided in Table 2.1. From these papers a number of variables were extracted for analysis: i) sample size, ii) sex composition, iii) ethnicity, iv) mean age, v) time since event, vi) health event, vii) adjustment outcome, and viii) effect sizes for these relationships. The methodological quality of each study was also assessed based on a checklist developed by Mirza and Jenkins (2004). The five criteria that were assessed were: 1) clear study aims, 2) sample representative of population, 3) clear inclusion and exclusion criteria, 4) validated measure of PTG, and 5) appropriate statistical analysis. The studies were then given a total score of quality with the highest possible being five (1 = Yes, 0 = No). Table 2.1 displays the quality scores for each

² The authors of the following studies who did not report the results of analyses testing the relationship between growth and adjustment were generous enough to provide this information when contacted: Ickovics et al. (2006b), McGrath & Linley (2006), Powell, Ekin-Wood, & Collin (2007), Tallman, Altmaier, & Garcia (2007), Tomich & Helgeson (2004) and Yanez et al. (2009).

individual study. Quality scores ranged from 2 – 5; however most studies were of good quality with over 50% of studies scoring 4 or more.

As expected, the concept of adjustment was operationally defined in a number of ways across individual studies. In our analysis measures were combined and a separate analysis was conducted for positive psychological adjustment, negative psychological adjustment, and subjective physical health. Psychological adjustment was defined in this paper as the psychological outcome, either positive or negative, following illness. Specific adjustment measures associated with each adjustment outcome were also examined as moderators to explore how they might explain variability within the growth-adjustment relationship. These adjustment measures were coded as follows: a) positive psychological adjustment was coded either as psychological health (e.g. positive affect, mental health) or general wellbeing (e.g. life satisfaction), b) negative psychological adjustment was coded as specific symptoms (e.g. depression, anxiety, PTSD) or general distress, and c) subjective physical health was coded as either general physical health, physical symptoms, or functional ability.

To examine the role of possible moderators in the growth-adjustment relationship, the following information in each paper was coded and used in the analysis as follows: (i) time since diagnosis was examined as a continuous moderator by using the mean time in months, (ii) sample gender composition was examined as continuous variable coded as percentage of female participants, (iii) sample age was examined as a continuous moderator by using the mean time in years, (iv) it was decided to code ethnicity as a categorical variable, either as <75% white or $\geq 75\%$ white, as this strategy minimized data exclusion, and (v) the methodological quality of each study was examined as a continuous moderator.

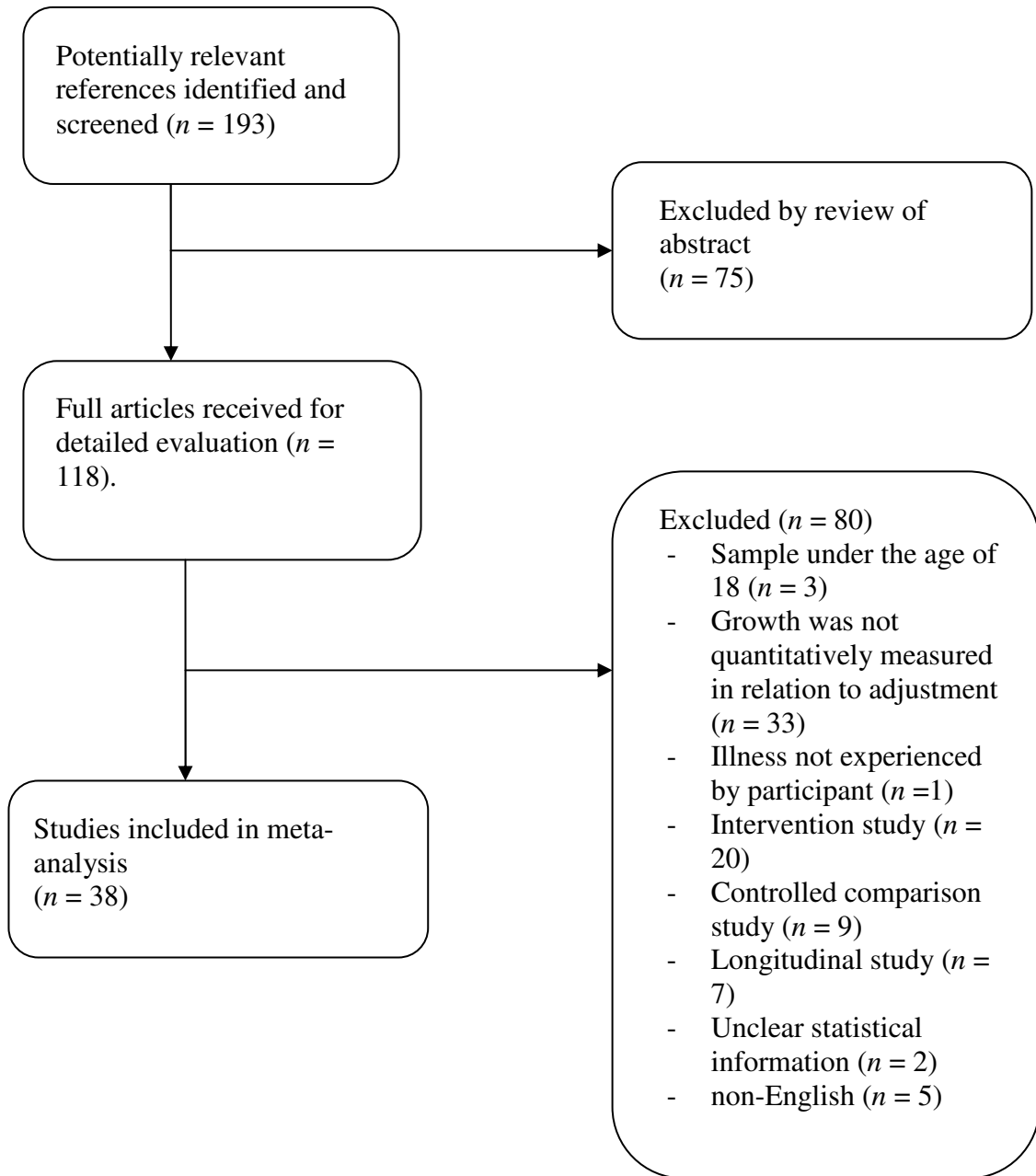


Figure 2.1. Flow chart of systematic search.

2.3.4 Computation and analysis of effect sizes

All analyses in this paper were carried out on SPSS (Version 15) using syntax specified in Field and Gillett (2010). A separate meta-analysis was carried out for each adjustment outcome. In the present study the correlation coefficient (r) was chosen as

the effect size estimate for a number of reasons. First, this was a common metric for which the greatest number of effect sizes could be reported or converted; second, it is easily computed from either chi-square, t , F , and d ; and third it is readily interpretable (Rosenthal & DiMatteo, 2001).

A number of papers reported correlation coefficients only for the subscales of PTG. Therefore to guarantee the independence assumption among effect sizes the coefficients were averaged to produce a single effect size associated with overall PTG. When a study did not report the effect size or probability value but stated only the relationship was non-significant an effect size of zero was assigned to that relationship. This is a conservative strategy because it generally underestimates the true magnitude of effect sizes (Durlak & Lipsey, 1991; Rosenthal, 1995). However, this approach is preferable to excluding non-significant results from the meta-analysis, because this would result in an overestimation of combined effect sizes (Rosenthal, 1995). The authors of these papers were contacted for further information and there was only one study where an effect size of zero assumed³. In meta-analysis two common statistical procedures are used: fixed and random effect models (Hedges, 1992; Hedges & Vevea, 1998; Hunter & Schmidt, 2000). Real social science data have been shown to contain variability in effect sizes as the norm, which indicates variable population parameters (Field, 2003; Field, 2005; Field & Gillett, 2010; Hunter & Schmidt, 2000). For this reason, and so the results can be generalized beyond the studies included in the meta-analysis, a random effects model was carried out. Hedges and Vevea's (1998) method was applied using Fisher-transformed correlation coefficients with results reported after the back transformation to the Pearson product-moment correlation coefficient (see Field, 2005 and Overton, 1998). Using this method, each effect size is weighted by a

³ The analysis (PTG and positive mental health) was re-run without this study and the results remained unchanged.

value reflecting both the within study variance ($1/n-3$ for correlation coefficients in which n is the sample size) and the between study variance (τ^2). The exact weight function for each effect size is $w_i^* = \left(\frac{1}{n_i-3} + \hat{\tau}^2\right)^{-1}$ (See Field & Gillett, 2010 for a guide to using Hedges and Vevea's method).

Moderator analyses were conducted also using a random effects general linear model in which each z -transformed effect size can be predicted from the transformed moderator effect (represented by regression coefficient, β). The moderator effect, β , is estimated using generalized least squared (GLS). In both the main analysis and moderator analyses, between study variance was estimated noniteratively (e.g. Dersimonian & Laird, 1986). For a technical overview of the GLS moderator analysis that we employed see Overton (1998) or Field and Gillett (2010).

2.3.5 *Publication bias*

In any meta-analysis publication bias is a concern. This bias refers to the tendency that the decision to publish a paper is determined by the results of the study (Begg, 1994). For example, studies with non-significant findings are less likely to be published than those with significant outcomes, which could result in a positive bias within the literature. There are different approaches to estimating publication bias: Rosenthal's (1979) fail-safe N , funnel plots, and sensitivity analysis. The fail safe N estimates the number of unpublished, non-significant studies that would have to exist for the obtained probability value of the population effect size estimate to be rendered non-significant. This measure is problematic because its emphasis is on significance testing the population effect size rather than estimating the population effect size itself. Therefore, we have chosen to report measures that specifically address bias in the

population effect size estimate. First, we produce funnel plots of the effect found in each study against the standard error (Light & Pillemer, 1984). An unbiased sample will show a cloud of data points that is symmetric around the population effect size and has the shape of a funnel (reflecting greater variability in effect sizes from studies with small sample sizes/less precision). Second, we performed a sensitivity analysis, which is a method that uses weights to model the process through which the likelihood of a study being published varies (usually based on a criterion such as the significance of a study). We applied the methods proposed by Vevea and Woods (2005) because they can be applied to relatively small samples of studies such as we have.

Table 2.1 Characteristics of studies included in the meta-analysis

Study	<i>N</i>	Health Event	Mean Age (range)	Sex Composition	Racial Composition	Mean Time Since Occurrence	Measure of Growth	Quality
Bellizzi, Miller, Arora, & Rowland (2007)	308	Non- Hodgkins Lymphoma	60 (23-85)	51.3% male, 48.7% female	30% Hispanic	42 months	Close ended	3
Bower et al. (2005)	763	Breast cancer	56 (30-87)	100% female	83.7% White, 8.7% Black, 7.6% Other	40.8 months	Close ended	3
Carrico et al. (2006)	264	HIV/AIDS	40	49% male, 51% female	49% African American, 25% Caucasian, 13% Hispanic	7.7 years	BFS (a)	4
Cole, Hopkins, Tisak, Steel, & Carr (2008)	253	Cancer (Mixed)	58 (28-86)	78% female, 22% male	95% White	7 months	Spiritual transformation scale	4
Cordova, Cunningham, Carlson, & Andrykowski (2001)	70	Breast cancer	55 (27-87)	100% female	90% White, 9% Black, 1% Other	24 months	PTGI	4

Table 2.1 Continued

Study	N	Health Event	Mean Age (range)	Sex Composition	Racial Composition	Mean Time Since Occurrence	Measure of Growth	Quality
Cordova et al. (2007)	92	Breast cancer	52 (33-73)	100% female	86% White	9.4 months	PTGI	4
Curbow, Somerfield, Baker, Wingard, & Legro (1993)	135	Bone marrow transplant	31 (18-53)	61% male, 39% female	91% White	47 months	Open ended	4
Fromm, Andrykowski, & Hunt (1996)	90	Bone marrow transplantation	39	58% male, 42% female	NR	49.5 months	Open ended	3
Harrington, McGurk, & Llewellyn (2008)	76	Head and neck cancer	67 (32-97)	51% female, 49% male	93% White, 7% Other	59% > 48 months, 41% < 48 months posttreatment	BFS(a)	4
Ho, Chan, & Ho (2004)	188	Cancer (mixed)	49 (26-69)	17% male, 83% female	Chinese	> 5 years disease free	PTGI Chinese version	3
Ickovics et al. (2006b)	773	HIV/AIDS	36 (19-55)	100% women	60% Black, 20% Latina, 20% White/Other	NR	Close ended	3
Jaarsma, Pool, Sanderman, & Ranchor (2006)	294	Cancer	56 (21-84)	28% male, 72% female	NR	3.90 years	PTGI Dutch version	4

Table 2.1 Continued

Study	<i>N</i>	Health Event	Mean Age (range)	Sex Composition	Racial Composition	Mean Time Since Occurrence	Measure of Growth	Quality
Katz, Flasher, Cacciapaglia, & Nelson (2001)	87	Cancer and lupus	53	13% male, 87% female	73% White, 6% Black, 2% Asian, 12% Hispanic, 8% Other	9 years	BFS (b)	3
Kinsinger et al. (2006)	250	Prostate cancer	65	100% male	41% White, 17% Black 42% Hispanic	15.7 months	BFS (a)	4
Klauer, Ferring, & Filipp (1998)	100	Cancer (mixed)	53	42% female, 58% male	NR	40% 1 year, 20% 2 years, 25% 2-5 years, 15% 5+ years	Close ended	2
Littlewood, Venable, Carey, & Blair (2008)	221	HIV/ AIDS	40 (22-59)	44% female, 56% male	42% African American, 46% Caucasian, 12 % Other	7 years	BFS (a)	4
Luszczynska, Sarkar, & Knoll (2007)	104	HIV/ AIDS	35 (18-54)	36% male, 64% female	100% Indian	< 5 years	BFS (a)	3

Table 2.1 Continued

Study	<i>N</i>	Health Event	Mean Age (range)	Sex Composition	Racial Composition	Mean Time Since Occurrence	Measure of Growth	Quality
Milam (2004)	835	HIV/AIDS	38	87% male, 13% female	40% White, 37% Hispanic, 17% Black, 7% Other	6.4 years	Items from PTGI	4
Milam (2006b)	412	HIV/AIDS	39	88% male, 12% female	39% White, 40% Hispanic, 15% African American, 6% Other	6.4 years	Items from PTGI	4
Mols, Vingerhoets, Coebergh, & Poll- France (2009)	183	Breast cancer		100% female	NR	NR	PTGI	3
Morrill et al. (2008)	161	Breast cancer	59 (36-87)	100% female	85% White, 12% African American	4 years	PTGI	3
Mystakidou et al. (2007a)	54	Cancer	60 (36-84)	27.6% male, 72.4% female	NR	55.2% < 3 years, 44.8 ≥ 3 years	PTGI	4
Mystakidou et al. (2007b)	100	Breast cancer	58 (31-81)	100% female	NR	6.1 years	PTGI	4

Table 2.1 Continued

Study	<i>N</i>	Health Event	Mean Age (range)	Sex Composition	Racial Composition	Mean Time Since Occurrence	Measure of Growth	Quality
Park, Edmondson, Fenster, & Blank (2008)	172	Cancer (mixed)	45	69% female, 31% male	88% White, 5% Latino, 3% Black/African American, 2% Native American	23.4 months since primary treatment	PBS	5
Petrie, Buick, Weinman, & Booth (1999) Study 2	52	Breast cancer	54	100% female	92% European, 4% Maori, 4% other	3 months post radiation	Open ended	3
Salmon, Manzi, & Valori (1996)	200	Cancer (mixed)	17% < 50, 45% 50-65, 38% > 75	58% male, 42% female	NR	Median = 52 weeks	Close ended	3
Salsman, Segerstorm, Brechtling, Carlson, & Andrykowski (2009)	55	Colorectal cancer	66	58.9% female, 41.1% male	NR	12 months	PTGI	4
Schroevers & Teo (2008)	113	Cancer (mixed)	52 (17-85)	66.4% female, 33.5% male	82.3% Chinese, 11.5% Malay	45 months	PTGI	3

Table 2.1 Continued

Study	<i>N</i>	Health Event	Mean Age (range)	Sex Composition	Racial Composition	Mean Time Since Occurrence	Measure of Growth	Quality
Schulz & Mohamed (2004)	105	Cancer (mixed)	62 (19-86)	61% male, 39% female	NR	1 month post surgery	BFS (a)	3
Schwarzer, Luszczynska, Boehmer, Taubert, & Knoll (2006)	117	Cancer surgery	62	62% male, 38% female	NR	NR	Close ended	3
Sears, Stanton, & Danoff-Burg (2003)	60	Breast cancer	52 (28-76)	100% female	87% White, 7% Black, 3% Latina, 1% Asian American, 1% Native American	80 weeks	PTGI	3
Siegel, Schrimshaw, & Pretter (2005)	138	HIV/AIDS	38 (22-48)	100% female	38% African American, 34% Puerto Rican, 28% White	87.6 months	Thriving Scale	4
Thornton & Perez (2006)	82	Prostate cancer	61 (41-78)	100% male	90% White	NR	PTGI	4

Table 2.1 Continued

Study	N	Health Event	Mean Age (range)	Sex Composition	Racial Composition	Mean Time Since Occurrence	Measure of Growth	Quality
Tomich & Helgeson (2004)	364	Breast cancer	48 (25-75)	100% female	93% White, 6% Black, 1% Hispanic	4 months	BFS (a)	3
Updegraff, Taylor, Kemeny, & Wyatt (2002)	189	HIV	37 (19-62)	100% female	48% Black, 33% White, 20% Latina	4.65 years	Open ended	3
Urcuyo, Boyers, Carver, & Antoni (2005)	230	Breast cancer	54 (27-87)	100% female	63% White, 27% Hispanic, 10% Black	3 - 12 months post surgery	BFS (a)	4
Widows, Jacobsen, Booth-Jones, & Fields (2005)	72	Cancer – Bone marrow transplantation	48 (25-66)	26% male, 74% female	85% White, 7% Black, 8% Hispanic	24.05 months	PTGI	4
Yanez et al. (2009) Study 2	165	Cancer (mixed)	46 (22-55)	33% male 67% female	89% White	3.5 years	BFS (a)	5

Note NR = Not reported in the study; PTGI = Posttraumatic Growth Inventory (Tedeschi & Calhoun, 1996); SRGS – Stress Related Growth Scale (McMillen & Fisher, 1998); PBS – Perceived Benefits Scale; BFS (a) = Benefit Finding Scale (Antoni et al., 2001); BFS (b) = Benefit Finding Scale (Mohr et al., 1999).

2.4 Results

2.4.1 Study characteristics

There were 38 studies included in the meta-analysis; with a total of 7,927 participants. Sample sizes from individual studies ranged from 52 to 835. 78.9% of the studies focused on individuals with a cancer diagnosis and 21.1% included individuals with a HIV/AIDS diagnosis. Length of time since treatment/diagnosis varied and ranged from 1 to 108 months ($M = 43.24$, $SD = 31.38$). Mean age of the sample was 50.66 ($SD = 9.9$). Of the studies that provided information on ethnicity, the majority ($n = 15$) included samples predominantly composed of white participants.

2.4.2 Growth and adjustment

Tables 2.2, 2.3, and 2.4 graphically represent the effect sizes included in each adjustment meta-analysis by means of a stem and leaf plot. The stem identifies the first digit of an effect size and the leaf identifies the final digit of an effect size. For positive mental health (Table 2.2), the bulk of effect sizes were in the range of 0 to .26, but the range was quite wide (-.23 to .49) suggesting the influence of moderator variables. For negative mental health (Table 2.3), the distribution of effect sizes is relatively symmetrical and is centered around 0 to -.19. Again, the range of effect sizes was quite large (-.44 to .25) suggesting that moderator variables might usefully explain some of this variability. Finally, for physical health (Table 2.4) the effect size distribution looks skewed and is centered around 0 to -.07. Three studies appeared to have relatively large positive effect sizes that were inconsistent with the bulk of studies.

Table 2.2 Stem and leaf plot of effect sizes for positive mental health (*rs*)

Stem	Leaf
.4	4, 9
.3	2
.2	0, 3, 5, 5, 6
.1	2
.0	0, 3, 4, 4, 5, 9
-.0	1, 9, 9
-.1	
-.2	3

Table 2.3 Stem and leaf plot of effect sizes for negative mental health (*rs*)

Stem	Leaf
.2	3, 4, 5
.1	0, 1, 1, 3, 3, 4, 6, 6
.0	0, 1, 2, 2, 2, 2, 3, 3, 4, 5, 5, 9, 9, 9
-.0	1, 4, 4, 4, 5, 8, 9, 9
-.1	0, 0, 1, 1, 1, 2, 2, 3, 3, 3, 7, 7, 9
-.2	0, 0, 2, 3, 3, 4, 7, 7
-.3	3, 4, 5, 6
-.4	2, 4

Table 2.4 Stem and leaf plot of effect sizes for subjective physical health (*rs*)

Stem	Leaf
.6	4
.5	
.4	5, 7
.3	
.2	5
.1	1, 4
.0	0, 0, 4, 8, 9
-.0	2, 1, 1, 7
-.1	3, 7

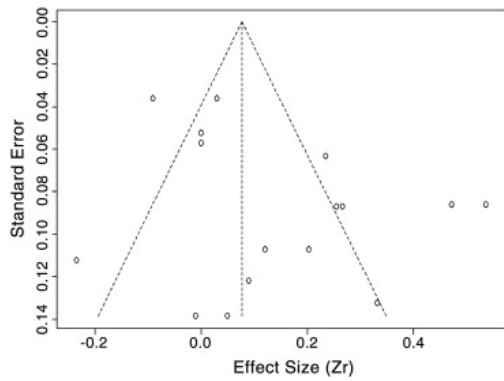
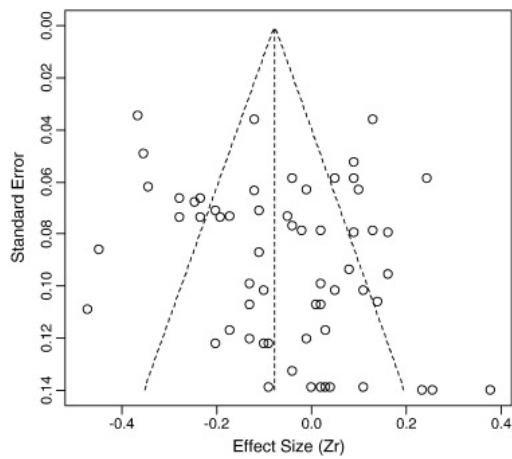
Table 2.5 shows the individual meta-analyses for each adjustment outcome. PTG was significantly related to higher levels of positive psychological adjustment (PTG explained 1.7% of the variance), lower levels of negative psychological adjustment (PTG explained only 0.3% of the variance), and higher reported levels of physical health (PTG explained 1.4% of the variance). The results suggest considerable variation in effect sizes for the three adjustment outcomes, and it is therefore important to examine factors that moderate these relationships. The funnel plots shown in Figures 2.2, 2.3, and 2.4 suggest publication bias might be present in the data, as indicated by the non-funnel like and asymmetric distribution of data points around the estimated mean, typical of biased data sets. In particular, for positive mental health (Figure 2.2) and physical health (Figure 2.4), the data cloud is relatively sparse for small studies (the bottom part of the figure). This pattern is indicative of one-tailed publication bias (Vevea & Woods, 2005). For negative mental health (Figure 2.3) the cloud is a little sparse around zero for small studies, which indicates two-tailed publication bias (Vevea

& Woods, 2005). We calculated several publication-bias corrected estimates based on our interpretation of the funnel plots of the overall population effect sizes on positive mental health, negative mental health, and physical health. We used Vevea and Woods' (2005) weight function model of publication bias to calculate population effect size estimates under different selection bias scenarios. Based on the funnel plots, for positive mental health and physical health we assumed moderate (MOT) or severe (SOT) one-tailed selection bias, and for negative mental health we assumed moderate (MTT) and severe (STT) two-tailed selection bias. The values corrected for selection bias were as follows: for positive mental adjustment, the original population estimate of .13 was reduced to .08 (MOT), -.40 (SOT); for negative mental adjustment, the original estimate of -.05 became -.05 (MTT) and -.04 (STT); for physical health the original estimate of .12 became .06 (MOT), -.47 (SOT). As such, the estimate of population effect size for negative mental health was unaffected by publication bias. If we assume moderate publication bias, then estimates for positive mental health and physical health were slightly reduced, but if severe publication bias is assumed then the estimates change quite dramatically. As such, our conclusions come with the caveat that if severe publication bias was, in reality, present in the literature then our conclusions would be quite different for positive mental health and physical health outcomes.

Table 2.5 Meta-analysis results for each adjustment outcome

Adjustment	k	τ^2	Q	95% Confidence Interval r			
				Lower	Mean	Upper	z
Positive mental health	19	.027	119.04***	.04	.13	.21	3.00**
Negative mental health	60	.029	360.58***	-.10	-.05	-.01	-2.17*
Physical health	17	.053	219.51***	.00	.12	.23	1.96*

Note. k = number of effect sizes, Q = homogeneity statistic. * $p < .05$. ** $p < .01$, *** $p < .001$

**Figure 2.2.** Funnel plot for positive mental health.**Figure 2.3.** Funnel plot for negative mental health.

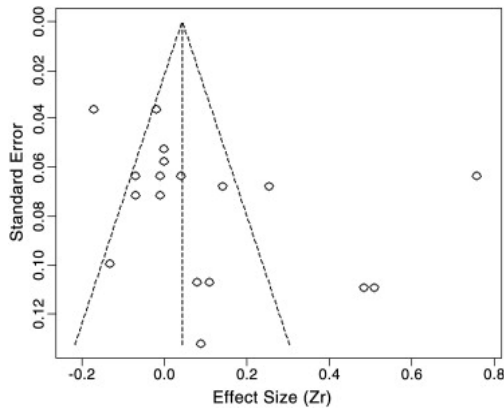


Figure 2.4. Funnel plot for subjective physical health.

2.4.3 Moderator analyses

Five moderators that might explain significant amounts of effect size variation for each adjustment outcome were examined. Subcategories of each adjustment outcome were also initially explored as moderators.

Positive mental health: Categories of positive psychological adjustment did not significantly moderate the relationship between PTG and positive mental health ($p > .05$). Time emerged as a significant moderator of positive psychological adjustment ($\beta = .005$, $p < .001$), implying the longer the time since the event, the stronger the relationship between PTG and positive mental health. The age of the sample emerged as a significant moderator ($\beta = -.011$, $p < .01$), indicating that samples with younger participants, showed a stronger relationship between PTG and positive adjustment. Ethnicity also moderated the relationship between PTG and positive mental health, $\chi^2(1) = 4.77$, $p < .05$, indicating that samples comprised of more than 25% non-white participants demonstrated a stronger relationship between PTG and positive psychological adjustment. Gender ($\beta = .001$, $p > .05$) and quality ($\beta = .148$, $p > .05$) did not significantly moderate the relationship between PTG and positive psychological adjustment.

Negative mental health: Categories of negative mental health moderated the relationship between PTG and negative psychological adjustment. Dummy coding revealed that PTSD symptoms had a stronger negative relationship with PTG in comparison to depression ($\chi^2(1) = 4.29, p < .05$), but not in comparison to anxiety ($\chi^2(1) = 0.28, p > .05$) and general distress ($\chi^2(1) = 0.18, p > .05$). Time since the health event, measured in months, moderated negative mental health ($\beta = -.003, p < .01$), indicating the shorter the time since the event, the stronger the relationship between PTG and negative adjustment. Ethnicity was also a significant moderator ($\chi^2(1) = 34.16, p < .001$), indicating that samples with more than a 75% white composition demonstrated a stronger negative relationship between PTG and negative adjustment. Age also appeared as a moderator ($\beta = .009, p < .001$), indicating that samples with older participants demonstrated a stronger negative relationship between PTG and negative adjustment. Quality of the study ($\beta = .021, p > .05$) and participant's gender ($\beta = .001, p > .05$) did not moderate the relationship between growth and negative mental health.

Subjective physical health: Categories of physical health did not significantly moderate the relationship between PTG and physical health ($p > .05$). Ethnicity moderated the relationship between PTG and physical health ($\chi^2(1) = 4.75, p < .05$), indicating that samples comprised of more than 25% non-white participants demonstrated a stronger relationship between PTG and physical health. Furthermore, time ($\beta = .003, p > .05$), gender ($\beta = -.001, p > .05$), age ($\beta = .003, p > .05$), and study quality ($\beta = -.013, p > .05$) did not significantly moderate the relationship between PTG and physical health.

2.5 Discussion

This meta-analytic review summarized the findings from 38 studies examining the association between PTG following cancer or HIV/AIDS and positive psychological adjustment, negative psychological adjustment, and subjective physical health. Despite variability in effect sizes this analysis demonstrated a small positive relationship between PTG and positive mental health. Therefore, individuals who perceive PTG following cancer or HIV/AIDS also report enhanced psychological wellbeing. Furthermore, a small negative relationship was found between PTG and negative mental health. Individuals who perceive PTG following cancer or HIV/AIDS also report reduced symptoms of negative mental health. Finally, PTG displayed a small positive relationship with measures of subjective physical health, implying that PTG may also confer some physical benefit. These findings suggest that PTG is associated with positive adaptive consequences, and is therefore an important construct to be studied in clinical and health research.

2.5.1 *Summary of effect size moderators*

An additional aim of the study was to examine factors that might moderate the relationship between PTG and adjustment, and therefore provide further insight by accounting for variability in effect sizes reported previously. Study quality and gender were the only variables that did not moderate the relationship between PTG and outcomes. Therefore the implications of these findings are that studies of differing quality do not account for differences in the growth-adjustment relationship and that there are no significant differences between men and women in the growth-outcome relationship. Other moderators examined had varying effects on relationships between PTG and different outcomes; each of which will be discussed in turn.

Subcategories of positive mental health, and subjective physical health did not significantly moderate their relationship with PTG. However, subcategories of negative mental health did moderate the growth-negative mental health relationship. Specifically, in comparison to depression, PTSD symptoms showed a stronger negative relationship with PTG.

Time since the illness emerged as a significant moderator for positive and negative mental health. In the short-term, there was a stronger relationship between PTG and negative mental health, but over time there was an increased relationship between PTG and positive mental health. A previous meta-analysis looking at PTG and adjustment following a range of traumas also found that time was a significant moderator (Helgeson et al., 2006). Together these findings suggest that in the short-term PTG is influential in reducing negative symptoms, but in the long-term PTG is more instrumental in enhancing positive wellbeing. This is consistent with Tedeschi and Calhoun's (1995, 2004) Functional Descriptive Model of PTG, which states that the management of emotional distress is essential in the initial stages post-trauma. On the other hand, PTG reported later might reflect more substantive life changes that have positive consequences for quality of life (Tomich & Helgeson, 2004). Time since the health event did not moderate the relationship between PTG and physical health.

Age appeared to differentially affect the relationship between PTG and adjustment. Younger adults demonstrated a stronger positive relationship between PTG and positive mental health. In comparison, older adults displayed a stronger negative relationship between PTG and negative mental health. One explanation is that core beliefs of young people may be more affected than those of older people. For example, younger people tend to view the world as less just and less benevolent, and the older groups tend to view the world as luckier and more controllable (Calhoun, Cann,

Tedeschi, & McMillan, 1998). Being diagnosed with cancer or HIV/AIDS when young might shatter more natural and social rules or beliefs which would generate a greater possibility of reconstructing these core beliefs and therefore promote PTG. Another explanation might be that younger people may be more capable and adept at making changes to their lives, which results in enhanced wellbeing. Whereas, older participants may be dealing with other significant life events and be less adaptable compared with younger samples, and therefore PTG may be more useful in reducing and managing distress. Age did not act as a significant moderator between PTG and self-reported physical health.

Ethnicity was a significant moderator of the relationship between PTG and all three adjustment measures. Specifically, non-white samples displayed a larger effect size for the relationship between PTG and positive mental health and also subjective physical health, compared to samples composed primarily of white participants. In comparison samples composed of predominantly white participants showed a stronger relationship between PTG and negative mental health. This variability may be explained by differences in culture e.g. family, religion, spirituality, which has shown to be important or associated with PTG following stressful life events (Milam, 2006a; Shaw, Joseph, & Linley, 2005; Tedeschi & Calhoun, 1995). Because of these differences, growth in ethnic minority samples may reflect more fundamental and existential changes resulting in enhanced wellbeing. In comparison, growth in predominantly white samples may be used more as a strategy to reduce distress.

2.5.2 *Methodological issues*

The results of this study should be interpreted with the following limitations in mind. Though the present findings indicate that PTG and positive mental health,

negative mental health, and subjective physical health are associated (albeit modestly), only cross-sectional data were included in the analysis, which constrains causal inference. For example, it is not clear if PTG leads to better psychological and physical health, or if these factors result in an enhanced perception of PTG. Furthermore, even though studies were included in the analysis only if they used a clear measure of PTG the final data set consisted of studies that used varying conceptions of PTG, which could be problematic. For example, past research has indicated that benefit finding and PTG are related but distinct constructs, and might therefore have unique predictors and outcomes (Sears et al., 2003). Therefore, future research in the area should ascertain if such constructs are theoretically and empirically interchangeable.

The present study did not examine type of illness as a moderator because there were not enough studies of HIV/AIDS to include cancer vs. HIV/AIDS as a moderator variable. Although research suggests that people with HIV/AIDS report similar levels and areas of PTG compared to individuals with cancer, there are unique differences between the illnesses, particularly in social responses to individuals with HIV/AIDS compared to those with cancer (Lechner & Weaver, 2009). For example, HIV/AIDS is an infectious disease and people who are HIV positive may face more stigma because of fear, lack of knowledge concerning transmission, and greater perceived accountability (Lechner & Weaver, 2009). This may hinder opportunities for emotional processing and therefore may not facilitate PTG and positive adjustment as readily as cancer and other illnesses.

Furthermore, meta-analysis, like any other procedure, has its advantages and disadvantages, and this study is no exception. As with many meta-analytic studies, the current findings may over represent those studies that are published and have significant results, preventing the generalization of the current findings to unpublished reports

(Rosenthal, 1979). For the overall effects, our publication bias analysis showed that the population effect size estimates were relatively unaffected when corrected for moderate selection bias. This finding gives us some confidence that the results are not idiosyncratic to our sample of studies. However, when correcting for severe publication bias the effect of growth on positive mental adjustment and physical health became strongly negative (the opposite direction to the population effects). Although this is a correction for *severe* publication bias, the current findings should be viewed within the context of these results.

2.5.3 *Theoretical and clinical implications*

Despite these limitations, this study has significant implications for research and practice. A weakness in the literature is the lack of consensus between theorists as to whether PTG is best conceptualized as an adaptive coping strategy that people use following a challenging life event, or as an outcome of the struggle with a traumatic event (Affleck & Tennen, 1996; Park & Helgeson, 2006; Tedeschi & Calhoun, 1995, 2004). The findings from this study suggest that shortly after the event PTG may be used as a coping strategy to manage and reduce emotional distress associated with the illness threat. However, over time PTG may be more significant in enhancing positive wellbeing. This implies that adjustment to serious illness is an ongoing process that occurs over time (Helgeson et al., 2006). As recognized by Butler (2007) a challenge of future work is to psychometrically separate these processes so they can be reliably investigated.

The results suggest that PTG is associated with a reduction in negative mental health, which was particularly prominent when PTSD symptoms were the outcome. This supports Joseph and Linley's (2005) conceptualization of how PTG and PTSD

relate to each other. Traumatic events are thought to shatter assumptions about the self and the world and lead to the symptoms of PTSD. These experiences of re-experiencing, avoidance, and arousal are viewed as the cognitive emotional processing of the new trauma related information as individuals search for new meaning in life (Joseph & Linley, 2008a). As these new meanings are found, and the person's view of themselves and the world is reconstructed, PTG should occur and symptoms of distress should decrease. Therefore PTG should be predictive of lower distress, because as people find new meaning they can overcome the cognitive disruption and confusion characterized by PTSD (Joseph & Linley, 2005). Support for this has been reported by Frazier, Conlon, and Glaser (2001) who found that among sexual assault survivors those who reported PTG over 12 months were the least distressed.

However, Joseph and Linley (2006) note that this does not mean to imply that the alleviation of distress should automatically lead to the enhancement of growth. According to their Organismic Valuing Theory of growth, PTG should only relate to reduced distress through accommodation (i.e., changing one's global meaning to incorporate the stressor) as opposed to assimilation (i.e., changing one's view of the stressor so that it is consistent with one's global meaning). As such they caution that therapeutic work may impede or disrupt the cognitive processes that are necessary for accommodation and therefore PTG.

Nonetheless these findings suggest PTG may be a useful target for therapeutic intervention in health care and clinical settings, where the aim is long-term emotional and physical adjustment. Psychotherapy for traumatic events such as a serious illness has predominantly focused on the negative effects of trauma, and the goal of therapeutic intervention to promote growth as opposed to alleviate distress will be a major paradigm shift. It is therefore important to raise clinician's awareness of the possibility of

positive change. For example, clinicians might recognize the patient's struggle to understand the impact of the illness not only as a posttraumatic response but also as a potential precursor to growth (Zoellener & Maercker, 2006).

The empirical study of ways to facilitate PTG is in its infancy and only a few intervention studies have included PTG as an endpoint (Antoni et al., 2001; Penedo et al., 2006). Nonetheless some interventions, which contain techniques aimed at promoting growth, have shown to successfully improve outcomes. For example, Antoni et al. (2001) found that a psychosocial intervention that taught participants broad cognitive behavioural stress management techniques, served to increase reports of perceived benefits from having had breast cancer, and simultaneously reduced levels of depression. This study demonstrates that PTG can be altered and can be incorporated easily within cognitive behavioural stress-management interventions. However, the findings from the meta-analysis suggest that clinicians should be sensitive to the timing of PTG discussions. For example, the present analysis suggests that PTG might be a useful target in the short-term to reduce distress, but in order to enhance wellbeing PTG should be targeted later on in the adjustment process.

However, in agreement with Park and Helgeson (2006) it is cautioned that large scale interventions to facilitate PTG in cancer and HIV/AIDS patients should be avoided until more is understood about the origins of PTG, the conditions under which PTG is veridical, the best methods to assess PTG, and its relations to psychological and physical health. Care should also be taken to avoid imposing an expectation of PTG in the face of serious illness. Patients with cancer or HIV/AIDS often report feeling burdened with the pressure to stay positive and encouraging the identification of positive changes from their illness may be potentially offensive to patients, serve to

minimise their experience, and lead them to suppress reports of distress (Bellizzi & Blank, 2006; Cordova, 2008).

2.5.4 Future research

This meta-analysis of growth in cancer and HIV/AIDS patients illustrates the promising and exciting nature of this area of research. However, the review also indicates much remains to be learned and highlights areas of research where future work is needed. The present study indicates that in the short-term, PTG is associated with a reduction in negative mental health, whereas in the long-term, PTG is associated with an enhancement in positive wellbeing. Therefore a clear point of focus is the use of longitudinal studies to further disentangle and clarify the temporal course of this relationship. Experimental designs, such as the interventions described earlier, will also help to reveal the causal role of PTG in adjustment and to isolate mechanisms responsible for the effects (Algoe & Stanton, 2009).

Many of the conclusions reached in this paper regarding moderators of the growth-adjustment relationship are based on theoretical considerations rather than on direct empirical evidence and future studies should attempt to validate and test these hypotheses. Moreover, to further explicate the growth-adjustment relationship studies should continue to identify additional mediators and moderators. A particularly relevant moderator to medical populations that should be investigated is the perception of the severity of an illness. A previous meta-analysis found that perceptions of the severity of a traumatic event are related to PTG (Helgeson et al., 2006). As such it might be expected that PTG may have a stronger relationship with psychological wellbeing and physical health for more subjectively severe illnesses, and caution must therefore be

taken when generalizing the current findings to less threatening illnesses and indeed wider trauma populations.

The majority of the studies included in the present paper measured PTG so that only positive changes were assessed. This could be problematic because participants may develop a ‘response bias’ which may lead individuals to over-report PTG, and it may also restrict our characterization of the life changes that health events may precipitate (Tomich & Helgeson, 2004). Furthermore, a recent prospective study of severe acute respiratory syndrome (Cheng, Wong, & Tsang, 2006) found that positive associations between PTG and positive wellbeing are more likely to be found among individuals who perceive benefits from the event, as well as the costs. Therefore, examining positive and negative change simultaneously should be considered as a focus of future research investigating PTG and adjustment in health samples.

Particularly pertinent for this population is the possibility that PTG can serve to improve physical health. Although this paper only looked at subjective measures of physical health there is promising preliminary data which suggests that PTG may be related to better physiological functioning. For example, Cruess et al. (2000) found that among women with breast cancer, cognitive behavioural stress management reduced levels of cortisol through the enhancement of PTG. Yet, no studies have addressed possible mechanisms for the relationship between PTG and physical health. A recent model proposed by Bower, Low, Moskowitz, Sepah, and Epel (2008) suggests that factors often associated with growth such as coping, positive affect, and improved relationships, can lead to a state of enhanced allostasis (maintaining stability, or homeostasis, through change; Sterling & Eyer, 1988), which buffers against future stress responses. This is a promising model, which merits increased attention in future research. Furthermore, the relationship between PTG and health behaviours such as

exercise, medication adherence, requires a more detailed examination; particularly regarding how these behaviours might moderate the relationship between PTG and physical health.

Finally, it is acknowledged that the ways in which PTG is manifested might contain elements that are distinctive to specific cultural environments (Calhoun & Tedeschi, 2006). This paper included only three studies conducted in non-Western countries and therefore it is clear that there is a need to examine PTG in more diverse ethnic and cultural groups to fully understand the relationship between growth and adjustment.

2.5.5 Summary and conclusions

On the basis of this meta-analysis it can be concluded that PTG following cancer or HIV/AIDS is related to better positive mental health and self-reported physical health, and less negative mental health. This does not preclude that many individuals might experience distress, but rather that PTG is a worthy phenomenon to be studied in clinical and health research. It is hoped that this meta-analysis will encourage further examination of the caveats addressed in this research, so that in the future PTG can perhaps become a viable therapeutic aim in individuals living with a life-threatening illness.

3 Pre- and Postnatal Psychological Wellbeing in Africa: A Systematic Review⁴

3.1 Abstract

Perinatal mental health disorders are recognised as an important public health issue in low income countries as well as in developed countries. This paper reviews evidence on the prevalence and risk factors of maternal mental health disorders in African women living in Africa. A systematic review of the literature was conducted. Studies were mainly located through computerised databases, and additionally through hand searching references of identified articles and reviews. 35 studies, with a total of 11,105 participants, were identified that reported prevalence rates of maternal psychological health in eight African countries. Depression was the most commonly assessed disorder with a weighted mean prevalence of 11.3% (95% CI 9.5% - 13.1%) during pregnancy and 18.3% (95% CI 17.6% - 19.1%) after birth. Only a small number of studies assessed other psychological disorders. Prevalence rates of pre- and postnatal anxiety were 14.8% (95% CI 12.3% - 17.4%) and 14.0% (95% CI 12.9% – 15.2%), respectively; and one study reported the prevalence of PTSD as 5.9% (95% CI 4.4% - 7.4%) following childbirth. Lack of support and marital/family conflict were associated with poorer mental health. Evidence relating sociodemographic and obstetric variables to mental health was inconclusive. Most studies included in this review were cross-sectional and measures of mental health varied considerably. This paper demonstrates that maternal mental health disorders are prevalent in African women, and highlights the importance of maternal mental health care being integrated into future maternal and infant health policies in African countries.

⁴ Sawyer, A., Ayers, S., & Smith, H. (2010). Pre- and postnatal psychological wellbeing in Africa: A systematic review. *Journal of Affective Disorders*, 123, 17-29.

3.2 Introduction

There is growing international recognition that maternal mental health is a major public health concern (Oates et al., 2004). The World Health Organization (WHO) identified maternal mental health as an integral component of improving global maternal health in their Millennium Development Goals (WHO, 2005) and in the UK, the Department of Health's (2008) recent strategy for global health emphasised the need for better and fairer healthcare in reproductive and maternal health (Health is Global: A UK Government Strategy 2008-2013).

Postnatal mood disorders can vary in severity from mild to psychotic (Brockington, 2004). Postnatal depression (PND) is the most frequently recognised disorder after birth and generally begins within four to six weeks after childbirth (Robertson, Grace, Wallington, & Stewart, 2004). Symptoms include low mood, tiredness, insomnia, lack of energy, forgetfulness, irritability, and poor functioning. In Western countries the prevalence of PND is between 10 and 15% (Beck, 2001; O'Hara & Swain, 1996). Postnatal anxiety disorders are increasingly recognised (Brockington, Macdonald, & Wainscott, 2006; Wenzel, Haugen, Jackson, & Brendle, 2005). For example, Wenzel, Haugen, Jackson, and Robinson (2003) carried out clinical interviews with women eight weeks after birth and found 16% of them met diagnostic criteria for an anxiety disorder, including generalised anxiety disorder, panic, phobias, and obsessive-compulsive disorder. In recent years converging evidence suggests that 1 to 2% of women develop posttraumatic stress disorder (PTSD) following childbirth (e.g. Ayers & Pickering, 2001; Wijma, Soderquist, & Wijma, 1997).

Antenatal mental health is also associated with psychological disorders but this has been less widely researched. A meta-analysis found that the point prevalence of depression ranged from 8.5% (95% CI 6.6% - 10.9%) to 11% (7.6% - 15.8%) at

different times during pregnancy (Gaynes et al., 2005), indicating that the prevalence of depression during pregnancy might be similar to postnatal levels. In addition, a recent review paper suggested that clinically significant anxiety disorders may be twice as common as depression during pregnancy (Brockington, Macdonald, & Wainscott, 2006). Poorer mental health during pregnancy has been identified as a significant risk factor for postnatal mental disorders (Josefsson, Berg, Nordin, & Sydsjö, 2001; Robertson et al., 2004).

There is a global literature on maternal mental health, but most research has focused on Western, developed countries, primarily Europe and North America. Prevalence rates of maternal mental health disorders show considerable variation between countries (Halbreich & Karkun, 2006; Leahy-Warren & McCarthy, 2007). For example, a review of PND in 40 countries worldwide found that prevalence rates ranged widely from almost 0% to 73.5% (Halbreich & Karkun, 2006). One contributor to these disparate prevalence rates might be the inherent difficulties of conducting cross-cultural research. For example, many of the studies used measures based on Western diagnostic classification systems of depression, which may not be generalisable to non-Western cultures. The most common measure of PND in the review was the Edinburgh Postnatal Depression Scale (EPDS). Although this scale has been validated across a range of cultural settings, it does not include a somatic subscale, which could be disadvantageous in developing parts of the world where somatic symptoms are considered manifestations of depression (Halbreich et al., 2007). Despite these methodological limitations reviews of cross-cultural research are useful in identifying where the gaps are in the current research, especially when very little is known about the area.

Of all the regions of the world Africa has the highest proportion of people living in extreme poverty (Department for International Development, 2008). The World

Health Organization (WHO) estimates that women in sub-Saharan Africa have a one in 16 lifetime risk of dying during pregnancy and childbirth, compared with one in 2,800 in developed regions (WHO, 2004a). Maternal morbidity is also high. A recent paper reported that between 3% and 9% of pregnant women in West Africa experienced severe morbidity directly attributable to obstetric causes, of which the main causes were haemorrhage, obstructed labour, hypertensive disorders, and sepsis (Prual, Bouvier, de Bernis, & Bréart, 2000). Higher morbidity and mortality is due in part to the different availability of health services. High numbers of births are at home and mission houses, which are often overseen by traditional birth attendants (Adewuya, Ologun, & Ibigbami, 2006; Ejembi et al., 2004). Understandably, in developing countries the focus of healthcare is on women's medical and obstetrical problems and on the baby's wellbeing. The psychological needs of pregnant and postnatal women are rarely addressed (Chaaya et al., 2002).

Psychological disorders associated with pregnancy and the birth of a child should not be ignored because of the potential adverse consequences on the mother's health, the early mother-infant relationship, and the child's health and development (Hadley, Tegegn, Tessema, Asefa, & Galea, 2008; Halbreich & Karkun, 2006; Leiferman, 2002). Evidence from developing countries suggests that poor maternal mental health may be associated with malnutrition and poor physical health in their infants (Harpham, Huttly, De Silva, & Abramsky, 2005; Patel, Rahman, Jacob, & Hughes, 2004). For example, a longitudinal case controlled study of 242 women found that infants of depressed mothers in Nigeria had significantly poorer growth than infants of non-depressed mothers three (weight OR 3.41, 95% CI 1.30–8.52; length OR 3.28, 95% CI 1.03–10.47) and six months (weight OR 4.21, 95% CI 1.36–13.20; length OR

3.34, 95% CI 1.18–9.52) following childbirth (Adewuya, Ola, Aloba, Mapayi, & Okeniyi, 2008).

To date, only one paper has reviewed studies of maternal mental health in Africa. This was part of a worldwide review, which focused exclusively on PND (Halbreich & Karkun, 2006). To assess the full extent of the burden of psychological disorders it is essential to look at the entire range of psychological disorders that present both during pregnancy and after childbirth (Global Forum for Health Research, 2000). Moreover, key risk factors that may predispose pregnant or postpartum African women to mental health problems were not assessed. The identification of vulnerable populations, particularly in developing countries, is a key factor in the organisation and adequacy of health services and the planning of health programs (Tannous, Gigante, Fuchs, & Busnello, 2008). This deficit of information about key factors that predispose women to mental health disorders in developing countries needs to be addressed urgently. Reviews of studies conducted in Western developed countries identify poor marital relationship, past history of psychopathology, psychological disorders during pregnancy, poor social support, and stressful life events as the primary risk factors for pre- and postnatal disorders (Beck, 2001; O'Hara & Swain, 1996) but little is known about risk factors in African countries.

This paper therefore systematically examines the prevalence of psychological disorders during pregnancy and after childbirth in African women; and identifies factors associated with psychological disorders during pregnancy and after childbirth.

3.3 Method

3.3.1 Search strategy

A systematic search was conducted to identify studies of prenatal and postnatal mental health in African women. The following computerised databases were searched up to January 2009: Medline, PsychInfo, Psycharticles, PubMed, Web of Science, Scopus, and African Index Medicus. Broad search terms were used to ensure as many articles as possible would be identified as it is known that studies conducted in developing parts of the world are difficult to locate through electronic searching (Betrán, Say, Gülmezoglu, Allen, & Hampson, 2005). Key words “Africa” *and* (“pregnancy” *or* “childbirth” *or* “birth” *or* “postpartum” *or* “postnatal”) returned a large number of citations, and the title and abstract of each paper were inspected for relevance. Additional studies were located through careful inspection of the reference sections of relevant papers and reviews. This approach yielded a preliminary database of 85 papers published between 1972 and 2009.

3.3.2 Inclusion criteria

Studies were included if they reported point prevalence estimates of psychological disorders during pregnancy or after birth and were written in English (two papers were excluded on the basis of language). Intervention studies that only included post-intervention measures of mental health were excluded. Thirty-five papers met these criteria. From these papers the following information was recorded: the study’s location, number of participants, study design, mean age of sample, time of assessment, assessment measure and cut-off point, point prevalence rate, and risk factors of maternal mental health.

3.3.3 *Quality assessment*

The methodological quality of each study was assessed based on a checklist developed by Mirza and Jenkins (2004). The eight criteria that were assessed were: 1) clear study aims, 2) adequate sample size, 3) sample representative of population, 4) clear inclusion and exclusion criteria, 5) valid measurement of mental health, 6) good response rate, 7) adequate description of data, and 8) appropriate statistical analysis. The studies were then given a total score of quality with the highest possible being eight (1 = Yes, 0 = No). Tables 3.1 and 3.2 display the quality scores for each individual study. Quality scores ranged from 2 to 8; however most studies were of reasonable quality with over 80% of studies having a score of 5 or more. Studies were not excluded because of poor quality due to the early stage of research in this area. Correlations were examined between quality and prevalence rates for pre- and postnatal depression (disorders with the largest number of studies) and the relationship was non-significant (ρ , .11 and -.16, respectively).

3.3.4 *Measurement and data analysis*

The psychological disorders measured by studies in this review were any depressive disorder, any anxiety disorder, and PTSD. Point prevalence was defined in all the studies as the percentage of participants who satisfied study criteria for the identification of a psychological disorder at the time of evaluation. The prevalence rates associated with each disorder are displayed using stem and leaf plots (see Figure 3.1). The stem identifies the first digit of the prevalence rate and the leaf identifies the final digit of the prevalence rate. The prevalence of each disorder was also calculated as an

aggregate mean, weighted by the number of subjects in each of the contributing studies. As studies vary in methodology and quality these are only crude approximations; however they do allow an estimate of the magnitude of the problem and allow comparisons to be made across studies.

Measures used to screen for disorders varied between studies. The majority of studies conducted structured clinical interviews ($n = 18$), 12 studies used self-administered measures and five studies used both. In studies that included structured clinical interviews, depression was most commonly assessed by a two-stage screening procedure using a questionnaire measure to identify women who exceeded a pre-specified threshold; these women were then interviewed to assess depression according to the DSM-IV or ICD-10 criteria.

Five different questionnaire measures of depression were used: the EPDS (Cox, Holden, & Sagovsky, 1987), Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983), Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), Zung's (1965) Self Rating Depression Scale (SRDS), and the Pitt Depression Questionnaire (PDQ; Pitt, 1968). These questionnaires examine depressed mood so are not diagnostic measures. However, (with the exception of the PDQ) all have been validated against clinical interviews with African samples and have recommended cut-offs for probable depressive disorder. The recommended cut-offs for the EPDS have shown a sensitivity of 75% and specificity of 97% in a sample of postnatal Nigerian women (Uwake, 2003). The BDI has shown a sensitivity of 89% and specificity of 97% in a sample of postnatal Nigerian women (Adewuya, Egunranti, & Lawal, 2005) and the HADS subscale of depression has a reported sensitivity of 90.1% and specificity of 91.1% in a Nigerian antenatal sample (Abiodun, 1994). Zung's SRDS has been validated in a Nigerian general outpatient sample with good psychometric

properties, including a high index consistency reliability of 0.75 (Jegede, 1979). In the four studies that reported prevalence rates of depression derived from using both the EPDS and a structured clinical interview, prevalence estimates were always higher with the EPDS. This suggests that clinical interviews use more stringent criteria to assess depression in comparison to the EPDS.

Anxiety was assessed using the HADS and Zung's (1971) Self Rating Anxiety Scale (SRAS), which are also not diagnostic tools, but have both been validated with African samples. The HADS subscale of anxiety has a sensitivity of 92.9% and a specificity of 90.2% in a Nigerian antenatal sample (Abiodun, 1994). Zung's SRAS has also been validated in a Nigerian outpatient sample with good psychometric properties, including a high index consistency reliability of 0.79 (Jegede, 1979). PTSD was assessed according to the DSM-IV and ICD-10 criteria using the MINI International Neuropsychiatric Interview (Sheehan et al., 1998). In some studies general mental health was assessed using diverse measures such as the General Health Questionnaire-28 (GHQ-28; Goldberg & Hiller, 1979), the Shona Symptom Questionnaire (Patel, Simunyu, Gwanzura, Lewis, & Mann 1997), Langner's 22-item mental health index (Meile, 1972), or the Self Reporting Questionnaire-20 (SRQ-20; Harding, De Arango, & Baltazar, 1980). The results derived from these general mental health measures will be summarised in this review, but mean prevalence rates will not be calculated because of their heterogeneity.

When examining factors associated with psychological disorders a p value of .05 was used as the limit of statistical significance. However, sample sizes ranged widely, which could have implications for sufficient statistical power in the smaller samples.

3.4 Results

Thirty-five studies were included in the review, with a total of 11,105 participants. Sample sizes ranged from 27 to 1,723 ($M = 284.74$, $mdn = 172$). Studies were conducted between 1972 and 2009, with the majority taking place between 2003 and 2009. Most studies recruited women from antenatal and postnatal health clinics ($n = 27$), five studies recruited women from the community, and three studies were conducted in both settings. Nineteen studies were cross-sectional, 11 were longitudinal, and five were case-control studies. The majority of studies were conducted in Nigeria ($n = 19$) followed by South Africa ($n = 6$), Uganda ($n = 3$), Ethiopia ($n = 2$), Morocco ($n = 2$), The Gambia ($n = 1$), Zimbabwe ($n = 1$), and Malawi ($n = 1$). As studies from Nigeria dominated the review, these studies were subjected to a sub-analysis to enable us to assess consistency of prevalence estimates within one country (this is reported as a note in Table 3.3).

3.4.1 *Prevalence of psychological disorders during pregnancy*

Twelve studies assessed mental health including general psychological health, anxiety, and depression in women during pregnancy. Individual study characteristics and prevalence rates are detailed in Table 3.1 and a summary of overall prevalence found during pregnancy is presented in Table 3.3.

Estimates of poor general psychological health during pregnancy ranged from 12.5% to 30.2% in the six studies reviewed. However, Figure 3.1 suggests that the majority lie between 12% and 19%. Prevalence rates of depression ranged between 4.3% and 17.4% during pregnancy, and the mean prevalence was 11.3% (95% CI 9.5% - 13.1%). Only two studies assessed anxiety (at four time points in total) and the weighted mean prevalence was 14.8% (95% CI 12.3% - 17.4%). Both studies reported

very disparate prevalence rates during the third trimester, 5.8% (Esimai, Fatoye, Quiah, Vidal, & Momoh, 2008) and 39.0% (Adewuya, Ola, Aloba, & Mapayi, 2006). Adewuya et al's (2006a) study was more rigorous and used a clinical interview to assess anxiety. However, Esimai et al's (2008) study allows a useful comparison to be made between anxiety and depression during the course of pregnancy. Their results suggest that anxiety is more prevalent in the first trimester of pregnancy in comparison to depression, whereas depression is more prevalent in the third trimester of pregnancy.

3.4.2 Prevalence of psychological disorders following childbirth

Twenty-seven papers assessed psychological health following childbirth (general psychological health, depression, anxiety, and PTSD). A summary of weighted mean prevalence rates after birth is given in Table 3.3. The study characteristics and prevalence rates are detailed in Table 3.2.

Estimates from five studies examining poor general psychological health after birth ranged from 6.1% to 33.0% of African women. The two studies with the higher estimates were both of high quality and used the SRQ-20 to assess mental health. Depression was the most frequently measured disorder after birth with a wide range of prevalence rates. Prevalence rates ranged widely from 3.2% to 48.0%; however Figure 3.1 suggests that the majority lie between 10% and 19%. The mean weighted prevalence was 18.3% (95% CI 17.6% - 19.1%). There were interesting variations between countries. For example, very high rates of PND were reported in South Africa (a mean prevalence of 21.6%). The time at which depression was assessed varied considerably between five days (Adewuya, 2006) and 18 months following delivery (Coleman, Morison, Paine, Powell, & Walraven, 2006; Tomlinson, Cooper, & Murray, 2005), which makes it difficult to understand the temporal course of PND. However, the

longitudinal studies provide some indication of the relationship between time and PND. In general, the longitudinal studies (Adewuya & Afolabi, 2005; Agoub, Moussaoui, & Battas, 2005; Alami, Kadri, Berrada, 2006; Coleman et al., 2006, Tomlinson et al., 2005) suggest that after six months prevalence of PND decreases.

Only one study assessed PTSD and reported a prevalence of 5.9% (95% CI 4.4%-7.4%) in a large sample ($n = 876$) of Nigerian women six weeks following birth (Adewuya et al., 2006c). Two studies (seven time points in total), measured anxiety following childbirth and the mean prevalence was 14.0% (95% CI 12.9% - 15.2%), which is lower than the prevalence of depression found in this review. Prevalence rates ranged from 6.3% to 28.1%. However, the highest prevalence was reported one week after birth, and after this time the prevalence rates became more similar.

Table 3.1 Details of studies included in systematic review with prevalence estimates of psychological disorders in pregnancy

Study	Country	Quality	N	Mean age (range)	Time of assessment	Measurement		Prevalence
						Instrument	Cut-off	
<i>Depression</i>								
Adewuya et al. (2006b)	Nigeria	5	86	24.89	3 rd trimester	EPDS MINI (DSM-IV)	≥ 6	MINI: 17.4%
Adewuya et al. (2007)	Nigeria	6	180	27.29	3 rd trimester	EPDS MINI (DSM-IV)	≥ 6	MINI: 8.3%
Alami et al. (2006)	Morocco	6	100	27 (19-43)	1 st trimester	MINI (DSM-IV)		17.4%
					2 nd trimester	MINI (DSM-IV)		16.0%
					3 rd trimester	MINI (DSM-IV)		15.7%
Coleman et al. (2006)	The Gambia	8	66	NR	NR	EPDS ^a PSE (ICD-10)	≥ 10	PSE: 6.2%
Esimai et al. (2008)	Nigeria	4	195	15-45	1 st trimester	HADS	NR	8.7%
					2 nd trimester	HADS		4.3%
					3 rd trimester	HADS		14.6%

Table 3.1 Continued

Study	Country	Quality	N	Mean age (range)	Time of assessment	Measurement		Prevalence
						Instrument	Cut-off	
<i>Anxiety</i>								
Adewuya et al. (2006a)	Nigeria	7	172	26.9	32+ weeks	MINI (DSM-IV)		39%
Esimai et al. (2008)	Nigeria	4	195	15-45	1 st trimester	HADS	NR	13.0%
					2 nd trimester	HADS		4.3%
					3 rd trimester	HADS		5.8%
<i>General mental health</i>								
Abiodun et al. (1993)	Nigeria	7	240	NR	20.8% = 1 st trimester, 33.3% = 2 nd trimester, 45.9% = 3 rd trimester	GHQ-30 PSE (ICD-9)	NR	PSE: 12.5%
Aderibigbe & Gureje (1992)	Nigeria	5	277	28.8	2 nd and 3 rd trimester	GHQ-28 PAS (DSM-III)	≥ 5	PAS: 15.7%
Aderibigbe et al. (1993)	Nigeria	5	162	28.7	2 nd trimester	GHQ-28 PAS (DSM-III)	≥ 10	30.2%

Table 3.1 Continued

Study	Country	Quality	N	Mean age (range)	Time of assessment	Measurement		Prevalence
						Instrument	Cut-off	
Assael et al. (1972)	Uganda	2	100	NR	NR	Psychiatric interview		24%
Cox (1979)	Uganda	6	263	69.1% <25 years, 3.0% > 34 years	NR	SIS		16.7%
Nhiwatiwa et al. (1998)	Zimbabwe	6	500	NR	8 th month of pregnancy	SSQ	≥ 8	19%

Note. EPDS = Edinburgh Postnatal Depression Scale, GHQ = General Health Questionnaire, MINI = MINI International Neuropsychiatric Interview, HADS = Hospital

Anxiety and Depression Scale, NR = Not reported, PAS = Psychiatric Assessment Scale, PSE = Present State Examination, SIS = Standardised Interview Schedule, SSQ =

Shona Symptom Questionnaire. ^a = modified version of EPDS

Table 3.2 Details of studies included in systematic review with prevalence estimates of postnatal psychological disorders

Study	Country	Quality	N	Mean age (range)	Time of assessment	Measurement		Prevalence
						Instrument	Cut-off	
<i>Depression</i>								
Abiodun (2006)	Nigeria	6	360	27.9	6 weeks	EPDS PSE (ICD-10)	≥9	PSE: 18.6%
Adewuya (2006)	Nigeria	6	478	28.5	5 th day	EPDS	≥9	20.9%
					4 weeks	SADS		10.7%
					8 weeks	SADS		16.3%
Adewuya et al. (2005a)	Nigeria	7	876	28.4	6 weeks	EPDS BDI SCID-NP (DSM-IV)	≥9 ≥10	SCID: 14.6%
Adewuya & Afolabi (2005)	Nigeria	5	632	27.5	1 week	Zung’s SRDS	NR	19.9%,
			630		4 weeks			10.3%,
			600		8 weeks			15.3%,
			547		12 weeks			14.6%,
			512		24 weeks			10.1%,
			480		36 weeks			8.1%

Table 3.2 Continued

Study	Country	Quality	N	Mean age (range)	Time of assessment	Measurement		Prevalence
						Instrument	Cut-off	
Agoub et al. (2005)	Morocco	7	144	30.3 (18-44)	2-3 weeks	MINI (DSM-IV)		18.7%
						EPDS	> 12	20.1%
					6 th week	MINI (DSM-IV)		6.9%
					6 th month	MINI (DSM-IV)		11.8%
					9 th month	MINI (DSM-IV)		5.6%
Alami et al. (2006)	Morocco	6	100	27 (19-43)	2-3 weeks	MINI (DSM-IV)		16.8%
					12 weeks	MINI (DSM-IV)		14%
					24 weeks	MINI (DSM-IV)		12%
					36 weeks	MINI (DSM-IV)		6%
Coleman et al. (2006)	The Gambia	8	52	NR		EPDS ^a	≥ 10	PSE:
			60		<6 months	PSE (ICD-10)		6.9%
					6-18 months	PSE (ICD-10)		3.2%
Cooper et al. (1999)	South Africa	7	147	17% <20, 56.5% 20- 29, 26.5% 30-39	2 months	SCID (DSM-IV)		34.7%
Cox (1983)	Uganda	5	183	24	6-15 weeks	SPI (ICD-8)		10%

Table 3.2 Continued

Study	Country	Quality	N	Mean age (range)	Time of assessment	Measurement		Prevalence
						Instrument	Cut-off	
Fatoye et al. (2006)	Nigeria	6	83	29.5 (19-43)	1 week	Zung's SRDS	≥ 45	22.9%
			(Difficult delivery)		6 weeks	Zung's SRDS	≥ 45	12.0%
			83	30.6 (19-45)	1 week	Zung's SRDS	≥ 45	15.7%
			(Unassisted delivery)		6 weeks	Zung's SRDS	≥ 45	9.6%
Hanlon et al. (2008)	Ethiopia	6	101	26.8	Mdn 5 months	CPRS		12%
						EPDS ^a	≥ 5	17%
Lawrie et al. (1998)	South Africa	6	103	NR	6 weeks	EPDS	≥ 12	36.9%
						DSM-IV		7.8%
Madu & Roos (2006)	South Africa	4	50	29	1 week	EPDS	≥ 13	48%
			(preterm)	28	1 week	EPDS	≥ 13	32%
			50 (term)					
Owoeye et al. (2006)	Nigeria	6	252	28.5 (16-43)	4-6 weeks	EPDS	≥ 12	23%
						ICD-10		17.5%
Owoeye et al. (2004)	Nigeria	4	252	NR	NR	EPDS	≥ 12	23%
Ramchandani et al. (2009)	South Africa	5	1035	NR	6 months	PDQ	≥ 20	16.4%

Table 3.2 Continued

Study	Country	Quality	N	Mean age (range)	Time of assessment	Measurement		Prevalence
						Instrument	Cut-off	
Spangenberg & Pieters (1991)	South Africa	4	81	NR	2 weeks-6 months	BDI	≥ 10	27.2%
Tomlinson et al. (2005)	South Africa	7	147	NR	2 months	SCID (DSM-IV)		34.7%
			98		18 months	SCID (DSM-IV)		12.4%
Ukpong et al. (2003)	Nigeria	4	33 – preterm infants	28.27	1 week	BDI	≥ 10	15.1%
			27 – full-term infants	28.51	1 week	BDI	≥ 10	3.7%
Ukpong & Owolabi (2006)	Nigeria	4	47 Caesarean section	31.02	6-8 weeks	BDI	≥ 10	29.8%
			47 Normal delivery	30.43	6-8 weeks	BDI	≥ 10	4.2%
Uwake (2003)	Nigeria	7	225	28.9 (18-39)	Majority interviewed within 6 weeks	SCL (ICD-10)		10.7%

Table 3.2 Continued

Study	Country	Quality	N	Mean age (range)	Time of assessment	Measurement		Prevalence
						Instrument	Cut-off	
<i>PTSD</i>								
Adewuya et al. (2006c)	Nigeria	5	876	25.98	6 weeks	MINI (DSM-IV/ICD-10)		5.9%
<i>Anxiety</i>								
Adewuya & Afolabi (2005)	Nigeria	5	632	27.45	1 week	Zung's SRAS	NR	28.1%,
			630		4 weeks			17.9%,
			600		8 weeks			10.2%,
			547		12 weeks			10.1%,
			512		24 weeks			8.2%,
			480		36 weeks			6.3%
Hanlon et al. (2008)	Ethiopia	6	101		<i>Mdn</i> = 5 months	CPRS		12%
<i>General Mental Health</i>								
Aderibigbe et al. (1993)	Nigeria	5	162	28.7	6-8 weeks	GHQ-28 PAS	≥ 8	PAS: 14.2%
Adewunmi (1991)	Nigeria	5	228	NR	6-8 months	Langner BPRS (ICD-9)	≥ 7	BPRS: 6.1%

Table 3.2 Continued

Study	Country	Quality	N	Mean age (range)	Time of assessment	Measurement		Prevalence
						Instrument	Cut-off	
Harpham et al. (2005)	Ethiopia	7	1723	NR	NR	SRQ-20	≥ 7	33%
Nhiwatiwa et al. (1998)	Zimbabwe	6	205	NR	6-8 weeks	RCIS		16%
Stewart et al. (2009)	Malawi	7	501	24.4	<i>Mdn</i> = 9.9 months	SRQ-20	≥ 8	29.9%

Note. BDI = Beck’s Depression Inventory, BPRS = The Brief Psychiatric Rating Scale, CPRS = Comprehensive Psychopathological Rating Scale, EPDS = Edinburgh Postnatal Depression Scale, GHQ = General Health Questionnaire, MINI = Mini International Neuropsychiatric Interview, NR = Not reported, PAS = Psychiatric Assessment Scale, PDQ = Pitt Depression Questionnaire, PSE = Present State Examination, SADS = Schedule for Affective Disorders and Schizophrenia, SCID-NP = Structured Clinical Interview for DSM-III-R, SCL = Symptom checklist, SPI = Standardised Psychiatric Interview, SRAS = Self Rating Anxiety Scale, SRDS = Self Rating Depression Scale, and SRQ = Self Reporting Questionnaire. ^a = modified version of EPDS

Table 3.3 Mean prevalence of psychological disorders during pregnancy and after birth

	Total <i>N</i> (number of studies)	Range of prevalence	Weighted mean prevalence	95% CI
<i>Psychological disorders in pregnancy</i>				
General mental health	1542 (6)	12.5 – 30.2		
Anxiety	757 (2)	4.3-39.0	14.8	12.3-17.4
Depression	1217 (5)	4.3-17.4	11.3	9.5-13.1
<i>Psychological disorders after birth</i>				
General mental health	2819 (5)	6.1-33.0		
Anxiety	3502 (2)	6.3-28.1	14.0	12.9-15.2
Depression	10969 (21)	3.2-48.0	18.3	17.6-19.1
PTSD	876 (1)	5.9		4.4-7.4

Note. Sub-analyses of the Nigerian data showed that the weighted mean prevalence of depression during pregnancy was 8.21% (95% CI 6.4% - 10.1%) and after birth the weighted prevalence of depression and anxiety was 14.9% (95% CI 14.1% – 15.7%) and 14.1% (95% CI 12.9% - 15.3%), respectively.

Prenatal General Mental Health

Stem	Leaf
1	2, 6, 7, 9
2	4
3	0

Prenatal Depression

Stem	Leaf
0	4, 6, 8, 9
1	5, 6, 6, 7, 7

Prenatal Anxiety

Stem	Leaf
0	4, 6
1	3
2	
3	9

Postnatal General Mental Health

Stem	Leaf
0	6
1	4, 6
2	
3	0, 3

Postnatal Depression

Stem	Leaf
0	3, 4, 4, 6, 6, 7, 7, 8, 8
1	0, 0, 0, 1, 1, 2, 2, 2, 2, 2, 4, 5, 5, 5, 5, 6, 6, 6, 7, 7, 8, 9, 9
2	0, 0, 1, 3, 3, 3, 7
3	0, 2, 5, 5, 7
4	8

Postnatal Anxiety

Stem	Leaf
0	6, 8
1	0, 0, 2, 8
2	8

Figure 3.1. Stem and leaf plots of prevalence rates for pre- and postnatal mental health

3.4.3 *Variables associated with psychological disorders during pregnancy*

The variables examined were grouped into sociodemographic, pregnancy and birth, and psychosocial factors. Variables are only reported for those mentioned in at least two studies. As the majority of studies are cross-sectional these findings do not indicate causality but rather provide an overview of the factors related to maternal mental health. Table 3.4 summarises the variables that were assessed in relation to mental health disorders during pregnancy and after birth.

Sociodemographic variables: Few studies found significant relationships between sociodemographic variables and psychological health during pregnancy. However, one study found marital status was associated with depression. Specifically, women who were depressed were more likely to be either single, separated/divorced, or in a polygynous marriage in comparison to non-depressed women (Adewuya, Ola, Aloba, Dada, & Fasoto, 2007). One study also reported that younger women were more likely to suffer from anxiety disorders in comparison to older women (Adewuya et al., 2006a).

Pregnancy and birth variables: Obstetric variables such as parity (Adewuya et al., 2007; Alami et al., 2006), unplanned pregnancy (Adewuya et al., 2007), gestation (Esimai et al., 2008), and hospitalisation during pregnancy (Adewuya et al., 2007; Esimai et al., 2008) were generally not associated with depression and anxiety. Likewise previous obstetric history, including a previous history of abortions (Esimai et al., 2008), obstetric hospitalisation in previous pregnancy (Adewuya et al., 2007; Esimai et al., 2008), previous preterm delivery (Adewuya et al., 2007; Esimai et al., 2008), and previous instrumental or caesarean deliveries (Adewuya et al., 2007; Esimai et al., 2008) were generally not associated with mental health.

Psychosocial variables: Studies that assessed psychosocial variables suggest that these are important factors in the prevalence of psychological disorders during pregnancy. Social support was consistently related to mental health. Particularly, women identified with depression were more likely to report a lack of social support from their family and partner (Adewuya et al., 2007; Alami et al., 2006; Esimai et al., 2008).

3.4.4 Variables associated with psychological disorders after birth

Table 3.4 summarises the variables that were assessed in relation to postnatal mental health.

Sociodemographic variables: Overall, sociodemographic variables were not associated with depression or PTSD. However, four studies suggest that marital status might be important. Specifically two studies identified that women in polygynous relationships were more likely to be diagnosed with PND than women in monogamous marriages (Adewuya, Fatoye, Ola, Ijaodola, Ibiagami, 2005; Fatoye, Oladimeji, & Adeyemi, 2006), and two studies identified that depressed women were more likely to be single (Adewuya et al., 2005b; Owoeye, Aina, & Morakinyo, 2006).

Pregnancy and birth variables: The relationship between obstetric variables and postnatal mental health was mixed. Regarding mode of delivery five studies suggest that this is not an important variable. However, four studies identified that women with depression were more likely to have had a caesarean section in comparison to non-depressed women (Adewuya et al., 2005b; Fatoye et al., 2006; Owoeye et al., 2006, Ukpong & Owolabi, 2006). Adewuya et al. (2006c) found that that an instrumental delivery (OR 7.94, 95% CI 3.91 – 16.15) or caesarean section (OR 7.31, 95% CI 3.53-15.16) was related to a PTSD diagnosis only when these were unplanned. Inconsistent

relationships were observed between psychological disorders and preterm birth, birth weight, parity, complications during pregnancy, gender of the baby, and planned or unplanned pregnancy. Two studies also reported that women identified as depressed were more likely to report that the baby was unwanted than non-depressed women (Alami et al., 2006; Cooper et al., 1999). Several studies reported that place of delivery (hospital or home) was not related to subsequent psychological health (Agoub et al., 2005; Alami et al., 2006; Cox, 1979; Madu & Roos, 2006).

Psychosocial variables: In comparison to sociodemographic and obstetric factors, psychosocial variables appear to play a more consistent role in postnatal psychological disorders. Social support in particular appears to be related to postnatal mental health. Women with depression were more likely than non-depressed women to report a lack of support (Abiodun, 2006; Agoub et al., 2005; Cooper et al., 1999) and a poor relationship with the partner (Agoub et al., 2005; Alami et al., 2006; Owoeye et al., 2006; Ramchandani, Richter, Stein, & Norris, 2009; Spangenberg & Peters, 1991). Two studies also reported that women who reported family conflict were more likely to be depressed (Abiodun, 2006; Ramchandani et al., 2009).

Two studies reported that prenatal mood disorders were significantly related to postnatal psychological disorders. Specifically women who were depressed were more likely to have suffered from depression during pregnancy than non-depressed women (Alami et al., 2006; Ramchandani et al., 2009).

Table 3.4 Variables associated with risk of psychological disorders during pregnancy and after birth

Variables	Study	
	Significant risk factor	Non-significant association
Prenatal Depression		
<i>Sociodemographic</i>		
Age		Adewuya et al. (2007), Alami et al. (2006), Esimai et al. (2008)
Education		Adewuya et al. (2007), Alami et al. (2006), Esimai et al. (2008)
Marital status	Adewuya et al. (2007)	Esimai et al. (2008)
<i>Pregnancy/Birth</i>		
Obstetric history	Adewuya et al. (2007)	Adewuya et al. (2007), Esimai et al. (2008)
Hospital admission during pregnancy		Adewuya et al. (2007), Esimai et al. (2008)
Gravidity		Adewuya et al. (2007), Esimai et al. (2008)
Parity		Alami et al. (2006), Esimai et al. (2008)
Unplanned pregnancy		Adewuya et al. (2007)
<i>Psychosocial</i>		
Lack of support	Adewuya et al. (2007), Alami et al. (2006), Esimai et al. (2008)	

Table 3.4 Continued

Variables	Study	
	Significant risk factor	Non-significant association
Prenatal Anxiety		
<i>Sociodemographic</i>		
Age	Adewuya et al. (2006a)	Esimai et al. (2008)
Education		Esimai et al. (2008)
Marital status		Adewuya et al. (2006a), Esimai et al. (2008)
<i>Pregnancy/Birth</i>		
Obstetric history		Esimai et al. (2008)
Hospital admission during pregnancy		Esimai et al. (2008)
Parity	Adewuya et al. (2006a)	Esimai et al. (2008)
Gravidity		Esimai et al. (2008)
Postnatal Depression		
<i>Sociodemographic</i>		
Age	Abiodun (2006)	Agoub et al. (2005), Alami et al. (2006), Cooper et al. (1999), Fatoye et al. (2006), Ramchandani et al. (2009), Spangenberg & Pieters (1991)

Table 3.4 Continued

Variables	Study	
	Significant risk factor	Non-significant association
Education	Ramchandani et al. (2009)	Abiodun (2006), Adewuya et al. (2005b) ⁵ , Agoub et al. (2005), Alami et al. (2006), Cooper et al. (1999), Fatoye et al. (2006)
Employment	Owoeye et al. (2006)	Agoub et al. (2005), Alami et al. (2006), Cooper et al. (1999), Ramchandani et al. (2009)
Housing type		
SES		Adewuya et al. (2005b), Fatoye et al. (2006)
Marital status	Adewuya et al. (2005b), Fatoye et al. (2006), Abiodun (2006), Owoeye et al. (2006)	Agoub et al. (2005), Cooper et al. (1999), Cox (1983), Madu & Roos (2006)
<i>Pregnancy/Birth</i>		
Parity	Abiodun (2006), Owoeye et al. (2006)	Adewuya et al. (2005b), Alami et al. (2006), Cooper et al. (1999), Cox (1983), Fatoye et al. (2006), Madu & Roos (2006), Owoeye et al. (2006), Ramchandani et al. (2009), Spangenberg & Pieters (1991)
Mode of delivery	Adewuya et al. (2005b), Fatoye et al. (2006), Owoeye et al. (2006), Ukpomg & Owolabi (2006)	Adewuya et al. (2005b), Agoub et al. (2005), Alami et al. (2006), Cooper et al. (1999), Spangenberg & Pieters (1991)

⁵ This study used the data reported in Adewuya et al. (2005a) to examine correlates of PND.

Table 3.4 Continued

Variables	Study	
	Significant risk factor	Non-significant association
Place of delivery		Agoub et al. (2005), Alami et al. (2006), Cox (1983), Madu & Roos (2006)
Complications during pregnancy	Agoub et al. (2005), Alami et al. (2006)	Fatoye et al. (2006)
Low birth weight	Alami et al. (2006), Cooper et al. (1999)	Adewuya et al. (2005b), Ramchandani et al. (2009)
Preterm	Adewuya et al. (2005b)	Madu & Roos (2006), Owoeye et al. (2006), Spangenberg & Pieters (1991), Ukpong et al. (2003)
Unplanned pregnancy	Cooper et al. (1999), Owoeye et al. (2006)	Adewuya et al. (2005b)
Unwanted pregnancy	Alami et al. (2006), Cooper et al. (1999)	
Infant gender	Abiodun (2006), Adewuya et al. (2005b)	Cooper et al. (1999), Owoeye et al. (2006), Ramchandani et al. (2009)
<i>Psychosocial</i>		
Marital conflict	Agoub et al. (2005), Alami et al. (2006), Owoeye et al. (2006), Ramchandani et al. (2009), Spangenberg & Peters (1991)	
Family conflict	Abiodun (2006), Ramchandani et al. (2009)	
Unhappiness during pregnancy	Alami et al. (2006), Ramchandani et al. (2009)	Cox (1983)

Table 3.4 Continued

Variables	Study	
	Significant risk factor	Non-significant association
Lack of support	Abiodun (2006), Agoub et al. (2005), Cooper et al. (1999)	
Postnatal PTSD		
<i>Sociodemographic</i>		
Age		Adewuya et al. (2006c)
Marital status		Adewuya et al. (2006c)
Education		Adewuya et al. (2006c)
<i>Pregnancy/Birth</i>		
Complications during pregnancy	Adewuya et al. (2006c)	
Mode of delivery	Adewuya et al. (2006c)	
Parity		Adewuya et al. (2006c)

3.5 Discussion

This is the first systematic attempt to review the literature on maternal mental health disorders in pregnant and postnatal African women. However, studies were conducted in many countries within Africa and caution should be taken when generalising the findings between cultures. For example, many of the countries included in this review vary greatly with regards to socio-economic, political, and religious characteristics. These individual differences could have potential implications regarding the experience and prevalence of perinatal mental health disorders and associated factors. Nonetheless, this paper provides a useful overview of the current state of knowledge in this area. This review suggests that depression is the most commonly identified psychological complication of the prenatal and postnatal period in African women. The weighted prevalence of antenatal depression in this review was 11.3%, which is similar to the rates of 8.5% and 11.0% reported in reviews of prenatal depression in developed countries (Gaynes et al., 2005). Likewise the weighted prevalence of PND in this review of 18.3% falls in the upper limits of studies conducted in European and North American countries (Da Costa, Larouche, Dritsa, & Brender, 2000; Huang & Mathers, 2001; Josefsson et al., 2001; O'Hara & Swain, 1996).

African women therefore appear to experience depression during pregnancy and after birth at a similar rate to that reported in developed countries. This lends validity to the concept of maternal depression in African countries and suggests that maternal depression is not a culture-bound Western phenomenon as previously suggested (Stern & Kruckman, 1983). Prevalence rates of pre- and postnatal depression are also greater than in the general African female population (3.5%; Gureje, Uwake, Oladeji, Makanjuola, & Esan, 2010). These findings therefore provide support for perinatal

vulnerability to depression, and similarities between developing and developed countries.

In comparison, only a small number of studies examined other disorders such as perinatal anxiety and PTSD making it difficult to draw conclusions about true prevalence rates of these disorders. Nonetheless, these preliminary findings suggest that they occur at a similar or slightly higher rate in African women as they do in women from developed countries. For example, the prevalence rate of PTSD found in Nigeria of 5.9% is at the higher end of the range found in developed countries (0 – 7%; Ayers, Joseph, McKenzie-McHarg, Slade, & Wijma, 2008).

There was some variation between African countries. In particular, there was a high level of PND in South African women. This could be due to a number of reasons including wealth inequalities, as South Africa is the fifth most inequitable country in the world in terms of wealth distribution (World Bank, 2001), and high rates of HIV and AIDS in pregnant women in South Africa (26.5%, Department of Health, 2002). Further cross-sectional and multilevel research is needed to explore these hypotheses further.

3.5.1 Factors associated with poor mental health

This review identified a number of distinctive sociodemographic variables related to depression in some African women, such as being in a polygynous relationship. Polygyny is widely practiced in some African countries and has been reported as a potential source of marital disharmony and friction (Adewuya et al., 2007). Although the evidence was mixed, some studies did suggest that women with poor mental health were also more likely to be single. In some sub-Saharan countries women who become pregnant without a husband might be viewed as promiscuous and single

parenting is socially unacceptable (Adewuya et al., 2007; Moyo & Kawewe, 2009). Therefore the stigma associated with being single may contribute to worse mental health.

In particular, this review highlights the importance of psychosocial factors in perinatal mental health. Key psychosocial factors were lack of social support, marital conflict, and prenatal depression, which were all associated with poor mental health. These findings are also consistent with research in developed countries. For example, the protective role of social support has been demonstrated in a number of studies and meta-analyses conducted in developed countries (Beck, 1996; Da Costa et al., 2000; O'Hara & Swain, 1996).

Thus, the prevalence of perinatal mental health disorders in African women is similar or slightly higher than women in developed countries. Risk factors are also broadly comparable, with some culture-specific risk factors such as polygyny. However, before drawing conclusions it is important to consider methodological issues with the studies included in this review.

3.5.2 Methodological issues of studies included in review

There were a number of issues of measurement in the studies reviewed. The majority of studies used a two-stage questionnaire based screening procedure to identify depression. Full diagnostic interviews were not carried out with all women, which could result in an underestimation of prevalence if there were false negative cases at the first stage of screening. Moreover the cut-off points for the EPDS used to identify depressed women varied between studies, leading to different estimated prevalence rates. In addition, recent work in Ethiopia suggests the EPDS has limited clinical validity for detecting mental health disorders in rural, low-income settings (Hanlon et al., 2008). In

comparison the SRQ-20, a measure of common mental disorders, demonstrated superior validity (Hanlon et al., 2008). This may be due to the inclusion of somatic items in the SRQ-20, which are important indicators of depressive disorders in sub-Saharan Africa (Halbreich et al., 2007). Timing of assessments also varied between studies making it difficult to fully explicate how mental health progresses over time. Although the present review indicates that rates of PND decrease six months following delivery, relatively few studies examined the long term outcome of postnatal mental disorders. A recent review of studies from developed countries concluded that in about 30% of women with PND, symptoms persist for up to a year after giving birth (Goodman, 2004).

This review also highlights various omissions in the literature. There is very little research on antenatal mental health and associated risk factors in African women. This is an important gap to be addressed, particularly as prenatal psychological health has been identified as a strong predictor for postnatal mental health. Likewise, only three studies examined mental health before and after pregnancy, so in the majority of studies it is impossible to distinguish between women with a previous history of psychological disorders (ongoing or recurrent) and those with first time mental illness (Kessler, 2003). Therefore longitudinal studies are needed to establish lifetime prevalence as well as prevalence in pregnancy and after birth.

Other omissions include limited research into the range of maternal mental health disorders, such as anxiety disorders. It is important that all possible disorders are researched in developing countries so the varying risk, severity, and impact of these disorders can be identified. Moreover, future research should examine a wider range of potential risk factors, such as societal stress or violence, to ensure effective prevention and intervention strategies can be developed. For example, there is anthropologic evidence which indicates that the origins of high rates of depression in women can be

traced to the social circumstances of their lives such as poverty, violence, and economic dependence (Desjarlais, Eisenberg, Good, & Kleinman, 1995; WHO, 2004b). There is also a paucity of literature into the effect of maternal psychological problems on children in Africa (Hadley et al., 2008; Harpham et al., 2005; Patel et al., 2004). Finally, despite the increase in research on the prevalence of maternal mental health disorders, there is a comparative lack of cross-cultural research on functional assessment (Bolton & Tang, 2002). It is important that future research not only examines the prevalence rates of such disorders but also their impact on function, which might provide a better indicator for women who need treatment.

3.5.3 Implications

Despite these methodological limitations the findings of the review have significant implications for service development. First, it shows that psychological disorders are prevalent in women in pregnancy and after birth with little recognition or treatment in Africa. Most African countries have no mental health policy and 96% of them have less than one psychiatrist per 100,000 population (WHO, 2001). Therefore, it is crucial that healthcare providers, especially those in maternal facilities, are aware of and can address psychological issues relating to pregnancy and childbirth. Considering that most pregnant women do not have antenatal and labour care in healthcare facilities but are overseen by traditional birth attendants (Lefebvre & Voorhoeve, 1997), it is important that strategies also involve the education of traditional birth attendants so they could refer vulnerable women to secondary care where necessary. Women themselves should also be educated about possible adjustment difficulties during and after pregnancy.

Finally this review highlights the importance of developing valid cross-cultural measures of mental health. Recent novel attempts to validate mental health measures in different cultures include Bolton and Tang's (2004) ethnographic approach to understanding how people from non-Western cultures think about mental health and mental health problems. Prince (2008) outlines three steps which should be considered when attempting to validate measures across cultures: 1) qualitative research to investigate the cultural relevance of the construct, 2) careful translation and adaptation of the measure, and 3) pre-testing and cognitive interviews on the population to be studied.

3.5.4 Summary and conclusions

This paper provides the first systematic review of the prevalence and associated risk factors for maternal mental health disorders in African women. Despite the diversity of methods and measures used to assess maternal mental health, this review indicates that psychological disorders are prevalent in African women during pregnancy and following childbirth; and that many risk factors are similar to those in developed countries. It is strongly encouraged that future research explores the full range of psychological disorders that women might experience, and continues to identify the risk factors for poor maternal mental health. This is essential to inform the development of maternal mental health services to strengthen and improve maternal health care programs in African countries.

4 Women's Experiences of Pregnancy, Childbirth, and the Postnatal Period in The Gambia: A Qualitative Study⁶

4.1 Abstract

In sub-Saharan African countries there are unique cultural factors and adverse physical conditions that contribute to women's experiences of pregnancy and birth. The objective of this study was to qualitatively explore women's experiences of pregnancy, childbirth, the postnatal period, and maternal psychological distress in The Gambia. Semi-structured interviews were carried out with 55 women who had given birth within the previous year. Thematic analysis identified five themes: (1) transition to adulthood, (2) physical difficulties, (3) value of children in relation to others, (4) children as a strain, and (5) going through it alone. The results suggest that having a child is a defining point in women's lives associated with happiness and joy. However, women also described situations which could lead to unhappiness and distress in the perinatal period. A child conceived out of wedlock or a baby girl can be sources of distress because of negative cultural perceptions. The strain of having a child, particularly the additional financial burden, and minimal support from men were also a concern for women. Finally, women recognised the physical danger associated with delivery and expressed recurrent worries of complications during childbirth which could result in the death of them or the baby. Further research is needed to identify women vulnerable to psychological distress so that health services and target interventions can be developed accordingly.

⁶ Sawyer, A., Ayers, S., Smith, H., Sidibeh, L., Nyan, O., & Dale, J. (2010). Women's experiences of pregnancy, childbirth, and the postnatal period in The Gambia: A qualitative study. *British Journal of Health Psychology*. DOI: 10.1348/135910710X528710.

4.2 Introduction

Pregnancy and the birth of a child are significant and challenging events in a woman's life, associated with considerable physical and psychological change. In developing countries the focus has understandably been on women's physical health and there has been comparatively little research exploring women's experiences of pregnancy and childbirth (Rodrigues, Patel, Jaswal, & de Souza, 2003). Qualitative studies in this area are invaluable as they allow an exploration of women's attitudes, perceptions, and emotions during pregnancy and childbirth in the context of women's lived experiences. For example, in developing countries there are often unique cultural factors and adverse physical conditions that contribute to women's experiences.

In many low income countries pregnancy and childbirth are associated with a substantial risk to the life of the mother and child. The highest maternal mortality rates are found in sub-Saharan Africa where in some countries there is an estimated one in 16 lifetime risk of dying during pregnancy and childbirth (World Health Organization [WHO], 2004a). It is also estimated that between 3% and 9% of pregnant women in West Africa experience severe maternal morbidity in pregnancy and labour, such as haemorrhage, obstructed labour, hypertensive disorders, and sepsis (Prual, Bouvier, de Bernis, & Bréart, 2000). Birth practices and traditions differ in developing countries from those observed in Western cultures. In some African regions many women do not use any health services during pregnancy; and there are high rates of deliveries at home and at mission houses, which are often overseen by traditional birth attendants (Adewuya, Ologun, & Ibigbami, 2006).

There is substantial literature identifying the importance of children in sub-Saharan Africa for both men and women (Hollos & Larsen, 2008). The significance of having children is related to economic, cultural, and spiritual factors (Inhorn & van

Balen, 2002). For example, in a subsistence economy children are important in providing a labour force and economic success has been shown to correlate with family size (Fortes, 1978). Childbearing also plays a central role in a woman's transition to adulthood, self-respect, and honour (Donkor & Sandall, 2007; Fortes, 1978).

Recent evidence suggests that women in developing countries can experience mental health problems during the pre- and postnatal period (Oates et al., 2004). A review found that African women experience depression during pregnancy and after birth at a similar rate to that reported in developed countries (Sawyer, Ayers, & Smith, 2010). Most research which has investigated maternal mental health in sub-Saharan Africa has utilised "Western" quantitative measures, specifically questionnaires or diagnostic clinical interviews, which are based on the ICD-10 (WHO, 1992) or the DSM-IV (American Psychiatric Association, 1994). Although designed to reflect the presentation of mental health disorders cross-culturally they may be biased towards descriptions of psychiatric disorders in Western settings (Halbreich et al., 2007). Questionnaires or diagnostic interviews based on these criteria may be insensitive to symptoms of psychological distress reported in non-Western cultures (Halbreich & Karkun, 2006). For example, in some sub-Saharan African cultures somatic symptoms may be manifestations of depression, which would not be picked up by commonly used measures of maternal mental health (Tomlinson, Swartz, Kruger, & Gureje, 2007). Qualitative research is therefore valuable in exploring women's mental health in developing countries as it avoids pre-conceived ideas of mental health.

The Gambia is one of the poorest countries in the world and has very high levels of maternal and infant mortality (WHO, 2004a), yet there is no previous qualitative research exploring Gambian women's experiences of pregnancy and childbirth. Furthermore only one study has examined maternal mental health in The Gambia. This

was part of an epidemiological study on general reproductive health which found approximately 6% of Gambian women were depressed during pregnancy and after childbirth (Coleman, Morison, Paine, Powell, & Walraven, 2006). Further research is needed to identify the causes of distress so that social and clinical interventions can be targeted accordingly. Therefore this study sought to address the gap in the literature by conducting in depth interviews with Gambian women to explore their experiences of pregnancy, childbirth, the postnatal period, and maternal psychological distress.

4.3 Method

4.3.1 Setting

The Gambia is a small, low-income country in West Africa with a population of approximately 1.48 million. Access to healthcare facilities is good, with over 85% of the population living within 3km of a primary healthcare or outreach health post. More than 90% of pregnant women receive antenatal care and about 50% of women give birth in a health facility (Anyah, Hydar, & Jaiteh, 2008; Cham, Sundby, & Vangen, 2005).

Women were recruited from the area of Old Jeshwang, an urban village in the Municipality of Kanifing. Kanifing is a city in the Western Division in The Gambia and has a population of 322,735. The official language is English but indigenous languages such as Mandinka, Wolof, and Fula are widely spoken. Religions are Islam (90%), Christianity (9%) and indigenous beliefs such as animism (1%).

4.3.2 Participants

Participants were eligible to take part in the study if they had given birth within the previous 12 months ($M = 8.0$, $SD = 3.6$). A total of 55 women were recruited from

Old Jeshwang Health Centre ($N = 20$) or the local community ($N = 35$). Women were approached at antenatal and postnatal clinics, which run at the health centre twice weekly. The researcher attended the clinics on both days and all attending women were approached. The researchers worked closely with a community member and head of a local women's group who helped identify potential participants in the community. All women who were approached agreed to be interviewed. Demographic and obstetric characteristics are given in Table 4.1. Women were aged between 18 and 46 ($M = 27.7$, $SD = 5.1$). Compared to the Gambian population there was a higher proportion of Mandinka women and a slightly lower proportion of Fula, Wolof, and Jola women. Women in polygamous marriages were also under represented (Gambia Bureau of Statistics, 2003). Data collection ended when no new information emerged from the interviews and data saturation had been achieved.

4.3.3 *Materials*

An interview schedule was designed consisting of 12 open-ended questions exploring women's experiences of pregnancy, birth, the postnatal period, and maternal psychological distress (see Appendix A). Gambian advisors (health care workers, university academics, and students) were consulted to ensure appropriateness of questions. A questionnaire was also verbally administered to obtain sociodemographic and obstetric information (see Appendix B).

Table 4.1 Sample characteristics of main demographic and childbirth variables

		<i>N</i> (%)
Ethnicity	Mandinka	30 (54.5)
	Fula	4 (7.3)
	Wolof	6 (10.9)
	Jola	3 (5.5)
	Other	12 (21.8)
Marital status ⁷	Single	8 (14.8)
	Married	31 (57.4)
	Polygamous Marriage	14 (25.9)
	Divorced/Separated	1 (1.9)
Level of education	None	16 (29.1)
	Basic	1 (1.8)
	Secondary	21 (38.2)
	Tertiary	14 (25.5)
	Other	3 (5.5)
Employed	Yes	18 (32.7)
	No	37 (67.3)
Number of children	One	21 (38.2)
	Two	9 (16.4)
	Three	9 (16.4)
	More	16 (29.1)
Miscarriage	Yes	12 (21.8)
Stillbirth	Yes	6 (10.9)
Pregnancy planned	Yes	33 (55.9)
Sex preference	Boy	20 (36.4)
	Girl	7 (12.7)
	No preference	28 (50.9)
Place of delivery	Hospital	30 (54.5)
	Health Centre	21 (38.2)
	Home	4 (7.3)
Type of delivery	Unassisted	52 (94.5)
	Caesarean	3 (5.5)

⁷ Missing data means *n* = 54.

4.3.4 Procedure

Ethical approval was obtained from ethics committees at the University of Sussex (Appendix C) and The Gambia Government/Medical Research Council Laboratories (Appendix D⁸). Three trained multilingual female research assistants from the University of The Gambia accompanied the principal investigator, which helped minimise the effects of a non-Gambian interviewer. We introduced ourselves as student researchers who were interested in women's experiences of pregnancy and childbirth. Interviews took approximately 30 minutes and took place either in the participant's compound or at the health clinic. Prior to the interview the study was explained to all women in a language they could understand, and they were assured that participation was voluntary. Participants were asked to sign the consent form to indicate their participation (or a thumbprint if illiterate). Interviews were conducted in the participant's first language and recorded with a tape recorder. Interviews in English were transcribed directly. Interviews in Mandinka, Wolof, Fula, and Jola were translated into English by Gambian research assistants which were then transcribed by the first author. Any ambiguities or interesting points that arose were discussed. All data collected in the study were stored anonymously with identifying details removed.

4.3.5 Analysis

Qualitative analysis of the transcripts was performed using inductive thematic analysis which is used to identify, describe, and analyse themes and patterns within data. A systematic approach was taken (Braun & Clarke, 2006). First, transcripts were read and re-read to become familiarised with the data and initial codes of interest were

⁸ This study received Chair's Approval whilst in The Gambia as noted in Appendix D.

generated. Second, initial codes were sorted into potential themes and relevant codes were collated under these themes. Third, themes were reviewed in relation to the generated codes and the entire data set. Finally, themes were named and defined. The qualitative analysis software WinMax was used to organise codes and themes.

4.4 Results

Thematic analysis of the interview transcripts yielded five themes: (1) transition to adulthood, (2) physical difficulties, (3) value of children in relation to others, (4) children as a strain, and (5) going through it alone. These themes are described below and illustrated using quotes from participants.

4.4.1 *Transition to adulthood*

For women pregnancy and childbirth signified a change in status. The experience of childbirth represented a transition to adulthood where having a baby was seen as a normative part of development, which every woman must experience to show their womanhood. Along with this new found status of adulthood came an increased sense of responsibility, which was viewed positively by the women. Before becoming mothers women indicated that they had very little responsibility in their own lives.

“it’s [having a baby] normal to show your womanhood” (I20).

“ Actually it makes me really think seriously about life, I am more planning about what to do and what not to do because I know that my baby needs me very much, so I have really become more responsible because anything I do I have to

think about my baby, financial plans in terms of future plans about family matters, about schooling you know...it's really made me a more responsible person"(I38).

Coupled with this increased responsibility women recognised that they were less able to do daily activities like seeing friends and spending time with their husband and working. Nonetheless, this was not viewed particularly negatively by women, as it is accepted when you have a child.

4.4.2 Physical difficulties

Physical difficulties associated with pregnancy and childbirth were a common complaint for women. Most women described the general toll that pregnancy and giving birth had on their health. Common ailments reported were sickness, stomach pain, loss of appetite, tiredness, and dizziness. However, these were considered as normal in pregnancy so were not a serious concern for most women.

"I feel bad because you know pregnant woman it's not a well woman, you're always sick"(I26).

Childbirth itself was physically strenuous and was primarily characterised by severe pain. Women indicated that although the pain they experienced was terrible they tolerated it as part of the normal birthing process. Indeed, most women held expectations that childbirth would be very painful. For women who had already given birth this expectation was based on previous difficult childbirth experiences. For first time mothers the expectation of pain was based on stories that other women and elders

had told. Women discussed practices they had been advised to follow to help reduce labour pain. For example, there is a belief that women should remain physically active throughout their pregnancy to maintain strength for when they give birth. Women who were not active during their pregnancy said they were worried about giving birth because they did not follow this advice.

“It’s nice to have a baby but it’s very painful. Even if you have a knife and cut my hand I can bear this pain, but this pain, ow, it’s super. I don’t think there is any pain like giving birth” (I24).

“when you are pregnant, especially when you are not working, everyone will tell you when you are deliver it’s going to pain. Because when you are pregnant you are supposed to work, so that your child will be active and you yourself will be active. But for me I did not do anything. So I was a little bit afraid. But anybody who see me sitting down they will just say when you deliver it’s going to be pain” (I19).

Women also recognised that there are serious threats to health and life during pregnancy and childbirth. Women voiced recurrent worries of complications which could result in them or their baby dying. This is reflected in the overwhelming relief and happiness expressed by women after childbirth that they had delivered safely and their baby was healthy.

“When I delivered safely I felt happy that my baby was sound and healthy and there was no complications with me and the child as well” (I51).

Losing a baby during pregnancy or birth was a cause of considerable distress and unhappiness for women. Women also reported feeling particularly anxious during their pregnancy because they were worried they would not have a normal delivery and would need an operation, which is associated with a heightened risk of complications. Women who had an operation during childbirth reported feeling scared that they might die, and being unable to care for their baby properly because of the long recovery time.

“I was expecting to have a baby when everything was destroyed and this made me very depressed. Considering the fact that I was pregnant up to seven months and eventually lost it [the baby] was a great disappointment for me. It was caused by complicated malaria because it was my first pregnancy and I was late to go for my antenatal consultations and to be given drugs to help me”(I39).

Women used their religious faith to help them cope with the worries they had about giving birth. There was a common belief that their fate was in God’s hands, and therefore they prayed to God to ensure a safe delivery.

“I think it is God who makes us suffer when we are pregnant and sometimes makes us happy. And this experience I went through I believe it is God who is saying I will suffer during pregnancy and childbirth, and I accept it in good faith”(I44).

4.4.3 Value of children in relation to others

The experience of pregnancy and having a child was strongly influenced by their value in relation to others. In The Gambia having children is one of the primary purposes of marriage and therefore many married women described feelings of delight when they found out they were pregnant. Some women also spoke of pregnancy guaranteeing security within their marriage. Not getting pregnant when married could lead to considerable distress for women. The woman often bears responsibility for not producing a child, and they may worry that the husband will either divorce them or take another wife if they do not get pregnant.

“so it [pregnancy] made me happy because by that time I am just married. I was praying to God before I get my pregnancy to keep me in husband”(I1).

Most pregnancies are expected to occur within marriage and having a baby out of wedlock is viewed as dishonourable. It was acknowledged that women who get pregnant under these circumstances may bring shame upon the family, and therefore may not be treated well or even be ostracised from the family. This was especially a concern when the baby’s father refused to acknowledge the pregnancy.

“When I was pregnant I was unhappy because you know I don’t get married when I am pregnant. Even your parents will not be happy with you. Because it is a mistake, that is the problem”(I14).

“You know sometimes these men can impregnate you and they will refuse the pregnancy and abandon you. You know all those things can bring depression.

You think too much, you know...and at the end of the day you will not be that much comfortable with yourself”(I6).

The sex of the baby also had significant implications for how women were treated by their husband and his family. More value is often placed on the birth of a boy in comparison to a girl. Women recognised that men preferred to have a boy, and women who gave birth to a boy were treated better by the husband and in-laws. Desire for the birth of a boy was particularly strong for women if they had previously only given birth to girls.

“Positive change.....all I know was after childbirth I was taken care of. My husband was also happy because he was pleased to have a baby boy, and you know, that was something that was very important, and the in-laws was switching from howling and yelling at me all the time, you know because of the preference for boy child. They now accept me in their family very well. So I think that’s a great positive change that we have”(I36).

4.4.4 Children as a strain

When pregnancy was planned and women were able to provide for their child, having a baby was assumed to bring happiness and joy. However, it was recognised among women that pregnancy can sometimes be unwanted because of difficulties associated with raising a child, particularly if a woman already has too many children or if the mother is young. Having a child placed a strain on finances and for women who already had a lot of children the addition of another child was viewed as a burden.

Additionally, young mothers worried that they were not financially ready to support a child.

“This is why there are certain things it is very tough, it could have negative impact on your family because you cannot provide everything for them, but you have to, because there are certain things that you cannot say no, like education. Because if you want to take them to, if you want them to have a quality education you have to pay out money. See, those are certain things too that can have a negative thing too. You have to buy food too” (I25).

Women who got pregnant when they were still at school spoke of having to stop their education, which resulted in regret and unhappiness. Being pregnant and having a child also put strain on the marital relationship, which was exacerbated when the relationship was in difficulty. A negative marital relationship was identified by the women as a cause of unhappiness.

“During this pregnancy I was sad almost throughout it because it was an unplanned one as I was going to school and never wanted pregnancy to interrupt my education. I was angry about it and could not abort it because the baby also has a right to live but it was painful to bear” (I34).

“if you want it and you have husband, you want to be pregnant, then you don’t have to be unhappy, you should be happy. If you don’t have husband, if you are raped or you have problem with your husband you will be unhappy because you will not be wanting your baby, it will be bringing you bad memories” (I19).

4.4.5 *We are on our own*

In The Gambia pregnancy and childbirth are viewed primarily as women's domains and men have limited involvement. This cultural attitude was reflected in most women describing that they were on their own during these times and received little assistance. Women strongly believed that having a child is a joint issue and husbands must share the responsibility with their wives.

“It's [pregnancy] a joint issue, it's a joint issue, so they have to participate also, but they don't do. They don't so much care about it” (I10).

Some women did speak of having supportive husbands, which helped them through their pregnancy and made their experience easier. Both emotional support such as being kind and loving, and practical support such as providing food were viewed as important. Lack of support from the husband was identified by many as reasons why women feel distressed and unhappy during the perinatal period.

“Men should be very much involved in this. If you have your husband by your side and your husband is encouraging you, bringing you food and giving you psychological support it will help you a lot. Like for instance, my husband will bring things, a lot of things for me to eat, saying this is good for your child. If he sees me, and I am not that much happy, he will come by my side and ask me whether something is wrong with me” (I37).

“when I had my baby my husband was not around and I did not have that much family around me, this was my first baby so it was very difficult when I had the

baby, most of the time I was alone at home taking care of the baby and taking care of the household chores so I was so tired and I became depressed and some nights I would cry”(I38).

Traditionally men do not attend births in The Gambia; however these women wished this attitude would change so that men could be present to offer support and encouragement. Many women felt if men were present with them during childbirth the relationship between husband and wife would be improved. Some women spoke of the hope that if men witnessed the pain that they went through when giving birth men would be more patient in the future and be less likely to beat them. Women also thought that men may have more respect for the women if they have witnessed the difficulty and pain that women experienced in order to have a child.

“When your wife is giving birth you be there, you see how painful. Because one day.....Maybe you like punish her, OK, you will think the day she was giving birth she was very tired and it was so painful, so you might think of that side and then you might leave her for the punishment you are about to do”(I24).

Finally, it should be noted that although many of the women were comfortable talking about their own and others’ negative emotional experiences, some women mentioned that others may not feel as comfortable. These women discussed issues of privacy surrounding emotional distress that mean women may not readily disclose their experiences:

“It’s not everybody that can have those kind of problems and explain to you.

You know, some people they keep it to themselves. Even if they have depression or any other problem, they keep it to themselves”(I6).

4.5 Discussion

The aim of this study was to explore women’s experiences of pregnancy, childbirth, and the postnatal period in The Gambia. This study draws attention to the range of physical and emotional experiences associated with pregnancy and childbirth in Gambian women. Rather than reiterate these results this discussion will focus on interesting points in relation to (1) the significance of children for Gambian women, (2) the experiences of psychological distress, (3) the involvement of men during childbirth, and (4) the ubiquity of pain in childbirth.

4.5.1 Significance of children

Consistent with past research (Geller, 2004), most women identified pregnancy and the birth of a child as positive experiences, associated with happiness and joy. Anthropological research suggests that having a child in sub-Saharan Africa might be especially positive for women for the following reasons. Firstly, social security reasons as children are seen as necessary for the families’ survival; secondly, social power reasons where the children are seen as a valuable power resource; thirdly, social perpetuity reasons where children continue the family heritage (Inhorn & van Balen, 2002). Consistent with these findings past research in The Gambia has shown that a childless marriage is a threat to marital stability (Sundby, 1997). This concern was reflected in the current study by women’s positive responses to pregnancy because of

the security it provided them within their marriage. Motherhood is also a defining factor in a woman's self-respect, in her understanding of what it means to be a woman, and in her treatment by others in the community (Dyer, Abrahams, Hoffaman & Spuy, 2002; Hollos & Larsen, 2008). This is consistent with women's responses in the present study where childbirth represented a transition to adulthood.

4.5.2 Experiences of psychological distress

Although pregnancy and the birth of their baby was a time of happiness for most women in this study, women also reported feelings of unhappiness and distress. This is consistent with quantitative research conducted in sub-Saharan Africa which suggests the perinatal period can be a time of considerable emotional distress for women (Sawyer et al., 2010). These findings are important because research has shown that maternal psychological distress can have adverse consequences for the mother's health, the early mother-infant relationship, and the child's health (Adewuya, Ola, Aloba, Mapayi, & Okeniyi, 2008; Halbreich & Karkun, 2006; Stewart, et al., 2009).

Women's experiences were closely related to the circumstances surrounding the pregnancy and childbirth. In particular to how the pregnancy and baby were viewed by others such as the husband and family. In The Gambia a woman who becomes pregnant without a husband might be viewed as promiscuous and single parenting is socially unacceptable. Therefore the stigma associated with being single may contribute to worse mental health (Adewuya, Ola, Aloba, Dada, & Fasoto, 2007). Moreover, in Gambian culture it is a thing of pride for the woman to have a man own up to being responsible for the pregnancy. Therefore if the father does not accept the child this may also be a source of distress. The economic burden of being a single parent is also likely to be a considerable worry as the women will not have financial support from the father of the child and because the child is born out of wedlock they risk being ostracised by

their family. Few studies have investigated rejected paternity as a risk factor for maternal psychological distress in Africa and future research should explore this further.

Women identified a preference for a male child in Gambian society, and this was acknowledged as particularly important for the husband. There is a deep-rooted cultural preference for a male child in sub-Saharan Africa as males continue the family lineage in patriarchal societies and are expected to look after their parents. Women are often blamed for the sex of the child, and not giving birth to a boy could lead to marital disharmony or the husband marrying another wife (Adewuya, Fatoye, Ola, Ijaodola, & Ibiagami, 2005). Giving birth to a girl has already been identified as a potential risk factor for postnatal distress in other African countries (Adewuya et al, 2005; Hanlon, Whitley, Wondimagegn, Alem, & Prince, 2009).

It was acknowledged that a child may not be wanted despite occurring within marriage, particularly if the woman is young, already has too many children, or is having marital problems. Being young and the demands of being a new mother are likely to be associated with significant stress especially if the woman is not financially prepared to have a child (Nakku, Nakasi, & Mirembe, 2006). The financial strain of having too many children reported in this study has also been replicated in a recent study of antenatal distress in Ethiopian women (Hanlon, Whitley, Wondimagegn, Alem & Prince, 2010).

Marital conflict has been consistently associated as a risk factor of postnatal depression in sub-Saharan African countries (Sawyer et al., 2010). Having a child within a difficult marriage could make the situation worse, leading to distress and unhappiness for women (Hanlon et al., 2010). Lack of support from the husband was also commonly identified as reasons for distress during the perinatal period. The important role of social support in maternal mental health has previously been

demonstrated in Europe, North America, and other sub-Saharan African countries (Adewuya et al., 2007; Beck, 2001).

Women's concerns about the dangers associated with pregnancy and childbirth are similar to findings reported in comparable studies in Ethiopia (Hanlon et al., 2009; Hanlon et al., 2010). Women were especially worried during their pregnancy about having an operation to help them deliver and women who had a caesarean section reported feeling very distressed. Studies conducted in other sub-Saharan Africa countries have identified caesarean sections as a risk factor for postnatal depression (Adewuya et al., 2005). Women in this study also spoke of their sadness when their baby died. Studies conducted in Nigeria have also identified pregnancy loss and stillbirth as risk factors for perinatal depression and studies have shown that women are scared to get pregnant again in case of a repeat occurrence (Adewuya et al., 2007; Obi, Onah, & Okafor, 2009). Therefore considering the high levels of maternal morbidity and perinatal deaths in The Gambia health care services need to be developed to address these women's needs. Future studies should also explore the long term reaction to perinatal loss in these women, especially during the next pregnancy.

4.5.3 Involvement of men during childbirth

In Gambian society pregnancy and childbirth are generally regarded entirely as a woman's domain. It is unlawful to allow a male (with the exception of medical staff) to be present during childbirth. Moreover, the open plan of the labour suites in The Gambia is a barrier to any male involvement. This contrasts with current western practice where men typically accompany their partner in childbirth. Most of the women in this study thought having their husband more involved during pregnancy and childbirth would be beneficial. Research from several countries suggests that father's

support during childbirth improves delivery outcomes such as significant reductions in length of labour, the amount of pain medication needed, and the need for emergency care for the baby (Pestvenidze & Bohrer, 2007). Considering these benefits it seems that men's involvement in childbirth should be promoted in The Gambia. However, more qualitative research is needed with Gambian men to explore their views on the roles of male partners in childbirth.

4.5.4 Ubiquity of pain

Finally pain during childbirth was a predominant experience for women in this study. Labour pain is one of the foremost similarities of women's childbirth experiences irrespective of socio-cultural background (Oladokun et al., 2009). In The Gambia pain relief given during labour is minimal and this may partly explain why the majority of women included in this study were willing to tolerate pain, believing it to be inevitable. There is little information on women's views about the use of pain relief during labour in sub-Saharan Africa but research conducted in Nigeria suggests that although women's knowledge was limited, they were positive about its use (Oladokun et al., 2009). Future research in The Gambia should explore women's knowledge and views of receiving pain relief during labour. Considering the ubiquity of pain reported by women in this study, healthcare services should consider introducing the option of pain relief during labour.

4.5.5 Limitations

Caution should be taken when generalising these results to all Gambian women. The study took place in an urban district of The Gambia, and may not be representative

of the general population. Many of the women were recruited from health centres and more women also gave birth at a health service than is typical in The Gambia. Women who do not have access to health facilities or who have home births are likely to give very different accounts of pregnancy and childbirth. For example, in rural Gambia the risk of complications and dying during childbirth is higher than in urban areas. Another limitation that should be considered is the method of translation used. Translation occurred prior to transcription, which could result in information being lost or distorted during the process.

4.5.6 Conclusion

In conclusion this study indicates that although motherhood is a defining point in many Gambian women's lives the circumstances surrounding pregnancy and childbirth have the potential to promote unhappiness and distress in women. This finding challenges the widely held belief that maternal distress is a Western phenomenon. It is essential that future studies continue to identify women vulnerable to psychological distress so that adequate health services and target interventions can be developed accordingly.

5 Posttraumatic Growth after Childbirth in the UK: A Prospective Study⁹

5.1 Abstract

A growing body of research has examined the potential for positive change following challenging and traumatic events, this is known as posttraumatic growth. Childbirth is a valuable opportunity to extend previous work on posttraumatic growth as it allows the role of different variables to be considered prospectively. The aim of the current study was to prospectively examine correlates of posttraumatic growth after birth in UK women, including sociodemographic and obstetric variables, social support and psychological distress, using a prospective, longitudinal design. 125 women completed questionnaires during their third trimester of pregnancy and eight weeks after birth. At least a small degree of positive change following childbirth was reported by 47.9% of women; however average levels of growth were lower than generally reported in other studies. A regression model of age, type of delivery, posttraumatic stress symptoms during pregnancy and general distress after birth significantly predicted 32% of the variance in growth after childbirth. The strongest predictors of growth were operative delivery (β .23 - .30) and posttraumatic stress symptoms in pregnancy (β .32). These findings emphasise the importance of assessing pre-event characteristics when considering the development of posttraumatic growth after a challenging event.

⁹ Sawyer, A., Ayers, S., Bradley, R., Young, D., & Smith, H. (in press). Posttraumatic growth after childbirth: A prospective study. *Psychology and Health*.

5.2 Introduction

A growing body of research suggests that positive changes can be experienced following traumatic experiences (see Calhoun & Tedeschi, 2006; Linley & Joseph 2004, for reviews). Posttraumatic growth (PTG) is defined as a positive change in one's belief or functioning as a result of the struggle with highly challenging life circumstances (Tedeschi, Park, & Calhoun, 1998). These positive changes are often reflected in personal relationships, self-perception and life philosophy (Tedeschi & Calhoun, 1995). Early research in this area focused on PTG following typically traumatic events, such as military combat (Fontana & Rosenheck, 1998), natural disasters (McMillen, Smith, & Fisher, 1997), and sexual assault (Frazier, Conlon, & Glaser, 2001). However, even highly stressful events, which are not necessarily traumatic, like some illnesses (Dirik & Karanci, 2008), work-related stress (Paton, 2005) and immigration (Berger & Weiss, 2002) have been shown to facilitate PTG. Therefore in this article we will refer to 'growth' rather than 'posttraumatic growth'.

The majority of research looking at psychological adjustment following childbirth has focused on negative outcomes such as depression, anxiety disorders, and more recently posttraumatic stress disorder (Brockington, 2004). In comparison, positive psychological outcomes following childbirth have been relatively ignored by research. Only one published study has explored psychological growth after childbirth (Sawyer & Ayers, 2009). This study found that half of the women reported at least a moderate degree of growth in response to childbirth. This finding provides initial support that growth can occur, not only following typically traumatic events, but also challenging developmental events. However, it should be noted that Sawyer and Ayers' (2009) results were based on a self-selected Internet sample, which might over represent symptomatic women (Ayers, Harris, Sawyer, Parfitt, & Ford, 2009).

Various theoretical models have been proposed to conceptualise the process through which growth occurs (Christopher, 2004; Joseph & Linley, 2005; Tedeschi & Calhoun, 2004). Although with some variation, most models hypothesise that the experience of a stressful event violates an individual's basic belief system and that some type of meaning making or cognitive processing to rebuild these beliefs occurs, resulting in perceptions that one has grown through the process (Horowitz, 1986; Janoff-Bulman, 2004). Such models also provide a framework for understanding individual differences in reports of growth. Tedeschi and Calhoun's cognitive processing model of growth (1995, 2004) emphasises the importance of pre-trauma variables (e.g. personality, demographic variables), event-related variables (e.g. objective severity, perceived threat or stress), and post-event variables (e.g. social support, distress) in the development of growth.

There is substantial empirical support for the role of these variables. For example pre-trauma variables such as being female (Milam, 2004), younger (Widows, Jacobsen, Booth-Jones, & Fields, 2005) and from an ethnic minority group (Tomich & Helgeson, 2004) are associated with higher levels of growth. Regarding event-related variables it is hypothesised that highly stressful events lead to more growth because such events are more likely to challenge fundamental assumptions, and therefore afford a greater potential for growth (Park, 1998; Stanton, Bower, & Low, 2006). However, it is important to distinguish between perceived stress and objective indicators of stress. For example in a group of breast cancer patients Cordova, Cunningham, Carlson, and Andrykowski (2001) found that growth was predicted by greater perceived life threat, but was unrelated to disease stage or treatment variables. These findings suggest that subjective appraisals of threat may be a more important determinant of growth than objective indices of severity. Indeed theoretical models argue that perceived stress is

more important than the objective characteristics of the event in determining growth (Joseph & Linley, 2005; Tedeschi and Calhoun, 2004).

Evidence on post-event factors has largely focused on support and distress. Social support systems are considered to influence the development of growth because the presence of supportive others may promote self-disclosure, stimulate cognitive processing and offer new perspectives, which can assist people to find positive meaning and to perceive growth (Schroevers, Helgeson, Sanderman, & Ranchor, 2010; Tedeschi & Calhoun, 2004). Similar to measures of stress, perceived support is thought to be a better indicator of whether someone's needs are being met rather than actual support (Lyons, 1991). In a sample of men with prostate cancer 6–18 months post treatment Kinsinger et al. (2006) found perceived social support was related to higher levels of growth. The importance of social support in the development of growth was confirmed by a recent meta-analysis of 46 studies which reported a moderate positive relationship between social support and growth following a range of stressful events (Prati & Pietrantonio, 2009). Although pre-event social support is thought to be important in the development of growth (Joseph & Linley, 2005) few studies have been able to test this relationship.

Finally, the role of post-event distress has been widely debated. A common question within the literature is the nature of the relationship between psychological distress and growth. According to Tedeschi and Calhoun's model (1995, 2004) psychological distress and growth are separate dimensions and a certain degree of distress is a prerequisite for growth. However, the current literature is inconclusive and inconsistent. For example some studies have found that higher levels of distress predicted higher levels of growth (e.g. Barakat, Alderfer, & Kazak, 2006), whilst some studies reported that lower levels of distress predicted more growth (e.g. Urcuyo,

Boyers, Carver, & Antoni, 2005). Other studies have found no relationship between distress and growth (e.g. Cordova et al., 2001).

One possible explanation for these inconsistent findings is differences in how distress is operationalised. The concept of “distress” is very broad and can be operationalised as global distress (e.g. Danoff-Burg & Revenson, 2005; Pakenham, 2005), or in terms of symptoms of psychopathology (e.g. Kleim & Ehlers, 2009; Updegraff et al., 2002), or more specific symptoms of posttraumatic stress (e.g. Cordova et al., 2001; Harms & Talbot, 2007; Widows et al., 2005). These are likely to be related to growth in different ways. For example specific measures of mental health outcomes such as posttraumatic stress may be more likely to be related to growth in comparison to global measures of distress (Helgeson, Reynolds, & Tomich, 2004; Park, 2004). These inconsistent findings therefore underscore the importance of examining the relationship between different types of measures of distress and growth.

From a theoretical viewpoint, studying growth following childbirth is a valuable opportunity to further clarify the development of growth prospectively. Most studies in the growth literature begin after the event and few studies have pre-event measures of distress or support that may be important in the development of growth. Moreover, current models of growth do not explicitly discuss how such variables are likely to influence growth. Therefore it is still to be determined how distress and support before an event relate to growth after the event. Childbirth is a naturally occurring and predictable event, which allows the role of different variables in the development of growth to be considered prospectively. As such the current study aims to extend previous work by using a prospective, longitudinal design to examine the role of pre-event factors (demographics, distress, support), event factors (birth events and subjective appraisal of birth), and post-event factors (distress, support) in growth. The

aims of this study are threefold. The first aim is to explore the relationship between pre-event distress (assessed by a general measure of distress and a specific measure of posttraumatic stress symptoms) and support during pregnancy and growth after childbirth. The second aim is to explore the relationship between post-event distress (assessed by a general measure of distress and a measure of posttraumatic stress symptoms in response to childbirth) and postnatal support and growth after childbirth. It is hypothesised that greater levels of growth following childbirth would be predicted by greater support during pregnancy and following childbirth. As previous research has yielded mixed findings regarding the relationship between distress and growth no specific hypotheses will be offered. The third aim is to examine which pre-event, event and post-event factors best predict growth after childbirth.

5.3 Method

5.3.1 Participants

Women were recruited if they were at least 28 weeks pregnant, spoke English well, and were at least 18 years of age. Pregnant women were recruited from two hospital clinics and from a community antenatal class in South East England. There were no differences between these samples with respect to demographic (age, education, employment status, ethnic group, marital status, accommodation type), obstetric (obstetric history, gestation, parity, type of delivery, pain, length of labour), and the main study variables (growth, general distress, posttraumatic stress symptoms, social support) therefore the samples were analysed together. Of the 230 eligible women approached 161 (70%) agreed to participate and took a questionnaire to complete whilst at the clinic or at home. Of these, 125 women completed the questionnaire at Time 1 (77.6% response rate) and at Time 2 96 (76.8% response rate) completed the postnatal assessment. Comparing women who completed the follow-up with those who dropped out on demographic, obstetric, and psychological variables, women who did not complete the postnatal assessment had higher general distress scores during pregnancy ($M = 7.06$, $SD = 3.60$) than those who completed the postnatal assessment ($M = 4.94$, $SD = 3.64$), $t(123) = 2.79$, $p < .01$).

5.3.2 Design and procedure

This was a prospective, self-report study that examined psychological wellbeing in women during pregnancy and after childbirth. Women completed questionnaires at

two time points: Time 1 at 28+ weeks gestation ($M = 32.29$, $SD = 3.66$) and Time 2 at eight weeks postpartum ($M = 8.72$, $SD = 2.72$).

Ethical approval was obtained from the NHS Local Research Ethics Committee (Appendix E). When women agreed to participate, their contact details and expected date of delivery were recorded. They were given consent forms and the first set of questionnaires along with a prepaid envelope. Women completed the questionnaires at the clinic/class or at home if it was preferable. Expected dates of delivery were monitored and maternity ward registers checked to find out when women had their baby so the second set of questionnaires could be sent to the women approximately eight weeks after birth. At both time points if the women had not returned the questionnaire within 21 days they were followed-up a maximum of three times either by mail or by phone.

5.3.3 Measures

Demographic and obstetric information

Participants provided information on their age, education level, ethnic group, marital status, accommodation, number of children, employment status, pregnancy details, and obstetric history (Appendix F). Birth details, including weeks since birth, type of delivery, length of labour, and pain during labour (using a 10-point visual analogue scale), were also collected at Time 2 along with one yes-no question that assessed whether childbirth was perceived as traumatic (Appendix G).

Distress

Distress was measured both in terms of general symptoms of psychopathology and specific symptoms of posttraumatic stress. General distress was measured during

pregnancy and after childbirth using the Self-Reporting Questionnaire-20 (SRQ-20; (Harding, De Arango, & Baltazar, 1980) (Appendix H), which is a World Health Organization designed brief measure of common mental disorders. It consists of 20 questions with ‘yes/no’ answers exploring symptoms of depression, anxiety and somatic manifestations of distress. The questionnaire has been shown to have high reliability and validity in the UK (Beusenbergh & Orley, 1994; Winston & Smith, 2000). In the current study, internal reliability for the SRQ-20 was 0.81 at Time 1 and 0.79 at Time 2.

Posttraumatic stress symptoms during pregnancy (Time 1) were assessed with the Impact of Event Scale - Revised (IES-R; Weiss & Marmar, 1997) (Appendix I). This is a 22-item questionnaire based on the original 15-item IES of Horowitz, Wilner, and Alvarez (1979). It provides an assessment of symptoms of posttraumatic stress focused on intrusive thoughts (8 items), avoidant behaviours (8 items), and symptoms of hyperarousal (6 items). Respondents are asked to identify a specific stressful life event and then to rate the items on a 5-point scale according to how much they were distressed or bothered during the past 7 days by each “difficulty listed”, ranging from not at all (0) to extremely (4). The scale has high reliability of 0.88 in women who have recently given birth (Olde, Kleber, van der Hart, & Pop, 2006). In the current study internal reliability for the IES-R was 0.94.

Childbirth related PTSD symptoms at Time 2 were measured using an adapted version of The Posttraumatic Stress Diagnostic Scale (PDS; Foa, Cashman, Jaycox, & Perry, 1997) (Appendix J). This scale has been frequently used to assess posttraumatic stress symptoms in relation to childbirth (e.g. Ford, Ayers, & Bradley, 2010; Parfitt & Ayers, 2009). The PDS corresponds to all DSM-IV criteria. Criterion A is measured by items asking about perceived threat to life or physical integrity of self (2 items) or others (2 items) and response of helplessness and terror (2 items). Symptoms are

measured using 17 self-report items (5 intrusion, 7 avoidance, and 5 arousal items), which are scored on a 4-point scale (0 - 3) and total scores range from 0 to 51. Women were instructed to answer all questions in relation to childbirth. The questionnaire also measures symptom duration (Criterion E). Impairment of overall functioning is measured with a yes/no response scale. In addition, impairment to eight specific areas of life is measured (e.g. work, sex life, relationships, and leisure activities). Impairment is considered present if respondents state either that their overall level of functioning has been affected or if they indicate that two or more specific areas of their life have been affected. History of trauma is measured with a checklist of 12 events. This was calculated as presence or absence of a history of trauma. The diagnosis of PTSD requires that the individual's responses meet the following criteria: presence of physical injury or life threat, a sense of feeling helpless or being terrified during the event; endorsement (rating of one or higher) of at least one re-experiencing symptom, three avoidance symptoms, and two arousal symptoms, duration of at least one month; and impairment in at least one area of functioning. The PDS also provides a symptom severity score, which is obtained by summing scores of the 17 symptom items. The PDS has high reliability of 0.92 (Foa et al., 1997) and when used as a diagnostic measure it demonstrates 82% agreement with structured clinical interviews. In the current study, internal reliability for the PDS was 0.87.

Posttraumatic growth

Growth was measured after childbirth using the Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996) (Appendix K). The PTGI is a 21-item scale designed to assess positive change following challenging events. The scale measures five factors: New Possibilities (5 items), Relating to Others (7 items), Personal Strength

(4 items), Spiritual Change (2 items), and Appreciation of Life (3 items). Ratings are made on a 6-point Likert scale ranging from "I did not experience this change as a result of my crisis" (0) to "I experienced this change to a very great degree as a result of my crisis" (5). Intermediate scores were "to a very small degree" (1), "to a small degree" (2), "to a moderate degree" (3), and "to a great degree" (scored 4). The range of scores is 0 to 105, with a higher score indicating greater growth. In a similar method to Widows et al. (2005) the proportion of PTGI items endorsed at a "small degree" or greater (≥ 2) was calculated for the PTGI total and individual subscales. The prompt and items can be keyed to a specific event and in this study instructions specified that women rate the degree to which change occurred in their life as a result of their recent experience of birth. In the current study, internal reliability for the PTGI was 0.95 and reliability for the subscales ranged from 0.66 – 0.84.

Factor structure of PTGI

As per the recommendation of Bellizzi et al. (2010), the factor structure of the PTGI was examined using a principal components analysis. Eigenvalues over one indicated that four factors should be extracted, which together accounted for 66.7% of the variance. However, the scree plot clearly showed a one factor solution. Cattell's (1996) scree test is considered more reliable because it is not affected by the number of variables in the analysis (Zwick & Velicer, 1986). Therefore a forced one component solution was conducted, which accounted for 47.6% of the variance. The Kaiser-Meyer-Olkin (KMO) measure of sample adequacy was 0.88, indicating that the sample size ($n=93$) is adequate for principal components analysis (Kaiser, 1974). This one component solution showed that all items loaded greater than .37 on the one component. Therefore in the present study only the total score was used in the regression analysis,

although the descriptives are reported for the five subscales of the PTGI for comparative purposes.

Social support

The Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988) (Appendix L) was used to assess social support during pregnancy and after birth. The MSPSS is a 12-item scale designed to assess three domains of perceived social support – support from friends, from family, and from one's significant other. Each item is rated on a 1 to 7 Likert scale, with higher scores indicating greater support. The scale may be scored to give three subscales (Friends, Family, Significant Other) which can be summed to yield a Global support score. High internal consistency for each of the subscales (Friends = 0.93 - 0.94, Family = 0.92, and Significant Others, = 0.93 - 0.94) has been reported in student and psychiatric samples (Clara, Cox, Enns, Murray, & Torguude, 2003). In the current study, internal reliability for the MSPSS was 0.94 at Time 1 and 0.93 at Time 2.

5.3.4 Statistical analysis

Missing data was prorated by substituting the individual participant's average for each scale if less than 25% of data were missing. Data screening indicated the majority of variables (with the exception of the PTGI) were skewed therefore non-parametric tests were used where possible. The relationships between demographic, childbirth, and psychosocial variables with growth were examined initially using mean differences and Pearson's or Spearman's correlations where appropriate. The strength and uniqueness of relationships were then examined in a hierarchical multiple

regression analysis¹⁰, which allowed for control over possible confounding variables. Variables were entered into the regression analyses using the forced entry method. For all analyses, a p value equal to .05 was used as the limit of statistical significance. Where a direction in the hypotheses has been specified, analyses were one-tailed; otherwise analyses were two-tailed.

5.4 Results

5.4.1 Sample characteristics

Demographic and childbirth characteristics for participants are shown in Table 1. Women were aged between 18 and 42 ($M = 31.86$, $SD = 5.61$). The majority of women were white European and were either married or cohabiting. The sample was highly educated with 61.9% of the sample having a degree or professional qualification. Women generally reported no problems with their current pregnancy (64.4%) and most women were pregnant with either their first or second child (84%). Over half of the women had a normal vaginal delivery (55.2%).

¹⁰ According to Field (2009) the predictors do not need to be normally distributed to conduct a multiple regression analysis. The assumptions of multicollinearity, homoscedasticity, independent errors, and normally distributed errors were all met.

Table 5.1 Sample characteristics of main demographic and childbirth variables

		<i>N (%)</i> ¹¹
Marital Status	Married	69 (55.2)
	Living with partner	41 (32.8)
	Partner	6 (4.8)
	Single	6 (4.8)
	Separated/Divorced	3 (2.4)
Ethnicity	White European	111 (88.8)
	Chinese	2 (1.6)
	African	1(0.8)
	Indian	1 (0.8)
	Pakistani	1 (0.8)
	Mixed race	3 (2.4)
	Other	6 (4.8)
Education level	None	6 (4.8)
	GCSE	20 (16.0)
	A Level	10 (8.0)
	Diploma	10 (8.0)
	Degree	28 (22.4)
	Higher degree	16 (12.8)
	Professional	31 (24.8)
Other Children	0	54 (43.2)
	1	51 (40.8)
	2	8 (6.4)
	3 or more	8 (6.4)
Delivery Type (T2) ¹²	Normal	53 (55.2)
	Assisted	8 (8.3)
	Planned CS	15 (15.6)
	Emergency CS	19 (19.8)
Traumatic	Yes	26 (27.7)
Pain (Mean (<i>SD</i>))	Range 1 – 10	7.14 (2.86)

¹¹ Missing data means *n* ranges from 119-125.¹² Missing data means *n* = 95.

5.4.2 Descriptive statistics

Means and standard deviations for the main variables are presented in Table 5.2. Growth scores ranged from 0 to 89 out of a possible range of 0 to 105. Women experienced a small amount of growth following childbirth ($M = 39.81$, $SD = 24.06$). 47.9% of the sample reported at least a small degree (≥ 42 on the PTGI) of positive change following childbirth. Using similar criterion for the five subscales of the PTGI, the most endorsed domain of growth was appreciation of life (68.1%, ≥ 6 on this subscale), followed by personal strength (52.1% ≥ 8 on this subscale), relating to others (51.1% ≥ 14 on this subscale), new possibilities (44.7% ≥ 10 on this subscale) and spiritual change (22.3% ≥ 4 on this subscale).

Childbirth fulfilled PTSD stressor criterion A for 23.2% of women and 3.2% of the sample met full criteria for PTSD related to childbirth. There were no differences between women with PTSD and women without PTSD for presence of previous trauma history (*ns*, Fisher's exact test). 12.6% of women thought that their life was in danger and 9.5% thought that their baby's life was in danger.

Table 5.2 Posttraumatic growth and main study variables

	Mean (<i>SD</i>)	Median
PTGI Total	39.81 (24.06)	41.00
New possibilities	8.36 (8.36)	8.5
Relating to others	13.67 (9.30)	14.5
Personal strength	8.22 (5.60)	8.00
Spiritual change	1.73. (2.36)	0.00
Appreciation of life	7.81 (4.54)	8.00
SRQ-20 Time 1	5.45 (3.73)	5.00
SRQ-20 Time 2 ¹³	4.06 (3.48)	3.17
IES-R Total	1.08 (0.80)	0.93
Intrusions	1.33 (0.97)	1.13
Avoidance	0.97 (0.86)	0.75
Hyperarousal	0.89 (0.91)	0.67
PDS Total	4.86 (6.04)	3.00
Re-experiencing	1.32 (2.25)	0.00
Avoidance & numbing	1.42 (2.78)	0.00
Arousal	2.11 (2.52)	1.00
MSPSS Total Time 1	6.02 (1.02)	6.08
Significant Other	6.38 (1.18)	7.00
Family	5.82 (1.33)	6.25
Friends	5.82 (1.10)	6.00
MSPSS Time 2	5.98 (0.98)	6.25
Significant Other	6.34 (1.13)	7.00
Family	5.76 (1.31)	6.25
Friends	5.84 (1.19)	6.00

¹³ SRQ-20 scores were significantly higher during pregnancy compared to after childbirth, $T = 1331.50$, $p < .05$.

5.4.3 *Relationship between pre-event, event and post-event variables and growth*

Analyses of demographic variables found no significant associations between these variables and growth, with the exception of age, which was negatively associated with growth ($r = -.24, p < .05$). Analyses of birth variables showed that growth was associated with type of delivery ($F(3, 89) = 3.32, p < .05$). Post hoc comparisons using the Bonferroni test revealed that growth was significantly higher if women had an elective caesarean section in comparison to a normal, instrumental delivery or emergency caesarean section ($p < .05$). There were no significant differences in growth between those who did and did not meet the diagnostic criteria for PTSD ($t(91) = 1.75, ns$) and those who did and did not fulfill stressor criterion A ($t(91) = 0.17, ns$).

Table 5.3 displays the relationships between measures of distress, support and growth. The first hypothesis was not supported, in that growth was not related to social support at Time 1 or Time 2. In comparison growth was related to posttraumatic stress symptoms in pregnancy and general distress after birth. However, it was not significantly related to general distress during pregnancy or posttraumatic stress symptoms related to birth. Therefore women who reported higher trauma symptoms during pregnancy reported higher levels of growth after childbirth and women who reported higher postnatal levels of general distress reported higher levels of growth after childbirth.

5.4.4 Regression model of the relationships between pre-event, event, and post-event variables and growth

A hierarchical multiple regression was conducted to examine the contribution of the significant pre-event factors (age, PTSD symptoms), event factors (type of delivery) and post-event factors (general distress) to growth. The final model was significant and explained 32.3% of the variance in growth scores and is given in Table 5.4. The strongest predictors of growth in this model were PTSD symptoms during pregnancy (i.e. women with higher PTSD symptoms during pregnancy experienced higher levels of growth following childbirth) and type of delivery (i.e. women who have had a caesarean section (emergency or elective) were more likely to experience higher levels of growth after childbirth than women who had a normal vaginal delivery).

Table 5.3 Correlations between study variables

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1.PTGI Total	1											
2. PTGI NP	.92***	1										
3. PTGI RO	.90***	.75***	1									
4. PTGI PS	.88***	.80***	.69***	1								
5. PTGI SC	.53***	.43***	.43***	.35**	1							
6. PTGI AL	.80***	.74***	.58***	.68***	.35**	1						
7.SRQ-20 (T1)	.18	.20*	.18	.19	.02	.10	1					
8. IES-R (T1)	.42***	.41***	.37***	.40***	.08	.37***	.55***	1				
9. MSPSS (T1)	-.04	-.07	.02	-.08	-.12	.05	-.28**	-.34***	1			
10.SRQ-20 (T2)	.30**	.22*	.24*	.33**	.11	.31**	.40***	.35**	-.18	1		
11. PDS (T2)	.13	.05	.09	.19	.01	.20	.36***	.42***	-.15	.56***	1	
12.MSPSS (T2)	.03	.02	.01	-.05	.05	.07	-.19	-.32**	.75***	-.19	-.22*	1

Note. PTGI = posttraumatic growth inventory, NP = new possibilities, RO = relationship with other, PS = personal strength, SC = spiritual change, AL = appreciation of life, SRQ-20 = self reporting questionnaire-20, IES-R = impact of events scale – revised, MSPSS = the multidimensional scale of perceived social support, PDS = posttraumatic diagnostic scale. * $p < .05$, ** $p < .01$, *** $p < .001$

Table 5.4 Predictors of total growth score

	Model 1	Model 2	Model 3
	β	β	β
Age	-.17	-.09	-.08
PTSD symptoms (T1)	.35	.38***	.32**
Assisted Delivery		-.05	-.04
Emergency CS		.23*	.23*
Elective CS		.29**	.30**
General distress (T2)			.15
R^2	.19	.31	.32
F	9.93***	7.18***	6.45***

Note. Delivery type was dummy coded with normal delivery as the baseline category as this was the most common form of delivery. * $p < .05$, ** $p < .01$, *** $p < .001$

5.5 Discussion

The primary aim of this study was to prospectively explore how pre-event factors, event factors, and post-event factors relate to growth after childbirth. Women in this sample experienced lower levels of growth in comparison to another study which looked at growth after childbirth (Sawyer & Ayers, 2009). However, they reported similar levels of growth to the survivors of colorectal cancer (Salsman, Segerstrom, Brechting, Carlson, & Andrykowski, 2009) and former refugees (Powell, Rosner, Butollo, Tedeschi, & Calhoun, 2003). In general however, scores on the PTGI in this sample were lower than the majority of PTGI scores reported in other populations. All five domains of growth were endorsed, with the appreciation of life domain showing the most change. Women reported the least amount of growth in the spiritual change

domain. This pattern is similar to the previous study of growth in postnatal women (Sawyer & Ayers, 2009).

5.5.1 Variables associated with growth

In general demographic variables were not related to growth. The only demographic variable related to growth was age, with younger participants reporting higher levels of growth. This is consistent with previous studies following a range of events (Helgeson et al., 2006; Kinsinger et al., 2006; Linley & Joseph, 2004; Powell et al., 2003). Tedeschi and Calhoun (2004) hypothesise that younger people might be more open to learning and changing, whereas older people might be less amenable to change. However, a relationship between age and growth has not been reported consistently across studies (Aldwin, Levenson, & Kelly, 2009).

The only birth event variable which predicted growth was type of delivery with women who had a caesarean section (elective or emergency) displaying higher levels of growth in comparison to women who had a normal vaginal delivery. This finding is consistent with the view that more severe events stimulate greater growth because they are more likely to challenge fundamental assumptions (Park, 1998; Stanton et al., 2006). An obstetric procedure such as a caesarean section may contribute to the stressfulness of the delivery experience, and therefore increase the traumatic nature of the event (Olde, Van Der Hart, Kleber, & Van Son, 2006). However, it should be noted that other subjective indicators of birth stress such as pain during labour, rating the birth as traumatic and childbirth meeting the criteria for a traumatic stressor, were not significantly related to growth.

Contrary to predictions pre- and postnatal assessments of social support were not associated with growth following childbirth. This finding is in contrast to current

theoretical models which suggest that social support plays an important role in the development of growth (Joseph & Linley, 2005; Tedeschi & Calhoun, 1995, 2004). However, previous studies have also failed to find a significant relationship between social support and growth (Sears, Stanton, Danoff-Burg, 2003; Widows et al., 2005). One explanation for these contradictory results is that different types of support may play a differing role in the development of growth. Schroevers et al. (2010) examined three different types of social support (perceived availability of social support, actual emotional support received and satisfaction with actual emotional support received) and their relationship to growth in cancer patients. They found that actual received emotional support from family and friends predicted higher levels of growth, and in comparison perceived availability of emotional support was not significantly related to positive outcomes. This finding is consistent with cognitive processing theories of growth as talking to others may facilitate cognitive processes and coping responses that may promote positive change, and merely just perceiving others to be available is not sufficient to stimulate these processes. Therefore this study points to the importance of assessing different types of support in future studies examining the relationship between growth and support.

The relationship between pre- and postnatal measures of distress and growth after childbirth was mixed. Growth was unrelated to concurrent measures of PTSD symptomatology in relation to childbirth, which is consistent with the observations of a number of other studies (Cordova et al., 2007; Sears et al., 2003; Widows et al., 2005). This finding initially supports the view that distress and growth are independent, as opposed to bipolar, constructs that can co-exist (Tedeschi & Calhoun, 1995, 2004). However, in comparison, a positive relationship was reported between general postnatal distress and growth (although it did not significantly predict growth in the regression

model). This finding is in contrast to previous assertions that growth should be more closely linked to specific measures of mental health in comparison to global measures of distress (Helgeson et al., 2006). One explanation which might account for this discrepancy is the possibility of a curvilinear relationship between distress and growth. Recent studies have explored a curvilinear relationship between growth and PTSD symptoms and found the highest levels of growth were reported by those who endorsed moderate levels of PTSD symptoms (Butler et al., 2005; Kleim & Ehlers, 2009). It is thought that low levels of distress may not be sufficient to induce growth whereas overwhelming levels of distress may inhibit growth (McCaslin et al., 2009). Women displayed low levels of postnatal PTSD symptoms compared to previous studies (Keogh, Ayers, & Francis, 2002; Parfitt & Ayers, 2009) and if a curvilinear relationship is assumed a limited level of PTSD symptoms could plausibly yield no relationship with growth (McCaslin et al., 2009). Furthermore, the low levels of PTSD symptoms reported by women in the study may not have been sufficient to induce growth, which might explain the low growth scores reported in this sample in comparison to previous studies. In comparison, moderate levels of general postnatal distress were reported, which might lead to higher levels of growth. Therefore, a curvilinear relationship could account for the lack of relationship between growth and PTSD symptoms, and a positive relationship between growth and general distress, as observed in this study.

In comparison general psychological distress during pregnancy was not associated with growth. However, the main predictor of growth after childbirth was posttraumatic stress symptoms during pregnancy. Women who displayed higher levels of posttraumatic stress symptoms during pregnancy reported higher levels of growth after childbirth. A number of explanations could account for these findings. According to Tedeschi and Calhoun's (1995, 2004) model of growth, an event must be perceived

as challenging enough to the assumptive world to set in motion the cognitive processing necessary for growth to occur. Therefore, women experiencing higher levels of posttraumatic stress symptoms during pregnancy may be more psychologically vulnerable and childbirth may be more likely to be perceived as a crisis (Söderquist, Wijma, Thorbert, & Wijma, 2009), which in turn will initiate the processes necessary for growth. In comparison, those women who are not as vulnerable may not perceive childbirth as a crisis and therefore display less distress, and with no sense of crisis there is no reason to expect growth either.

Alternatively, this finding can also be explained using Schaefer and Moos' (1998) model of growth. According to this model a number of factors influence adaptation following a challenging event including the nature of the crisis, personal and environmental resources, cognitive appraisals of the event, and coping responses. This model conceptualises prior experience of life crises as a personal resource, as prior experience should enhance people's self-efficacy and coping strategies. For example, Phifer and Norris (1989) examined psychological adaptation of individuals who experienced floods in Kentucky, and found that those who had experienced prior floods adapted better to new floods than those who had not. However, previous studies have failed to report a relationship between prior crisis experience and growth following a later trauma (Frazier, Tashiro, Berman, Steger, & Long, 2004; Park, Cohen, & Murch, 1996). However, these studies only included a checklist of prior trauma experience as opposed to an assessment of current psychological distress in response to a trauma.

Therefore these findings indicate that the relationship between distress and growth varies depending on the type of measure used to assess distress (i.e. a global or specific measure) and when it is assessed (i.e. before or after the event). Nonetheless, in this study PTSD symptoms, specifically during pregnancy, were a strong predictor of

growth following childbirth. This suggests that pre-event mental functioning is important in the development of growth and additional research is needed to explore this possibility further to inform current theories of growth.

5.5.2 *Limitations*

A number of limitations should be considered when interpreting the results from this study. First, analyses indicated that non-responders were significantly more likely to have higher levels of general psychological distress. Thus the prevalence of postnatal distress in this sample is likely to be an underestimate and this should be considered when interpreting the relationship between growth and distress. Second, the current sample was relatively small and was composed primarily of highly educated white European women; both are factors which limit the generalisability of these results. Third, the timing of assessment of growth needs to be considered. Growth was assessed at approximately eight weeks after childbirth. Research suggests that growth is unlikely to occur shortly after a critical event and is more likely to be reported in hindsight (Tedeschi & Calhoun, 2004; Joseph & Linley, 2005). Therefore the short follow-up could be another possible explanation for the relatively low levels of growth reported by the women in this study. Moreover, a meta-analysis reported that there were stronger links between growth and adjustment measures when there were two or more years since the stressor (Helgeson et al., 2006). Therefore future studies of growth after childbirth need to be continued to also assess medium and long-term positive changes. Fourth, the mean PTSD score after birth was very low, thus introducing the possibility of a floor effect, which would make it difficult to document a relationship between posttraumatic stress and growth. There are also many other variables that may be associated with growth such as personality dispositions (e.g. optimism), coping

strategies, and positive mental health outcomes (e.g. positive affect) that were not assessed in this study and should be incorporated in future studies. The MSPSS also appeared to have produced ceiling effects with most women scoring in the upper range, which may account for the lack of relationship reported between support and growth. Therefore future studies should use a scale which is more sensitive to differing levels of support. Finally, growth was measured in relation to childbirth, and therefore this study does not take into account the possibility of growth during pregnancy.

Despite these limitations, the results from this study make an important contribution to the literature. First, research on positive changes following childbirth is limited. Research suggests that many women experience high levels of distress during and after childbirth, and the consequences for growth have not been explored. Many women in this study reported at least a small amount of growth so whilst monitoring symptoms of distress following childbirth clinicians need also to be sensitive to the potential for positive change. Moreover, by using a prospective design pre-event measures of distress and social support were obtained. The current study extends the previous empirical literature by showing that pre-event distress is an important predictor of growth following childbirth. This research underscores the importance of taking into account pre-event characteristics of the individual when examining growth; and childbirth provides a valuable opportunity to prospectively explore these variables.

6 Posttraumatic Growth after Childbirth in The Gambia: A Prospective Study¹⁴

6.1 Abstract

Childbirth is a significant and challenging life event for many women with the potential for both positive and negative psychological changes. Most research on posttraumatic growth (PTG) has been conducted in Western, developed countries and therefore little is known about positive psychological changes following challenging events in non-Western cultures. Therefore the aim of this study was to examine PTG in Gambian women following childbirth and to identify correlates of PTG after birth, specifically focusing on sociodemographic and obstetric variables, social support, and psychological distress. Women ($N=101$) completed questionnaires during their pregnancy and approximately three months postpartum. 63.5% of women scored above the midpoint on the adapted scale of growth after childbirth. Hierarchical multiple regression analyses showed that lower education, unemployment, and postnatal social support predicted higher growth scores after childbirth. Obstetric variables were not related to PTG. The results of this study suggest that women from non-Western countries also report PTG following childbirth. Further research is needed to explore how cultural elements are manifested in the experience of PTG.

¹⁴ Sawyer, A., Ayers, S., Sidibeh, L., Nyan, O., & Smith, H. (in preparation). Posttraumatic growth after childbirth in The Gambia: A prospective study.

6.2 Introduction

In developing countries labour and the birth of a child are often associated with considerable physical difficulty and life-risk. The World Health Organization (WHO) estimates that women in sub-Saharan Africa have a one in 16 lifetime risk of dying during pregnancy and childbirth, compared with one in 2,800 in developed regions (WHO, 2004a). Maternal morbidity is also high, with prevalence rates ranging between 3 and 9%, of which haemorrhaging, obstructed labour, pregnancy-induced hypertension, malaria, anaemia, and HIV/AIDS are common causes (Pruhal, Bouvier, de Bernis, & Bréart 2000; WHO, 2004a). Understandably, in developing countries the focus has been on the physical health of the mother and infant, although maternal mental health in developing countries is increasingly recognised as important. Research suggests that women in sub-Saharan Africa experience psychological disorders during pregnancy and after childbirth at a similar or even higher rate in comparison to women in Western, developed countries (Sawyer, Ayers, & Smith, 2010). For example, estimates of postnatal depression have shown to range from 3.2% (Coleman, Morison, Paine, Powell, & Walraven, 2006) to 48% (Madu & Roos, 2006). One study in Nigeria (Adewuya, Ologun, & Ibigbami, 2006) also examined the prevalence of posttraumatic stress disorder (PTSD) after childbirth and found a prevalence rate of 5.9% six weeks postpartum, which is at the higher end of the range reported in developed countries (0-7%; Ayers, Joseph, McKenzie-McHarg, Slade, & Wijma, 2008).

A growing body of evidence reveals that challenging and traumatic experiences can also lead to positive outcomes (Linley, 2003). This phenomenon has become known as posttraumatic growth (PTG) which describes positive changes in previous levels of functioning as a result of the struggle with challenging life circumstances (Tedeschi, Park, & Calhoun, 1998). Most models of PTG (Tedeschi & Calhoun, 2004; Christopher,

2004; Joseph & Linley, 2005) assume that the experience of a stressful event violates an individual's basic belief system and the subsequent meaning making or cognitive processing that occurs to rebuild these beliefs results in PTG. Within the general PTG literature three common areas of growth outcomes have been identified (Tedeschi et al., 1998). First, survivors often report that their relationships are enhanced in some way (e.g. increased closeness to others). Second, individuals change their views of themselves in some way (e.g. greater sense of personal resilience and strength). Third, there are often reports of changes in life philosophy (e.g. fresh appreciation for each new day and spiritual development). Such positive changes have been empirically documented in individuals following typically traumatic events such as natural disasters (McMillen, Smith, & Fisher, 1997), sexual assault (Frazier, Conlon, & Glaser 2001), military combat (Fontana & Rosenheck, 1998), loss and bereavement (Cadell, Regehr, & Hemsworth, 2003), and serious illness (Cordova, Cunningham, Carlson, & Andrykowski, 2001). However, even highly stressful events, which are not necessarily traumatic, like some illnesses (Dirik & Karanci, 2008), work-related stress (Paton, 2005), and immigration (Berger & Weiss, 2002) have been shown to facilitate PTG.

To date, only a limited number of studies have examined positive changes after childbirth but the available research suggests that women might also experience growth following childbirth (Sawyer & Ayers, 2009; Sawyer, Ayers, Smith, Bradley, & Young, revise and resubmit). For example, a prospective study carried out in the UK found that just under half of women experienced at least a small level of growth. This study also explored correlates of growth including demographic and obstetric variables, social support, and psychological distress. This study found that posttraumatic stress symptoms during pregnancy and type of delivery predicted growth after childbirth (Sawyer et al., revise and resubmit). This and other studies provide initial support that

growth occurs not only following typically traumatic events but also challenging developmental events. However, these studies of growth following childbirth were conducted in the UK and likewise the majority of research on growth has been carried out in Western countries. This had led to speculation that the experience of growth may be a culture bound phenomenon (McMillen, 2004; Schroevers & Teo, 2008).

Nonetheless, studies of positive change after challenging events in Bosnian (Powell, Rosner, Butollo, Tedeschi, & Calhoun, 2003), South African (Polatinsky & Esprey, 2000), Turkish (Dirik & Karanci, 2008), and Chinese (Ho, Chan & Ho, 2004) samples provide support for the universality of the concept of PTG. Therefore to further our understanding of growth in a non-Western culture the aim of this study is to explore positive changes in Gambian women following childbirth. The Gambia is one of the poorest countries in the world and has very high levels of maternal and infant mortality (WHO, 2004a). Birth practices and traditions differ in The Gambia from those observed in Western cultures. For example, there are higher rates of deliveries at home and at mission houses, which are often overseen by traditional birth attendants. The Gambia is also a very religious country with a strong Islamic influence.

A number of variables have been identified as being related to higher levels of growth. For example, some sociodemographic variables, such as being female (Milam, 2004), younger (Manne et al., 2004; Widows, Jacobsen, Booth-Jones, & Fields, 2005), and of an ethnic minority status (Tomich & Helgeson, 2004), have been related to higher levels of growth. Event-related variables (such as objective severity, perceived threat or stress) have also been found to be related to growth. It is hypothesised that highly stressful events lead to more growth because such events are more likely to challenge fundamental assumptions, and therefore afford a greater potential for growth (Park, 1998; Stanton, Bower, & Low, 2006). Current theories of growth emphasise the

important role social support plays in the development of growth. Support systems are considered to influence the development of growth because the presence of supportive others may promote self-disclosure, stimulate cognitive processing, and offer new perspectives, which can assist people to find positive meaning and to perceive growth (Schroevers, Helgeson, Sanderman, & Ranchor, 2010; Tedeschi & Calhoun, 2004). A recent meta-analysis of 46 studies found a moderate positive relationship between social support and growth following a range of stressful events (Prati & Pietrantonio, 2009).

A common question within the literature is how measures of distress relate to PTG (Zoellner & Maercker, 2006). The answer to this question is not straightforward with the current research reporting conflicting findings. Some studies have found that lower levels of psychological distress such as PTSD are associated with PTG (e.g. Urcuyo, Boyers, Carver, & Antoni, 2005) and other studies have reported that greater distress is related to PTG (e.g. Barakat, Alderfer, & Kazak, 2006). These latter findings support Tedeschi and Calhoun's (1995) contention that the experience of PTG is not the same as an absence of distress, and a certain degree of distress is a prerequisite for growth. Moreover, some types of PTSD symptoms such as intrusion and avoidance symptoms can be viewed as efforts at cognitive processing of the event, which is a necessary process in the development of PTG (Janoff-Bulman, 1992, Tedeschi & Calhoun, 2004). Finally, some studies have reported no significant relationships between PTG and psychological distress (e.g. Cordova et al., 2001; Widows et al., 2005), underscoring the importance of ongoing examination of the relationship between PTG and distress.

Most studies in the growth literature begin after the event and few studies have pre-event measures of mental health. Childbirth is a naturally occurring and predictable event, which allows the role of different variables in the development of PTG to be

considered prospectively. As such the current study will extend previous work by using a prospective, longitudinal design to identify pre- and postnatal predictors of growth after childbirth. The aims of this study are threefold. First, as prior research indicates that growth occurs following childbirth in the UK, the primary aim of the study is to establish if growth also occurs in Gambian women following childbirth. The second aim is to explore possible correlates of growth after childbirth. In particular, the relationship between sociodemographic and obstetric variables and growth will be explored. Furthermore it is hypothesised that greater levels of growth following childbirth will be predicted by greater perceived social support during pregnancy and after birth. The final aim of the study is to examine the relationship between pre- and postnatal psychological distress and growth (in terms of general distress and PTSD symptoms). As previous research has yielded mixed findings regarding the relationship between positive outcomes and distress no specific hypotheses will be offered.

6.3 Method

6.3.1 Setting

The Gambia is a small, low-income country in West Africa with a population of approximately 1.48 million. Access to healthcare facilities is good, with over 85% of the population living within 3km of a primary healthcare or outreach health post. More than 90% of pregnant women receive antenatal care and about 50% of women deliver in a health facility (Anyar, Hydar, & Jaiteh, 2008; Cham, Sundby, & Vangen, 2005). Women were recruited from Old Jeshwang and Bakau. Old Jeshwang is an urban village in the Municipality of Kanifing. Kanifing is a city in the Western Division in The Gambia and has a population of 322,735. Bakau is a large town situated in the Kombo North District. Kombo North is also in the Western Division in The Gambia and

has a population of 80,478. The official language is English but indigenous languages of Mandinka, Wolof, and Fula are also widely spoken. Religions are Islam (90%), Christianity (9%), and indigenous beliefs such as animism (1%).

6.3.2 *Participants*

Women were recruited if they were at least 20 weeks pregnant. Pregnant women were recruited from two antenatal health clinics in the Western Division (Old Jeshwang Health Clinic and Bakau Health Clinic). Women were approached to take part in the study during a one-month period. Of the 105 women approached 101 (95.2%) women agreed to participate and completed the Time 1 assessment. Seventy four women (73.3% response rate) completed the postnatal assessment. The remaining women were unable to be contacted because they had moved from the study area or gone to stay with family elsewhere. There were no significant differences between women who completed the follow-up and those who did not complete the follow-up on demographic, obstetric, and psychological variables.

6.3.3 *Design and procedure*

This was a self-report study that examined psychological wellbeing in women during pregnancy and after childbirth. Women completed questionnaires at two time points: Time 1 at 20+ weeks gestation ($M = 28.51$, $SD = 5.25$) and Time 2 at 1+ month after childbirth (M weeks= 12.86, $SD = 4.82$).

Ethical approval was obtained from ethics committees at The Gambia Government/Medical Research Council Laboratories (Appendix M). The study was explained to all women in a language they could understand, and they were assured that

participation was voluntary. Participants were asked to sign the consent form to indicate their participation (or a thumbprint if the woman were illiterate). Questionnaires were administered either in English ($N = 50$), or one of the local languages e.g. Mandinka, Wolof, or Jola ($N = 61$). As many of the women were unable to read English and the predominant local languages do not have a written script the questionnaires were administered orally with the aid of an interpreter. Prior to administration, all measures were reviewed by the Gambian co-investigators and the interpreter based at the health centre to ensure the concepts were applicable to the culture and that the wording of the questionnaires would be understandable to the women.

6.3.4 Measures

Demographic and obstetric information

Participants provided information on their age, education level, ethnic group, marital status, accommodation, number of children, employment status, pregnancy details, and obstetric history (Appendix N). Birth details, including weeks since birth, type of delivery, and pain during labour (using a 10-point visual analogue scale), were also collected at Time 2 along with one yes-no question that assessed whether childbirth was considered traumatic (Appendix O).

Posttraumatic growth

PTG was measured after childbirth using a modified version of the short form of the Posttraumatic Growth Inventory (PTGI-SF; Cann et al., 2010) (Appendix P). This is a 10-item scale designed to assess positive change following challenging events. The scale measures five factors: New Possibilities (2 items), Relating to Others (2 items), Personal Strength (2 items), Spiritual Change (2 items), and Appreciation of Life (2

items). In the original version ratings are made on a 6-point scale. Participants had trouble understanding the original 6-point scale therefore this format was simplified to a 3-point scale from 1 to 3 (“did not experience this change”, “not sure”, and “did experience this change”). The prompt and items can be keyed to a specific event and in this study instructions specified that women rate the degree to which change occurred in their life as a result of their experience of birth. In the current study, internal reliability for the PTGI-SF was 0.74.

Factor structure of PTGI-SF

In order to examine the factor structure of the PTGI-SF a principal components analysis was conducted. The Kaiser-Meyer-Olkin (KMO) measure of sample adequacy was 0.64, indicating that the sample size ($n=74$) is adequate for principal components analysis (Kaiser, 1974). Eigenvalues over one indicated that four factors should be extracted and accounted for 69.5% of the variance. The scree plot suggested either one or four factors should be extracted. According to the four factor solution, factor 1 matched the Spiritual Change subscale of the original PTGI-SF. However, factor 2 included all items from the Personal Strength and Relating to Others subscales and factors 3 and 4 were both made up from one item each from the New Possibilities and Appreciation of Life subscales. Given the ambiguity as to whether one or four factors should be extracted and considering the scale was only a 10-item measure of growth, it was decided to use the total score (i.e. one factor) in this study, as recommended by Cann et al. (2010).

PTSD symptoms

Childbirth related PTSD symptoms at Time 2 were measured using a modified version of The Posttraumatic Stress Diagnostic Scale (PDS; Foa, Cashman, Jaycox, & Perry, 1997) (Appendix Q). Criterion A is measured by items asking about perceived threat to life or physical integrity of self (2 items) or others (2 items) and response of helplessness and terror (2 items). The original questionnaire consists of 17 items corresponding to the DSM-IV criteria of re-experiencing (five items), avoidance and numbing (seven items), and arousal (five items), which are assessed on a 5-point Likert Scale. Women had difficulty understanding this response scale so the format was simplified to a 3-point scale from 0 to 2 (“no, I have not experienced this problem”, “not sure”, and “yes I have experienced this problem”). A single item was also included to measure impairment of functioning. Women were instructed to answer all questions in relation to childbirth. History of trauma was measured with a checklist of 10 events. This was calculated as presence or absence of a history of trauma. The diagnosis of PTSD in this study requires that the individual’s responses meet the following criteria: presence of physical injury or life threat, a sense of feeling helpless or being terrified during the event; endorsement of at least one re-experiencing symptom, three avoidance symptoms, two arousal symptoms, and impairment in functioning. As duration of symptoms was not assessed in this study and a truncated response format was used, the prevalence rates of PTSD should be interpreted with caution. The PDS has high reliability of 0.92 (Foa et al., 1997) and when used as a diagnostic measure it demonstrates 82% agreement with structured clinical interviews. In the current study, internal reliability for the PDS was 0.89.

Psychological distress

General distress was measured during pregnancy and after childbirth using the Self-Reporting Questionnaire-20 (SRQ-20; Harding, De Arango, & Baltazar, 1980) (Appendix J), which is a World Health Organization designed brief measure of common mental disorders. It consists of 20 negatively worded questions with ‘yes/no’ answers exploring symptoms of depression, anxiety, and somatic manifestations of distress in the previous month and generates a continuously distributed scale score indicating level of overall psychological morbidity. The questionnaire has shown to have high reliability in developing countries (Beusenberg & Orley, 1994). This instrument was selected because of its ease of use and its previous use in settings similar to this study (Weobong et al., 2009). In the current study, internal reliability for the SRQ-20 was 0.79 at Time 1 and 0.80 at Time 2.

Social support

The Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988) (Appendix L) was used to assess social support during pregnancy and after birth. The MSPSS is a 12-item scale designed to assess three domains of perceived social support – support from friends, from family, and from one’s significant other. Each item is rated on a 1 to 7 Likert scale, with higher scores indicating greater support. The scale may be scored to yield three subscores (Friends, Family, Significant Other) which can be summed to yield a global support score. The questionnaire has been found to be psychometrically sound in non-Western populations (Eker & Arkar, 1995). However, the questionnaire has not been validated in The Gambia and it is yet to be established whether the questionnaire is sensitive and/or

specific to perceived support in The Gambia. In the current study, internal reliability for the MSPSS was 0.88 at Time 1 and 0.87 at Time 2.

6.3.5 *Statistical analysis*

Data screening indicated the majority of variables were normally distributed so parametric tests were used. However, the MSPSS Significant Other/Family scales at Time 1 and 2 were negatively skewed so non-parametric tests were used with these variables. The relationships between demographic, childbirth, and psychosocial variables with growth were examined initially using mean differences and Pearson's or Spearman's correlations where appropriate. The strength and uniqueness of relationships were examined in a hierarchical multiple regression analysis¹⁵. For all analyses, a p value equal to .05 was used as the limit of statistical significance. Where a direction in the hypotheses has been specified, analyses were one-tailed; otherwise analyses were two-tailed.

6.4 **Results**

6.4.1 *Sample characteristics*

Demographic and childbirth characteristics for participants are shown in Table 6.1. Women were aged between 16 and 40 ($M = 26.58$, $SD = 5.61$). The majority of women were of Mandinka ethnicity and were in a monogamous or polygamous marriage.

¹⁵ The assumptions of multicollinearity, homoscedasticity, independent errors, and normally distributed errors were all met.

6.4.2 *Characteristics of PTG*

Means and standard deviations for the main variables are presented in Table 6.2. PTG scores ranged from 10 to 30. Levels of PTG were moderate, with the average score being above the midpoint ($M = 22.65$, $SD = 5.11$). 63.5% of women scored above the midpoint on the adapted scale of growth after childbirth. Table 6.3 shows the endorsement of individual items from the PTGI-SF. The item most strongly endorsed was “I have a greater appreciation for the value of my own life”, followed by “I discovered that I’m stronger than I thought I was”, “I am able to do better things with my life” and “I have a greater sense of closeness with others”. The item which was endorsed least was “I changed my priorities about what is important in life”.

Table 6.1 Sample characteristics of main demographic and childbirth variables

		<i>N (%)</i>
Ethnicity ¹⁶	Mandinka	42 (41.6)
	Fula	12 (11.9)
	Wolof	5 (5.0)
	Jola	25 (24.8)
	Other	15 (14.9)
Marital status	Single	6 (5.9)
	Married	71 (70.3)
	Polygamous Marriage	17 (16.8)
	Partner	7 (6.9)
Level of education	None	54 (53.5)
	Basic	12 (11.9)
	Secondary	33 (32.7)
	Tertiary	2 (2.0)
Employed	Yes	39 (38.6)
Other children	0	33 (32.7)
	1	23 (22.8)
	2	13 (12.9)
	3	13 (12.9)
	4 or more	19 (18.9)
Pregnancy planned	Yes	69 (68.3)
Sex preference	Boy	30 (29.7)
	Girl	18 (17.8)
	No preference	53 (52.5)
Place of delivery	Hospital	14 (18.9)
	Health Centre	51 (68.9)
	Home	9 (12.2)
Type of delivery	Unassisted	72 (97.3)
	Caesarean	2 (2.7)
Stillbirth		1 (1.4)
Perinatal death		3 (4.1)

¹⁶ Missing data means *n* = 99.

Table 6.2 Posttraumatic growth and main study variables

	Mean (<i>SD</i>)	Median
PTGI-SF Total	22.65 (5.11)	22.50
SRQ-20 Time 1	7.61 (4.12)	7.00
SRQ-20 Time 2 ¹⁷	7.05 (4.16)	7.00
PDS Total	14.38 (10.09)	13.00
Re-experiencing	4.50 (3.88)	4.00
Avoidance & numbing	6.32 (4.22)	6.00
Arousal	3.55 (3.45)	2.00
MSPSS Total Time 1	4.51 (1.24)	4.66
Significant Other	5.63 (1.36)	6.00
Family	4.67 (1.56)	5.00
Friends	3.22 (2.06)	2.75
MSPSS Time 2	4.78 (1.09)	5.00
Significant Other	5.62 (1.15)	6.00
Family	5.00 (1.31)	5.00
Friends	3.72 (1.89)	4.50

Note. PTGI scores and PDS scores are not directly comparable to those in other studies due to the revised response format.

¹⁷ SRQ-20 scores were not significantly different during pregnancy compared to after childbirth, $t(73) = 0.96$, *ns*.

Table 6.3 Endorsement of items on the PTGI-SF

PTGI-SF ITEM	N (%)
I changed my priorities about what is important in life	35 (47.3)
I have a greater appreciation for the value of my own life	59 (79.7)
I am able to do better things with my life	51 (68.9)
I have a better understanding of spiritual matters	36 (48.6)
I have a greater sense of closeness with others	51 (68.9)
I established a new path for my life	43 (58.1)
I know better that I can handle difficulties	47 (63.5)
I have a stronger religious faith	38 (51.4)
I discovered that I'm stronger than I thought I was	53 (71.6)
I learned a great deal about how wonderful people are	48 (64.9)

6.4.3 Birth as a trauma

Over a third of women (39.2%) found the birth of their child traumatic and childbirth fulfilled DSM-IV PTSD stressor criterion A for 43.2% of women. 43.2% of women thought that their life was in danger and 40.5% thought that their baby's life was in danger. Two women (2.7%) fulfilled criteria for PTSD based on the adapted measure. There were no differences between women with PTSD and women without PTSD for presence of previous trauma history (*ns*, Fisher's exact test).

6.4.4 *Relation of PTG to demographic and obstetric variables*

Analyses of demographic variables found PTG was associated with education ($F(2, 71) = 7.66, p < .01$). Post hoc comparisons using the Bonferroni test revealed that PTG was significantly higher in women with no education in comparison to those with at least a secondary level of education ($p < .01$). PTG was also higher in women who were unemployed ($M = 23.79, SD = 4.56$) in comparison to those who were employed ($M = 21.06, SD = 5.46$), $t(72) = -2.33, p < .05$.

6.4.5 *Relationship of PTG to social support*

Table 6.4 displays the correlations between study variables. Correlational analyses showed that PTG was not related to social support at Time 1 but was positively related to overall social support at Time 2, and specific support from friends ($r = .28, p < .05$) and family ($r_s = .31, p < .01$) at Time 2. PTG was not related to support from a significant other at Time 2 ($r_s = .09, ns$). Therefore women with higher levels of postnatal support and support from friends and family reported higher levels of PTG following childbirth.

6.4.6 *Relationship of PTG to psychological distress and PTSD symptoms*

There were no significant differences in PTG scores between those who did and did not fulfill stressor criterion A ($t(72) = -0.70, ns$), no differences in PTG between those who have or have not experienced prior trauma ($t(72) = 1.66, ns$), and no significant differences in growth between those who did and did not meet the diagnostic criteria for PTSD ($t(72) = .04, ns$). Correlational analyses were conducted to explore the relationship of psychological distress and PTSD symptoms to PTG (see Table 6.4). PTG

was not significantly related to psychological distress during pregnancy or postnatal psychological distress. PTG was positively associated with postnatal PTSD symptoms. Therefore women who display higher trauma symptoms in relation to childbirth also show higher levels of PTG after childbirth.

Table 6.4 Correlations between the main study variables

	1.	2.	3.	4.	5.	6.
1. PTGI Total	1					
2. SRQ-20 (T1)	-.04	1				
3. MSPSS (T1)	.00	-.26**	1			
4. SRQ-20 (T2)	.02	.26*	-.05	1		
5. PDS (T2)	.25*	.24*	-.19	.73***	1	
6. MSPSS (T2)	.32**	-.02	.15	-.19	-.14	1

Note. * $p < .05$, ** $p < .01$, *** $p < .001$.

6.4.7 Regression analyses

Hierarchical multiple regression was conducted to examine the contribution of significant sociodemographic and psychological variables to PTG. The final model was significant and explained 33.3% of the variance in PTG scores and is given in Table 6.5. Employment status was a significant predictor of PTG following childbirth, indicating that women who are unemployed will experience higher levels of PTG following childbirth. Education was also a significant predictor of PTG. Therefore women who have had no education are likely to experience higher levels of PTG after childbirth in comparison to women who are educated to at least secondary level. Postnatal social support was a significant predictor of PTG, indicating that women with higher levels of support experience higher levels of growth.

Table 6.5 Predictors of total growth scores

	Model 1	Model 2
	β	β
Employed	-.25*	-.22*
Basic Education	-.01	-.05
Secondary education	-.41***	-.32**
Social Support (T2)		.30**
PTSD symptoms (T2)		.17
R^2	.23	.33
F	7.07***	6.63***

Note. Education was dummy coded with no education as the baseline category as this was the most common education level.

* $p < .05$, ** $p < .01$, *** $p < .001$.

6.5 Discussion

This study explored PTG and possible correlates in Gambian women following childbirth. This is one of the few studies of PTG in an African cultural setting. Over 40% of women rated their experiences of childbirth as traumatic according to DSM-IV criteria, which is high compared to UK samples (e.g. Ayers, Harris, Sawyer, Parfitt, & Ford, 2009) but similar to a recent study of birth trauma in Australian women (Alcorn, Patrick, Creed, & Devilly, 2010). Nonetheless, the results show that many women also identified positive changes as a result of their childbirth experience. Although measurement differences do not allow comparisons to be made with other studies the results suggest that women reported a moderate level of growth following childbirth. Multiple positive changes were identified, with endorsement of growth particularly high

on increased appreciation of life, feeling stronger, able to do better things with their life, and a greater sense of closeness with others. In comparison, positive changes in spiritual and religious development were less frequently cited. This pattern is similar to previous studies with women in the UK (Sawyer & Ayers, 2009; Sawyer et al., revise and resubmit).

6.5.1 Variables associated with PTG

In general sociodemographic and obstetric variables were not related to PTG. The exceptions to this were education and employment status, which significantly predicted growth. Unemployment and lower levels of education were associated with higher levels of reported PTG after childbirth. Although many studies have reported either no relationship or a positive relationship between education, employment, and PTG (Bower et al., 2005; Cordova et al., 2001; Sears et al., 2003), a number of studies have reported that less education and unemployment may be related to higher perceived PTG. For example, Widows et al. (2005) found that less education predicted higher levels of PTG among cancer patients following bone marrow transplantation. Tomich and Helgeson (2004) suggest that individuals of lower socio-economic status (of which education and employment status may be indicators) may routinely deal with hardships in their lives and therefore have more experience in perceiving something positive from negative experiences. However, Linley and Joseph (2004) suggest that rather than being directly related to PTG, variables such as employment status and education may be confounded with more important psychosocial variables that have a clearer theoretical relation to PTG.

As predicted, higher levels of postnatal social support were related to higher levels of PTG. This finding is consistent with previous research (Dirik & Karanci, 2008;

Kinsinger et al., 2006; Schulz & Mohamed, 2004) and current theoretical models (Tedeschi & Calhoun, 1995, 2004), which suggest that social support plays an important role in the development of PTG. However, in a similar study with UK women pre- and postnatal social support were not related to growth after childbirth. Thus, in the current study there may be a cultural element in the positive effect of social support. The Gambia is a collectivist culture where interdependence is valued and therefore social support may be a particularly important resource when coping with challenging life events (Dirik & Karanci, 2008). Recent research has also explored the different types of social support that are important in the development of PTG. For example, a study of cancer survivors found that actual received emotional support from family and friends positively predicted PTG, whereas perceived availability of emotional support was not significantly related to positive outcomes (Schroevers et al., 2010). Results from the current study extend this finding to suggest support from different people play a differential role in the experience of PTG. In this study growth was associated with social support from family and friends, but was not associated with support from a significant other (i.e. partner/husband). In The Gambia pregnancy and childbirth are generally viewed entirely as a woman's domain and therefore women may be less likely to discuss their experiences with their husband.

Women who reported higher levels of posttraumatic stress symptoms following childbirth reported higher levels of PTG after childbirth (although PTSD symptoms were not significant in the regression model). This is consistent with theories of growth (Joseph & Linley, 2005; Tedeschi & Calhoun, 1995, 2004) and a number of other studies, which have reported a positive relationship between the two variables (e.g. Barakat et al., 2006; Cadell et al., 2003; Park et al., 1996; Pietrzak et al., 2010). While a positive relationship between PTG and PTSD symptoms has been replicated in many

studies, it has not been systematically observed across studies. For example, Sawyer et al. (revise and resubmit) reported a non-significant relationship between postnatal PTSD symptoms and PTG after birth. One account for these conflicting findings is that the relationship between PTG and distress is curvilinear, rather than linear. For example, in a study of growth following the terrorist attacks of September 11, 2001, Butler et al. (2005) found the highest levels of PTG were reported by those who endorsed moderate levels of PTSD symptoms. Another explanation for the inconsistent relationships between PTG and PTSD symptoms might be that important moderating variables exist such as personality factors (e.g. optimism), ethnicity, and cognitive appraisals (Algoe & Stanton, 2009), which might attenuate or accentuate this relationship. Consistent with the current literature (see Helgeson, Reynolds & Tomich, 2006 and Zoellner & Maercker, 2006) general distress during pregnancy and after childbirth was not associated with growth. General measures of mental health such as the SRQ-20 are composed of various constructs, which might display differing and inconsistent relations to PTG.

6.5.2 *Limitations*

This study has a number of noteworthy limitations. First, women were recruited from health centres in an urban area of The Gambia and therefore may not be representative of Gambian women as a whole. Second, the measures that were used in this study (with the exception of the SRQ-20) were developed and largely validated in Western countries. At the time of this study the unavailability of measures which had been validated in The Gambia necessitated their use. Therefore to fully explore PTG and its relation to psychosocial variables future studies would need to ensure the validity of such concepts in Gambian culture (Splevins, Cohen, Bowley, & Joseph,

2010). Similarly, some of the assessment measures were adapted (i.e. the PTGI-SF and PDS) by simplifying the response format. Despite displaying acceptable internal consistency the shortened response format may have restricted variability in these measures and therefore the results may provide a conservative estimate of the strength of these relationships (Thombre, Sherman, & Simonton, 2009). Third, the timing of assessment of PTG needs to be considered. PTG was assessed approximately 12 weeks after childbirth. Research suggests that PTG is unlikely to occur shortly after a critical event and is more likely to be reported in hindsight (Tedeschi & Calhoun, 2004; Joseph & Linley, 2005). Moreover, a meta-analysis reported that there were stronger links between growth and adjustment measures when there were two or more years since the stressor (Helgeson et al., 2006). Therefore future studies that investigate PTG after childbirth need to assess both short and long-term positive changes.

6.5.3 *Conclusions*

Very few studies have examined positive changes following challenging life events in non-Western cultures. This study suggests that despite many women identifying childbirth as a traumatic experience women also report positive changes in different domains following childbirth. These Gambian women showed a similar pattern of PTG as reported in a similar study of growth after childbirth in UK women. However, in comparison to the UK study, postnatal social support was an important predictor of growth. This study suggests that healthcare professionals and clinicians should not only monitor symptoms of distress following childbirth, but should also be aware of the potential for positive change. Future research should continue to examine the potential for PTG in non-Western countries and explore how distal and proximate cultural factors influence an individual's experience of PTG.

7 General Discussion

This thesis presented five studies, which were carried out with the aim to investigate psychological growth in women after childbirth in the UK and The Gambia. This final chapter will first provide a summary of the findings in relation to the objectives stated in the first chapter of the thesis. The key implications of the research will then be discussed followed by an examination of potential limitations and suggestions for future research in the area.

7.1 Summary of Findings

7.1.1 The relationship between growth and adjustment following health events

A meta-analysis was conducted to explore the relationship between growth after two challenging health events (HIV/AIDS and cancer) and three indicators of adjustment. The findings showed that growth was related to higher levels of positive mental health. Therefore, individuals who perceive growth following cancer or HIV/AIDS also report enhanced psychological wellbeing. A small negative relationship was reported between growth and negative mental health symptoms. Finally, growth displayed a small positive relationship with measures of subjective physical health, implying that growth may also be related to physical benefits. There were important moderators of these relationships. Specifically time since illness moderated the relationship between growth and mental health. In the short-term, there was a stronger relationship between growth and negative mental health, but over time there was an increased relationship between growth and positive mental health. Age was also a significant moderator of mental health outcomes. Younger adults showed a stronger positive relationship between growth and positive mental health. In comparison, older

adults displayed a stronger negative relationship between growth and negative mental health. Ethnicity moderated the relationship between growth and all three adjustment outcomes. Specifically, non-white samples displayed a larger effect size for the relationship between growth and positive mental health and also subjective physical health, compared to samples composed primarily of white participants. In comparison, samples composed of predominantly white participants showed a stronger relationship between PTG and negative mental health. These findings not only point to the adaptive significance of growth but also highlight the conditions where growth may be related to more optimal adjustment.

7.1.2 Review findings on maternal psychological wellbeing in Africa

A systematic review was carried out to examine the prevalence of pre- and postnatal psychological disorders in African women, and to examine variables associated with these disorders. Depression was the most commonly identified disorder in pregnancy and after childbirth. Weighted pre- and postnatal prevalence rates (11.3% and 18.3%, respectively) were similar to those reported in Western countries. Only a small number of studies examined the prevalence of anxiety and other disorders such as PTSD. The review highlighted the importance of psychosocial factors for maternal mental health. In particular, low social support, marital conflict, and prenatal depression were associated with poor mental health. Although risk factors were broadly comparable to those reported in Western countries, a number of culture-specific factors were identified e.g. polygyny. Therefore this review highlights the need for further research into psychological wellbeing and distress in perinatal women in African countries.

7.1.3 Qualitative exploration of Gambian women's experiences of pregnancy, childbirth, and the postnatal period

A qualitative study was carried out to explore experiences of pregnancy, childbirth, and the postnatal period in Gambian women. Thematic analysis resulted in five themes: 1) transition to adulthood, 2) physical difficulties, 3) value of children in relation to others, 4) children as a strain, and 5) going through it alone. Although pregnancy and the birth of their baby was a time of happiness for most women in this study, women also reported feelings of unhappiness and distress. Childbirth was particularly challenging for the women as they were concerned for the safety of their own life and their baby's life. In conclusion, this study indicates that although motherhood is a defining point in many Gambian women's lives, the circumstances surrounding pregnancy and childbirth have the potential to promote unhappiness and distress in women.

7.1.4 Prospective studies of growth after childbirth in UK and Gambian women

Two prospective, longitudinal studies were carried out to examine growth after childbirth in UK and Gambian women. In the UK study approximately 48% of women reported at least a small amount of growth following childbirth. Type of delivery (elective or emergency caesarean section) predicted higher levels of growth after childbirth. Posttraumatic stress symptoms during pregnancy also predicted higher levels of growth after childbirth. However, postnatal PTSD symptoms and pre- and postnatal general distress did not predict growth. Furthermore, contrary to expectation pre- and postnatal social support did not predict positive changes after childbirth. In the Gambian sample women reported a moderate degree of growth (approximately 64% of women scored above the midpoint). Lower education and unemployment predicted higher

levels of growth. Obstetric variables were not related to growth after birth. Measures of psychological distress (general distress and PTSD symptoms) did not predict growth after childbirth. In comparison, higher levels of postnatal social support significantly predicted higher levels of growth after childbirth. Social support during pregnancy was not related to growth after birth.

These findings will now be considered together in relation to the final objectives of the thesis which were: does growth occur after childbirth, what factors are associated with growth after childbirth, and what is the relationship between psychological distress and growth after birth?

7.2 Does Posttraumatic Growth Occur after Childbirth?

An objective of the thesis was to examine if women experienced psychological growth after childbirth and to explore these experiences in women from the UK and The Gambia. The findings from the research in this thesis suggest that having a baby can leave women vulnerable to psychological distress and that for many UK and Gambian women childbirth is a traumatic stressor. For example, in Chapter 5 it was reported that around one third of UK women subjectively rated childbirth as traumatic and for 23% of women childbirth fulfilled PTSD stressor criterion A. This was higher in The Gambia where almost 40% of Gambian women reported their experience of childbirth as traumatic and approximately 43% of women fulfilled stressor criterion A following childbirth (Chapter 6). However, findings from the two quantitative studies of growth (Chapters 5 and 6) show that both UK and Gambian women report positive changes following childbirth. Scores for the sample of UK women were lower in comparison to other samples (Linley & Joseph, 2004). Due to measurement differences it is not possible to compare the levels of growth reported by the Gambian women to other

samples, although the results suggest that these women did report a moderate level of growth after childbirth.

The factor structure of the PTGI completed by the UK women suggested a unidimensional representation of growth, which is consistent with previous studies (e.g. Joseph, Linley, & Harris, 2005). In comparison, the PTGI-SF completed by Gambian women suggested a four factor structure of growth. These findings should be treated with caution. The sample size was smaller than recommended for principal components analysis and the short version of the PTGI was used in the Gambian sample, which meant that the multidimensional structure of the PTGI could not be fully explored. Of the original five domains of growth, UK women reported the highest levels of growth in the appreciation of life domain and the lowest levels of change in the spiritual growth domain. Gambian women displayed a similar pattern of positive changes with endorsement particularly high on increased appreciation of life and feeling stronger, and comparatively less positive change reported in spiritual and religious domains. In conclusion these findings suggest that women do experience growth after childbirth and both UK and Gambian women experience positive changes in similar domains.

7.3 What Factors Are Associated With Growth after Childbirth?

A further aim of this thesis was to explore the association between pre- and postnatal variables and psychological growth after childbirth. The association of sociodemographic and obstetric variables to growth in both samples will now be summarised followed by a consideration of social support. In the UK sample (Chapter 5) sociodemographic factors were generally unrelated to growth. The only exception to this was age, with younger women reporting higher levels of growth. In comparison, age was not related to growth in the Gambian sample (Chapter 6), however, lower

education and unemployment did significantly predict higher levels of growth in the Gambian women. Considering the wide variability between the two samples in terms of sociodemographic variables (for example, fewer than 5% of UK women were not educated in comparison to over 50% of Gambian women) it is not possible to compare the samples on these variables. Also, as discussed by Linley and Joseph (2004), sociodemographic variables, such as education and income, may be confounded with other psychosocial variables that are more clearly related to growth. There were also differences in how obstetric variables were related to growth. In the UK sample, type of delivery significantly predicted growth. Specifically, women who had an elective or emergency caesarean section displayed higher levels of growth in comparison to those women who had a normal vaginal delivery. In comparison, no obstetric variables were related to growth in the Gambian sample. However, since only two women in the Gambian sample had an operative delivery it is not possible to fully examine the effect of type of delivery on growth.

Social support was differentially related to growth across the two samples of women. For UK women, pre- and postnatal social support were not related to growth after childbirth. However, consistent with current theoretical models of growth, postnatal social support significantly predicted higher levels of growth in Gambian women. This latter finding contributes to the body of evidence which points to the important role of social support in the development of growth. The Gambia study also highlighted the importance of social support from different types of people. Specifically, support from family and friends was related to higher levels of growth after childbirth, whilst support from a significant other was not related to growth levels. This may be because in The Gambia pregnancy and childbirth are viewed entirely as a woman's domain and men generally have very little involvement. Women are more

likely therefore to rely on support from female relatives and friends regarding issues surrounding these events, and may be less likely to talk about their birth experiences with their husband. Therefore marital emotional support may not be important for Gambian women in the development of growth after childbirth.

Both cultural and measurement explanations could possibly account for the differing relationship between social support and growth in these two samples of women. As discussed in Chapter 6 The Gambia is a collectivist culture where interdependence is valued. Therefore in The Gambia, in comparison to a more individualistic society like the UK, social support may be particularly important when coping with challenging events. The inconsistent findings could also be explained by the measure used to assess social support. In the UK study, women scored very highly on the social support scale (MSPSS), which could have produced a ceiling effect, limiting the exploration of the relationship between growth and support in this sample. In comparison, Gambian women's scores on the social support scale were more varied, which would make it easier to document a relationship between social support and growth. Therefore to fully explore the relationship between these two variables in UK women, studies should use a more sensitive measure of social support.

7.4 The Relationship between Distress and Growth after Childbirth

A final aim of this thesis was to examine the relationship between psychological distress and reports of growth following childbirth, which was explored in Chapters 5 and 6. In the UK sample, growth was unrelated to concurrent measures of posttraumatic stress symptoms in relation to childbirth. In comparison, posttraumatic stress symptoms during pregnancy were a significant predictor of growth after childbirth. General measures of distress at both time points did not predict growth after childbirth. Chapter

6 showed that in the Gambian sample growth after childbirth was related to a concurrent measure of posttraumatic stress symptoms in relation to childbirth. However, growth was not related to pre- and postnatal measures of general mental health. Although posttraumatic stress symptoms were not measured during pregnancy in the Gambian sample, a number of explanations could be used to explain the differing relationship between postnatal posttraumatic stress symptoms and growth in the two samples. The UK women displayed relatively low levels of posttraumatic stress symptoms, and a limited range of symptom severity, in comparison to other studies that have been conducted in the UK. This could have resulted in a floor effect, which again could make it difficult to document a relationship between PTSD symptoms and growth. In comparison, the Gambian sample displayed a much wider range of postnatal PTSD symptoms, which would make it easier to explore their relationship with growth. As discussed in previous chapters, there are a range of other factors that could explain the inconsistent relationship between distress and growth found in these studies, such as the role of moderating variables, the possibility of a curvilinear, rather than a linear, relationship between distress and growth, and the timing of the measurement of both growth and distress. Nonetheless, together these findings contribute to the conflicting and inconsistent literature examining the relationship between distress and growth.

7.5 Key Theoretical and Practical Implications

The findings from the articles in this thesis have a number of theoretical and practical implications. First, although the empirical study of psychological growth after childbirth is in its infancy the current research findings suggest the applicability of the concept to childbirth in both the UK and The Gambia. Childbirth differs from other traumatic events in a number of ways. For example, it is usually entered into

voluntarily, is largely predictable, is experienced by the majority of women, and is viewed positively by society (Ayers, Harris, Sawyer, Parfitt, & Ford, 2009; Ayers, Joseph, McKenzie-McHarg, Slade, & Wijma, 2008). Despite these differences from other traumatic events, the current findings suggest that individuals can experience positive changes following challenging developmental events like childbirth, and that growth is not restricted to other traumatic events. Aldwin and Levenson (2004) have previously argued that life events that are not necessarily traumatic or negative, such as childbirth, have the potential to promote growth. This is consistent with Linley and Joseph's (2004) view that it is the characteristics of the subjective experience of the event that is important, rather than the event itself. Calhoun, Cann, and Tedeschi's (2010) latest version of their model includes a more explicit recognition that it is the disruption of one's assumptive beliefs, rather than the objective characteristics of the event itself, that is thought to initiate the processes that can eventually lead to growth. Therefore it is important to recognise that even more normative or stressful events may indeed promote growth. Nonetheless, considering the unique characteristics of childbirth it would be interesting to investigate the similarities and differences between growth following birth and growth following "traditional" traumatic events. For example, events such as childbirth may involve more incremental change in comparison to traumatic stressors that have a rapid or unpredictable onset (Aldwin & Levenson, 2004).

Moreover, the majority of studies examining psychological adjustment following childbirth have focused on negative outcomes. This research suggests that many women also report positive changes following childbirth. As such, by examining both positive and negative psychological outcomes following childbirth a more comprehensive account of psychological adjustment can be developed. Indeed Joseph

and Linley (2008c) maintain that posttraumatic stress and growth should be considered as two elements of a more integrative conceptualisation of both positive and negative change following challenging events. As discussed in Chapter 1 a number of notable longitudinal studies have found that growth following a stressful or traumatic event does seem to be predictive of better emotional adjustment in the longer term (e.g. Affleck, Tennen, Croog, & Levine, 1987; Danoff-Burg & Revenson, 2005; Frazier, Conlon & Glaser, 2001; Ickovics et al., 2006a; McMillen, Smith, & Fisher, 1997; Tallman, Altmaier, & Garcia, 2007). Therefore findings from such studies suggest that growth may be a useful clinical target in clinical and healthcare settings (Joseph & Linley, 2005). To date, there is very little published research on treatment for PTSD following childbirth (Ayers et al., 2008). Some research has examined debriefing after birth but a recent review concluded there is no evidence it is effective at reducing symptoms of PTSD in women following childbirth (Rowan, Bick, & Bastos, 2007). Therefore the promotion of growth may be a viable option for therapists working with traumatised women. Ayers et al. (2008) recognised this in their symposium paper, which suggested that intervention might be re-conceptualised to include growth and not just the alleviation of posttraumatic stress symptoms. There are promising studies that demonstrate that growth may be integrated into clinical interventions. For example, in a randomised controlled trial Stanton et al. (2002) assigned breast cancer patients to one of three groups, either to write about the facts of the cancer experience, their deepest thoughts or feelings about the experience, or to write about their positive thoughts about their experience. Those women who wrote about their positive experiences had significantly less medical appointments for cancer-related morbidities three months later in comparison to the group who wrote about the facts of cancer.

A number of cognitive-behavioural interventions that teach participants broad stress-management techniques have also served to increase reports of perceived benefits from having had cancer (Antoni et al., 2001, McGregor et al., 2004; Pennedo et al., 2006). However, until further insight has been gained into the potential utility and effectiveness of interventions aimed at fostering growth and their associations with PTSD, caution should be taken when applying them to women seeking help (Kunst, Winkel, & Bogaerts, 2010). Moreover, although health care professionals should be aware of the possibility of growth, imposing an expectation of psychological growth in the face of adversity should be avoided, as this could potentially be offensive to patients and serve to minimise their experience (Bellizzi & Blank, 2006). Park and Helgeson's (2006 p. 795) caution is relevant here:

“Until researchers understand more about the origins of growth, the conditions under which growth is veridical, and the best way to assess growth, links to psychological and physical health will not be fully understood. Without this latter knowledge, it may be ethically irresponsible to attempt group-based interventions with a highly distressed population”.

Furthermore the examination of growth in women in The Gambia contributes to the growing body of literature examining positive changes following challenging events in non-Western societies. Women from the UK and The Gambia displayed positive changes in similar domains and, consistent with previous international research, social support predicted higher levels of growth in the Gambian women (e.g. Cadell, Regehr, & Hemsworth, 2003; Dirik & Karanci, 2008; Frazier, Tashiro, Berman, Steger, & Long, 2004; Lev-Wiesel & Amir, 2003; Senol-Durak & Ayvasik, 2010). There were also some interesting culture-specific variations in factors associated with growth which should be taken into consideration. As discussed previously, although support from family and

friends in The Gambia positively predicted growth, the husband's support was not related to growth after childbirth. Also, in the qualitative study of Gambian women's experiences (Chapter 4) some women expressed how they and others might feel uncomfortable discussing negative emotions. Studies conducted in other sub-Saharan African countries have suggested that stigma surrounds mental health, which may make people apprehensive about disclosing negative emotional experiences (Gureje, Lasebikan, Ephraim-Oluwanuga, Olley, & Kola, 2005). In collectivist cultures like The Gambia expression of negative emotions is often discouraged. Therefore individuals may need to work through negative emotions on their own, as sharing with others may lead to disapproval (Calhoun, Cann, & Tedeschi, 2010). This has implications for growth, as current theoretical models emphasise the importance of emotional disclosure in the development of growth. Therefore, although growth and some of its correlates may be experienced cross-culturally, theory and research should be aware of, and take into consideration, specific proximate and distal sociocultural factors, which may also influence reports and correlates of growth.

A final key implication stems from the notable finding in the UK prospective study of growth after childbirth (Chapter 5) that prenatal distress was a strong predictor of growth reported after childbirth. Very few studies in the growth literature have been able to assess pre-event mental health and current models do not explicitly discuss how such variables are likely to influence growth. In Schaefer and Moos' (1998) model, prior crisis experience is conceptualised as a personal resource, which should lead an individual to report more positive change following a subsequent challenging event because prior experience can enhance coping resources. Moreover, for vulnerable individuals, for whom psychological distress may be an indicator, an event may be more likely to be perceived as a crisis, which according to Tedeschi and Calhoun's (1995,

2004) model of growth is more likely to precipitate growth. However, the findings in the literature are mixed. One study of police recruits did find that significantly higher levels of growth were reported by officers who experienced trauma prior to joining the force than recruits who had not (Burke, Shakespeare-Finch, Paton, & Ryan, 2006). On the other hand a number of studies have reported that prior experience of trauma or adversity does not predict growth after a subsequent trauma (e.g. Frazier et al., 2004; Yu et al., 2010). These studies only included a checklist of prior trauma experience as opposed to an assessment of current psychological distress (in Chapters 5 and 6 trauma history as assessed by a checklist was also not related to growth). Therefore psychological distress leading up to the event may be more important than a discrete measure of whether the individual has experienced a traumatic event or not. However, this assertion is only speculative and has not been subject to detailed empirical investigation because of the difficulty in obtaining pre-event measures of mental health. In conclusion, these findings suggest that pre-event mental functioning is important in the development of growth and additional research is needed to explore this possibility further to inform current theories of growth.

7.6 Limitations

Limitations with individual studies have already been discussed in some detail in each chapter and a number of additional limitations will be covered in this section. Firstly, there is a possibility of theoretical and measurement cultural bias. The two main theories of growth, the Functional Descriptive Model (Tedeschi & Calhoun, 1995, 2004) and the Organismic Valuing Theory (Joseph & Linley, 2005), were both conceptualised and developed within Western culture and therefore may be prone to inherent cultural biases. Splevins, Cohen, Bowley, and Joseph (2010) describe three

particular areas within these theories which may be subject to cultural bias. Firstly, both theories perceive traumatic events as challenges to the assumptive world. Although the idea of core assumptions may be applicable cross-culturally, different cultures may hold varying assumptions. Secondly, both theories specify the need for cognitive consistency. The notion that individuals attend to their cognitions and have a desire for cognitive consistency may reflect norms of individualistic cultures. Thirdly, in Joseph and Linley's (2005) model of growth, the concept of a universal completion tendency is introduced. However, there are likely to be cultural variations regarding what it means to "grow" or to self-actualise. Therefore, although the concept of growth may be universally understood, content of theories may reflect a bias to individualistic cultures. A further potential cultural bias is within the measure used to assess growth in Gambian women, which was a shortened version of the PTGI (Cann et al., 2010). This measure and the full-length tool were both validated on American samples and as such reflect a Western, individualistic conceptualisation of growth. Because of this, the factor structure of the PTGI was explored in both the UK and Gambian prospective studies, items were checked for cultural meaningfulness, and structural adaptations were made to increase cultural specificity, which reflect a 'top-down' approach to exploring cultural relevance (Splevins et al., 2010). Instead a 'bottom-up' approach is recommended by Splevins et al. (2010) where it may be more meaningful and culturally sensitive to develop a tool of growth specific to the culture rather than simply revising tools used in Western cultures. Qualitative research would be particularly useful to explore in detail the processes and outcomes in a specific culture and such information could then be used in the development of culturally sensitive quantitative assessment tools of growth (Splevins et al., 2010).

A further limitation is the reliance on self-report measures of growth. The studies included in the meta-analysis (Chapter 2) and prospective studies (Chapters 5 and 6), were all based on retrospective self-report measures of growth. One concern with these retrospective measures, such as the PTGI, is whether people rate themselves as not having changed in relation to an event because they are already high on these domains prior to the event. For example, The Gambia is a very religious society. Many women in the study may have already felt very high on the domain of spiritual change, and therefore may not have perceived themselves as having changed. Thus there is a concern that whilst one person may indicate experiencing considerable growth following an event, and another person may only indicate minimal change, the latter person may actually be higher on personal growth. Therefore the scores provided are an indication of a person's perception of change but do not provide an individual difference measure of growth.

Moreover, as discussed earlier in the introduction, one of the controversies surrounding growth research is whether reports of growth actually reflect genuine positive changes. Although numerous reports of positive change have been reported in the literature there is evidence supporting the motivation-illusion perspective (e.g. McFarland & Alvaro, 2000). Cohen, Hettler, and Payne (1998) recommended a study design to measure the validity of self-reported growth: a prospective study which compares the differences between pre- and post-trauma indicators of the domains assessed by most growth measures (this would represent actual growth) with perceived changes in the same domains as measured by growth scores. Only one study to date has validated growth in this way. Frazier et al. (2009) found that scores on the PTGI were unrelated to actual growth in growth-related domains. They also examined the relationship of actual and perceived growth to measures of distress. Perceived growth

was associated with greater distress and in comparison actual growth was associated with lower distress. Due to the difficulty of designing a prospective study an undergraduate student sample was used, which limits the generalisability of the findings to other samples. Childbirth represents an opportunity to extend this research to further elucidate the veracity of growth and its relation to adjustment and wellbeing.

Finally, the prospective studies (Chapters 5 and 6) only measured growth at one time point and therefore provide little indication about the temporal course of growth. Indeed, as Aspinwall and Tedeschi (2010) caution, measuring growth at one point in time could lead to different conclusions than if measured at a different point in time. In these studies growth was measured at approximately 8-12 weeks after childbirth. These early reports of growth might be quite different from reports which occur after a significant amount of cognitive processing has taken place (Aspinwall & Tedeschi, 2010). Nonetheless, a number of longitudinal studies have reported that reports of growth remain stable over time (e.g. Moore et al., 2010), which lends confidence to the reports of growth found in the current studies.

7.7 Future Research

Alongside suggestions associated with the limitations of this thesis there are a number of additional avenues that warrant further exploration when examining growth following childbirth. Women's scores on the PTGI reported in the UK sample (Chapter 5) were relatively low in comparison to previous studies with other samples. Current models emphasise the degree of disruption of the assumptive world as key in the psychological experience of trauma and the development of subsequent growth. Therefore the extent to which an individual reports growth may be related to the degree one's world assumptions have been challenged. Until recently there have not been any

specific measures available to assess the degree of disruption of the assumptive world by a specific event. Therefore, despite being a critical element of growth theories, research has been unable to test this hypothesis directly. Cann et al. (2009) have now developed the Core Beliefs Inventory, which is a brief measure of disruption of the assumptive world. This measure has been used in several samples and indeed growth has been positively related to disruption of core beliefs. Therefore it would be worthwhile examining the extent to which childbirth challenges aspects of the individual's assumptive world and how this relates to growth.

In the current study only positive changes after childbirth were assessed, which meant that women were unable to report any negative changes in similar domains as a result of their childbirth experience. This has been criticised by some researchers because participants may develop a positive response bias which may lead individuals to over-report growth (Tomich & Hegelson, 2004). Examining negative changes alongside positive changes may also help clarify the relationship between growth and wellbeing and also distinguish between veridical and non-veridical reports of growth. For example, Cheng, Wong, and Tsang (2006) examined costs and benefits of dealing with severe acute respiratory syndrome (SARS). Those individuals who reported both benefits and costs showed an increase in psychosocial resources over time (e.g. self-esteem), and in comparison those who only reported benefits showed a decrease in psychosocial resources. Cheng et al. (2006) concluded that an assessment of both positive and negative changes may enable clinicians and researchers to make more refined predictions about the relationship between growth and adjustment. Also, these authors propose that individuals who report benefits alongside costs reflect genuine change, whereas exclusive focus on benefits could represent a motivation illusion. In support of this Cheng et al. (2006) reported that individuals who reported only benefits

also scored higher on a measure of defensiveness. Therefore it may be valuable to measure both positive and negative changes in response to childbirth in future studies.

It is also recommended that future research examining the relationship between growth and adjustment should expand the conceptualisation and assessment of wellbeing. Most studies in the literature have utilised traditional measures of adjustment by focusing on distress and wellbeing. This is what Joseph and Linley (2005, 2006) refer to as SWB, which is based in the hedonistic tradition of psychology. In comparison, PWB is based in the eudemonic tradition of growth, where growth is thought to derive from (Joseph & Linley, 2005). Calhoun and Tedeschi (2004) also recommend broadening assessment of adjustment to include PWB. The relationship between this more eudemonic meaning of wellbeing and growth remains largely unexplored. Durkin and Joseph (2009) were the first to examine growth in relation to SWB and PWB. They reported a stronger relationship between growth and PWB in comparison to growth and SWB. Therefore although growth may be related to SWB, growth may be related more strongly to PWB. Another recent study also reported that growth was a significant predictor of aspects of PWB (Cann, Calhoun, Tedeschi, & Solomon, 2010). Therefore these studies highlight the importance of not exclusively assessing adjustment in terms of distress and wellbeing, but also including other measures of adjustment that reflect PWB such as autonomy and self-acceptance.

Finally, relatively few predictors of growth were tested in the prospective studies in Chapters 5 and 6. It is important that further studies understand under what circumstances growth is experienced after childbirth. One interesting avenue to explore is the relationship between religious coping and growth. This may be a particularly relevant variable for Gambian women as many women in the qualitative study (Chapter 4) reported using their religious faith to cope with anxieties about giving birth.

Numerous studies have already reported that religious coping predicts higher levels of growth (e.g. Shaw, Joseph, & Linley, 2005).

7.8 Conclusion

In conclusion this thesis has contributed to the current research examining positive changes following challenging events in a number of ways. Firstly, this research has shown that the perception of growth following the experience of HIV/AIDS and cancer is associated with psychological and physical benefits. Secondly, this research reports that African women experience rates of psychological disorders during pregnancy and after childbirth at a similar, if not higher rate, than women in developed countries. However, most studies have focused on depression and other indicators of adjustment have not been explored. Thirdly, findings suggest that women do report positive changes following childbirth and this was evident in both women from the UK and The Gambia. This latter finding has significant implications for theory and research demonstrating that growth occurs not only following traumatic events, but also following more normative challenging events like childbirth. Research should no longer focus exclusively on distress in relation to adjustment following childbirth as this may provide an incomplete picture of women's reactions following childbirth. Indeed researchers and clinicians should jointly consider psychological distress and growth to gain a more integrative and comprehensive understanding of psychological adjustment following childbirth. The findings also point to the cross-cultural experience of growth. This highlights the need for more specification in current theories of growth regarding the role of culture and also a consideration of measurement of growth in different cultures. Finally, a prospective design was used to identify predictors of growth after childbirth and preliminary findings suggest that pre-event mental health is an important

predictor of growth. This underscores the importance of considering the role of pre-event variables when examining the development of growth after a challenging event.

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APPENDICES

Appendix A: Interview schedule used in qualitative study (Chapter 4)

How did you feel about being pregnant?

How would you describe your emotions whilst you were pregnant?

Did pregnancy affect you in any other way? If so, how?

Think back to when your labour first started and talk me through what happened from there.

Was birth the way you expected?

How would you describe your emotions after your baby was born?

Can you tell me about any positive changes that you experienced after your baby was born?

Can you tell me about any negative changes that you experienced after your baby was born?

How did you feel about your baby?

What effect did the baby have on your life?

Have you experienced unhappiness during pregnancy or after childbirth?

What do you think caused it?

Appendix B: Demographic questionnaire used in qualitative study (Chapter 4)

1. How old are you? _____
2. What is your ethnicity? _____
3. What is your marital status? ☐ monogamous marriage ☐ polygamous marriage
☐ single ☐ divorced/separated ☐ other _____
4. Who do you live with? (*please tick one box only*)
☐ husband/partner
☐ husband/partner & children
☐ parents
☐ friends
☐ just your children
☐ alone
☐ other _____
5. What is your level of education?
☐ none
☐ basic
☐ secondary
☐ tertiary
☐ higher
☐ other (please specify) _____
6. Are you employed? ☐ yes ☐ no
If yes please give details _____
7. Does your husband work (if relevant)? ☐ yes ☐ no
If yes please give details _____

Obstetric History

8. How many times have you given birth? _____
9. How many times have you been pregnant? _____
10. How many living children do you have? _____
11. Have you had an abortion? ☐ yes ☐ no
12. Have you had a miscarriage? ☐ yes ☐ no
13. Have you had a stillbirth? ☐ yes ☐ no

Obstetric Experience (to be completed with regard to the most recent delivery)

14. How was your baby born? Normal delivery ☐ Operational delivery ☐
15. Where was your baby delivered? Health Centre ☐ Hospital ☐ At home ☐ Other ☐ _____
16. How long did your labour last? _____
17. Were there any complications with the delivery? ☐ yes ☐ no
If yes, please give details _____
18. Was your pregnancy: ☐ planned ☐ unplanned
19. What sex baby do you hope for? boy ☐ girl ☐ no preference ☐

Baby's characteristics

20. How old is your baby? _____
21. What is the sex of your baby? boy ☐ girl ☐
22. Was your baby delivered: Preterm ☐ On time ☐ Overdue ☐
23. Were there any complications with the baby? Yes / No
If yes please give details: _____

**Appendix C: School of Life Sciences ethical approval for qualitative study
(Chapter 4)**

**University of Sussex
School of Life Sciences Research Governance Committee**

CERTIFICATE OF APPROVAL

<i>Title of Project</i>	A Cross-Cultural Qualitative Examination of Maternal Mental Health
Principal Investigator	Dr. Susan Ayers
Student	Alexandra Sawyer
Collaborators	Dr. John Dale
Duration of approval (not greater than 4 years)	12 months

This project has been given ethical approval by the School of Life Sciences Research Governance Committee. **NB: Approval for the Gambian arm of the proposal is conditional upon approval by the Scientific Research Committee in The Gambia**

NB. If the actual project start date is delayed beyond 12 months of the expected start date, this Certificate of Approval will lapse and the project will need to be reviewed again to take account of changed circumstances such as legislation, sponsor requirements and University procedures.

Please note and follow the requirements for approved submissions:

Amendments to protocol.

- Any changes or amendments to approved protocols must be submitted to the committee for authorisation prior to implementation.

Feedback regarding the status and conduct of approved projects

- Any incidents with ethical implications that occur during the implementation of the project must be reported immediately to the Chair of the committee.

The principal investigator is required to provide a brief annual written statement to the committee, indicating the status and conduct of the approved project. These reports will be reviewed at the annual meeting of the committee. A statement by the Principal Investigator to the Committee indicating the status and conduct of the approved project will be required on the following date(s):

December 2009, December 2010.....

Signed:Jennifer Rusted.....

Chair of the Research Governance Committee

Date:6 March 2009.....

Appendix D: Letter noting chair's approval of qualitative study (Chapter 4)

8th October 2008

Dr Alexandra Sawyer
Department of Psychology
Pevensey Building
University of Sussex
Falmer
BN1 9QH

Dear Dr Sawyer

Re: SCC R08004v3. 28th August 2008. Physical and psychological outcomes following childbirth in Gambian women.

Thank you for submitting the above project. The project documents, including your detailed reply to queries raised by the RePubliC (Research & Publication Committee of The School of Medicine & Allied Health Sciences, UTG) were reviewed by the Joint Gambia Government/MRC Ethics Committee at its meeting of 27th September 2008. **It was noted that the pilot aspect of the proposal had already received Chair's approval, given the limited time you had in The Gambia.**

The project generated a lot of interest and discussion.

Members approved in its current version. The following points, all of which the pilot work will be expected to address, were raised:

1. The overall length of the questionnaire was judged rather long. It was hoped that the pilot would explore how this works in the field and whether adjustments could be made to shorten the questionnaires.
2. Members highlighted the issue of pregnancy out of wedlock with its possible deleterious effects on maternal mental health. It was suggested that this is of particular concern in The Gambia and so attempts should be made to address the issue in the proposed research.

The Chair would be happy to review your plans in relation to the above points about this interesting project once you have completed the pilot studies.

Best wishes,

Yours sincerely

Mr. Malcolm Clarke
Chairman, Gambia Government/MRC Joint Ethics Committee

Cc Dr Lamin Sidibeh, Department of Social Sciences, UTG
Pr Ousman Nyan, Chair, RePubliC, School of Medicine, UTG

Appendix E: NHS ethical approval for UK study (Chapter 5)

Brighton West Research Ethics Committee

Brighton & Hove City Teaching PCT
2nd Floor, Prestamex House
171-173 Preston Road
Brighton
East Sussex
BN1 6AG

Telephone: 01273 545371
Facsimile: 01273 545372

27 April 2009

Miss Alexandra Sawyer
DPhil student and Graduate Teaching Assistant
University of Sussex
Falmer
Brighton
East Sussex
BN1 9QH

Dear Miss Sawyer

Full title of study: A cross-cultural study of psychological adjustment during pregnancy and after childbirth
REC reference number: 09/H1111/8

Thank you for your email of 7th April 2009, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by the Chair.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

Ethical review of research sites

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS R&D office prior to the start of the study (see "Conditions of the favourable opinion" below).

Conditions of the favourable opinion

The favourable opinion is subject to the following conditions being met prior to the start of the study.

Management permission or approval must be obtained from each host organisation prior to the start of the study at the site concerned.

For NHS research sites only, management permission for research (“R&D approval”) should be obtained from the relevant care organisation(s) in accordance with NHS research governance arrangements. Guidance on applying for NHS permission for research is available in the Integrated Research Application System or at <http://www.rdforum.nhs.uk>. *Where the only involvement of the NHS organisation is as a Participant Identification Centre, management permission for research is not required but the R&D office should be notified of the study. Guidance should be sought from the R&D office where necessary.*

Sponsors are not required to notify the Committee of approvals from host organisations.

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

Document	Version	Date	
Response to Request for Further Information			
Participant Consent Form	2	25 February 2009	
Covering Letter		25 February 2009	
Identification of mental health problems letter	1	25 February 2008	
Questionnaire: Pack 2	2	25 February 2009	
Questionnaire: Pack 1	2	25 February 2009	
Research Proposal, Information Sheet & Consent form for Gambian study			
Ethical approval for Gambian Study		08 October 2008	
Response to Request for Further Information			
Participant Information Sheet	3	07 April 2009	
Covering Letter		07 April 2009	
Application		28 January 2009	
Protocol	1	26 January 2009	
Investigator CV			
Letter to accompany pack 2	1	26 January 2009	
Evidence of insurance/indemnity		01 August 2008	

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review

Now that you have completed the application process please visit the National Research Ethics Website > After Review

You are invited to give your view of the service that you have received from the National Research Ethics Service and the application procedure. If you wish to make your views known please use the feedback form available on the website.

The attached document “After ethical review – guidance for researchers” gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Progress and safety reports
- Notifying the end of the study

The NRES website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

We would also like to inform you that we consult regularly with stakeholders to improve our service. If you would like to join our Reference Group please email referencegroup@nres.npsa.nhs.uk.

09/H1111/8	Please quote this number on all correspondence
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With the Committee’s best wishes for the success of this project

Yours sincerely

Dr Andrew Nayagam
Chair

Appendix F: Demographic and obstetric questionnaire - Time 1 (used in Chapter 5)

Your Background

In this section we will be asking for information about you and your pregnancy. This information will be confidential and anonymous.

Information about you

- 1 Your date of birth_____ Age last birthday_____
- 2 Which of the following best describes your ethnicity? *(please tick one box only)*
 - ☐ White European
 - ☐ African
 - ☐ Afro-Caribbean
 - ☐ Bangladeshi
 - ☐ Chinese
 - ☐ Indian
 - ☐ Pakistani
 - ☐ Mixed race (please describe)
 - ☐ Other (please describe)
- 3 What is your marital status? *(please tick one box only)*
 - ☐ married
 - ☐ living with your partner
 - ☐ have a boyfriend but not living together
 - ☐ separated
 - ☐ divorced
 - ☐ single
 - ☐ widowed
- 4 Who do you live with? *(please tick one box only)*
 - ☐ husband/partner
 - ☐ husband/partner & children
 - ☐ parents
 - ☐ friends
 - ☐ just your children
 - ☐ alone
 - ☐ other_____
- 5 Where do you live? *(please tick one box only)*
 - ☐ council rented
 - ☐ own home
 - ☐ private rented
 - ☐ hostel
 - ☐ bed & breakfast
 - ☐ live in job

6 What educational qualifications do you have? *(please tick all that apply)*

- ☐ None
☐ CSE's / O levels / GCSE's
☐ A levels
☐ City & Guilds
☐ Diploma
☐ Undergraduate degree
☐ Postgraduate degree
☐ Professional qualification (please specify)_____

7 Do you work, or did you before getting pregnant? Yes No
If yes, please give details

a) Job title:
b) Type of business:

8 Does your partner/husband work (if relevant)? Yes No
If yes, please give details

a) Job title:
b) Type of business:

About your pregnancy

9 What is your expected date of delivery? _____

10 Are there any problems with your current pregnancy? Yes No

If yes, please provide details_____

11 Before you knew you were pregnant, how much did you want a baby? (Please circle a *number* to indicate how much you wanted a baby)

Not at all 0 1 2 3 4 5 6 very much

- 12 Was your pregnancy: planned ☐ unplanned ☐
- 13 What sex baby do you hope for? boy ☐ girl ☐ no preference ☐
- 14 How many other children do you have (not including this baby)? _____
- 15 How many miscarriages have you had? _____
- 16 How many terminations (planned abortions) have you had? _____
- 17 How many still births have you had? _____

Delivery-related variables (if relevant)

- 18 Have you had a caesarean section? Yes ☐ No ☐
- 19 Have you had an instrumental delivery? Yes ☐ No ☐
- If yes, please provide details _____
- 20 Did you have an episiotomy (a cut in your vaginal opening) to help your baby come out? Yes ☐ No ☐
- 21 Was any previous delivery “difficult” or “traumatic”? Yes ☐ No ☐

Appendix G: Birth experience questionnaire - Time 2 (used in Chapter 5)

1. How was your baby born?

☐ Normal
delivery

☐ Assisted delivery
(e.g. forceps)

☐ Emergency
caesarean

☐ Elective
caesarean

2. How long did your labour last? _____

3. How much pain did you feel during labour?

(please give a rating for the amount of pain you felt overall, 1 = none at all, 10 = worst possible pain)

1 2 3 4 5 6 7 8 9 10

4. Did you find childbirth a traumatic experience? ☐ Yes ☐ No

Appendix H: Self-Reporting Questionnaire-20 (used in Chapters 5 and 6)

How have you felt over the past 30 days?

The following questions are related to certain problems that may have bothered you in the last 30 days. If you think the question applies to you and you had the described problem in the last 30 days, answer YES. On the other hand if the question does not apply to you, and you did not have the problem in the past 30 days, answer NO. If you are unsure how to answer please give the best answer you can. We would like to reassure that the answers you provide here are confidential.

Do you often have headaches?	Yes	No
Is your appetite poor?	Yes	No
Do you sleep badly?	Yes	No
Are you easily frightened?	Yes	No
Do your hands shake?	Yes	No
Do you feel nervous, tense, or worried?	Yes	No
Is your digestion poor?	Yes	No
Do you have trouble thinking clearly?	Yes	No
Do you feel unhappy?	Yes	No
Do you cry more than usual?	Yes	No
Do you find it difficult to enjoy your daily activities?	Yes	No
Do you find it difficult to make decisions?	Yes	No
Is your daily work suffering?	Yes	No
Are you unable to play a useful part in life?	Yes	No
Have you lost interest in things?	Yes	No
Do you feel that you are a worthless person?	Yes	No
Has the thought of ending your life been on your mind?	Yes	No
Do you feel tired all the time?	Yes	No
Do you have uncomfortable feelings in your stomach?	Yes	No
Are you easily tired?	Yes	No

Appendix I: Impact of Event Scale – Revised (used in Chapter 5)

The following is a list of difficulties people sometimes have after stressful life events. Please think of the most stressful event you have experienced recently and write it down. Then read each item and indicate how distressing each difficulty has been for you *during the past 7 days* with respect to the event listed. How much were you distressed or bothered by these difficulties?

Stressful event:

0 – Not at all

1 – A little bit

2 - Moderately

3 – Quite a bit

4 - Extremely

1. Any reminder brought back feelings about it	0	1	2	3	4
2. I had trouble staying asleep	0	1	2	3	4
3. Other things kept making me think about it	0	1	2	3	4
4. I felt irritable and angry	0	1	2	3	4
5. I avoided letting myself get upset when I thought about it or was reminded of it.	0	1	2	3	4
6. I thought about it when I didn't mean to	0	1	2	3	4
7. I felt as if it hadn't happened or wasn't real	0	1	2	3	4
8. I stayed away from reminders about it	0	1	2	3	4
9. Pictures about it popped into my mind	0	1	2	3	4
10. I was jumpy and easily startled	0	1	2	3	4
11. I tried not to think about it	0	1	2	3	4
12. I was aware that I still had a lot of feelings about it, but I didn't deal with them	0	1	2	3	4
13. My feelings about it were kind of numb	0	1	2	3	4
14. I found myself acting or feeling like I was back at that time	0	1	2	3	4
15. I had trouble falling asleep	0	1	2	3	4
16. I had waves of strong feelings about it	0	1	2	3	4
17. I tried to remove it from my memory	0	1	2	3	4
18. I had trouble concentrating	0	1	2	3	4
19. Reminders of it caused me to have physical reactions, such as sweating, trouble breathing, nausea, or a pounding heart	0	1	2	3	4

20. I had dreams about it	0	1	2	3	4
21. I felt watchful and on guard	0	1	2	3	4
22. I tried not to talk about it	0	1	2	3	4

Appendix J: The Posttraumatic Stress Diagnostic Scale (used in Chapter 5)

This section asks about your experiences during birth and whether it was difficult or traumatic for you. This includes the days immediately after your birth if things happened during this time that were difficult or traumatic, such as problems with your baby. Your answers to all these questions are confidential and anonymous. Please answer these questions as far as you can, even if you did not think your experience of giving birth was traumatic.

How long ago was the birth?

During your birth

- | | | |
|-----|----|--|
| Yes | No | Were you physically injured? |
| Yes | No | Was someone else physically injured? |
| Yes | No | Did you think that your life was in danger? |
| Yes | No | Did you think someone else's life was in danger? |
| Yes | No | Did you feel helpless? |
| Yes | No | Did you feel terrified? |

*Below is a list of problems that people sometimes have after a traumatic birth. Read each one carefully and circle the number (0-3) that best describes how often that problem bothered you in a typical **MONTH** after birth.*

- | | | | | |
|---|---|---|---|--|
| 0 | 1 | 2 | 3 | Not at all or only one time |
| 1 | 2 | 3 | 0 | Once a week or less / once in a while |
| 2 | 3 | 0 | 1 | 2 to 4 times a week / half the time |
| 3 | 0 | 1 | 2 | 5 or more times a week / almost always |
-
- | | | | | |
|---|---|---|---|--|
| 0 | 1 | 2 | 3 | Having upsetting thoughts or images about birth that came into your head when you didn't want them to. |
| 0 | 1 | 2 | 3 | Having bad dreams or nightmares about the birth. |
| 0 | 1 | 2 | 3 | Reliving the birth, acting or feeling as if it was happening again. |
| 0 | 1 | 2 | 3 | Feeling emotionally upset when you were reminded of the birth (for example, feeling scared, angry, sad, guilty, etc) |
| 0 | 1 | 2 | 3 | Experiencing physical reactions when you were reminded of the birth (for example, breaking out in a sweat, heart beating fast) |
| 0 | 1 | 2 | 3 | Trying not to think about, talk about, or have feelings about the birth. |
| 0 | 1 | 2 | 3 | Trying to avoid activities, people, or places that remind you of the birth. |
| 0 | 1 | 2 | 3 | Not being able to remember an important part of the birth. |
| 0 | 1 | 2 | 3 | Having much less interest or participating much less often in important activities. |

- 0 1 2 3 Feeling distant or cut off from people around you.
- 0 1 2 3 Feeling emotionally numb (for example, being unable to cry or unable to have loving feelings).
- 0 1 2 3 Feeling as if your future plans or hopes will not come true (for example, you will not have a career, marriage, children, or a long life)
- 0 1 2 3 Having trouble falling or staying asleep.
- 0 1 2 3 Feeling irritable or having fits of anger.
- 0 1 2 3 Having trouble concentrating (for example, drifting in and out of conversations, losing track of a story on television, forgetting what you read)
- 0 1 2 3 Being overly alert (for example, checking to see who is around you, being uncomfortable with your back to a door etc)
- 0 1 2 3 Being jumpy or easily startled (for example when someone walks up behind you)

How long did you experience the problems that you reported above?

- 1 Less than 1 month
- 2 1 to 3 months
- 3 more than 3 months

How long after the birth did these problems begin?

- 1 less than 6 months
- 2 6 or more months

How disabling were these reactions?

- 0 not at all disabling
- 1 slightly disabling
- 2 definitely disabling
- 3 markedly disabling
- 4 severely disabling

Please indicate below if the problems you rated on the previous page interfered with any of the following areas of your life:

- | | | | |
|-----|----|-----|--------------------------------|
| Yes | No | n/a | Work |
| Yes | No | n/a | Household chores and duties |
| Yes | No | n/a | Relationships with friends |
| Yes | No | n/a | Fun and leisure activities |
| Yes | No | n/a | Schoolwork |
| Yes | No | n/a | Relationships with your family |
| Yes | No | n/a | Sex life |
| Yes | No | n/a | General satisfaction with life |

Yes No n/a Overall level of functioning in all areas of your life

Finally, please indicate whether any of the following traumatic events have happened to you or you have witnessed them:

Yes No Serious accident, fire, or explosion (for example an industrial, farm, car, plane or boating accident)

Yes No Natural disaster (for example, tornado, hurricane, flood, or major earthquake)

Yes No Non-sexual assault by someone you know (for example being mugged, physically attacked, shot, stabbed or held at gunpoint)

Yes No Non-sexual assault by a stranger (for example being mugged, physically attacked, shot, stabbed or held at gunpoint)

Yes No Sexual assault by someone you know (for example, rape or attempted rape)

Yes No Sexual assault by a stranger

Yes No Military combat or experience of a war zone

Yes No Sexual contact when you were younger than 18 with someone who was 5 or more years older than you (for example, contact with genitals, breasts)

Yes No Imprisonment (for example prison inmate, prisoner of war, hostage)

Yes No Torture

Yes No Life-threatening illness

Yes No Other traumatic event (please specify _____)

Appendix K: Posttraumatic Growth Inventory (used in Chapter 5)

We are interested in how you think you have changed after childbirth. Below are a number of statements that may or may not be representative of how you think you have changed. Please read each statement carefully and circle the number that best describes how you feel. People react to events in many different ways.

0 = I **did not** change as a result of childbirth

1 = I changed to a **very small** degree as a result of childbirth

2 = I changed to a **small** degree as a result of childbirth

3 = I changed to a **moderate** degree as a result of childbirth

4 = I changed to a **great** degree as a result of childbirth

5 = I changed to a **very great** degree as a result of childbirth

My priorities about what is important in life	0	1	2	3	4	5
An appreciation for the value of my own life	0	1	2	3	4	5
I developed new interests	0	1	2	3	4	5
A feeling of self-reliance	0	1	2	3	4	5
A better understanding of spiritual matters	0	1	2	3	4	5
Knowing that I can count on people in times of trouble	0	1	2	3	4	5
I established a new path for my life	0	1	2	3	4	5
A sense of closeness with others	0	1	2	3	4	5
A willingness to express my emotions	0	1	2	3	4	5
Knowing I can handle difficulties	0	1	2	3	4	5
I'm able to do better things with my life	0	1	2	3	4	5
Being able to accept the way things work out	0	1	2	3	4	5
Appreciating each day	0	1	2	3	4	5
New opportunities are available which wouldn't have been otherwise	0	1	2	3	4	5
Having compassion for others	0	1	2	3	4	5
Putting effort into my relationships	0	1	2	3	4	5
I'm more likely to change things which	0	1	2	3	4	5

need changing

I have a stronger religious faith	0	1	2	3	4	5
-----------------------------------	---	---	---	---	---	---

I discovered that I'm stronger than I thought I was	0	1	2	3	4	5
--	---	---	---	---	---	---

I learned a great deal about how wonderful people are	0	1	2	3	4	5
--	---	---	---	---	---	---

I accept needing others	0	1	2	3	4	5
-------------------------	---	---	---	---	---	---

Appendix L: Multidimensional Scale of Perceived Social Support (used in Chapters 5 and 6)

This section looks at the support you have from a few close people in your life. We are interested in how you feel about the following statements. Read each statement carefully. Indicate how you feel about each statement.

Circle the "1" if you **Very Strongly Disagree**
 Circle the "2" if you **Strongly Disagree**
 Circle the "3" if you **Mildly Disagree**
 Circle the "4" if you are **Neutral**
 Circle the "5" if you **Mildly Agree**
 Circle the "6" if you **Strongly Agree**
 Circle the "7" if you **Very Strongly Agree**

There is a special person who is around when I am in need	1	2	3	4	5	6	7
There is a special person with whom I can share my joys and sorrows	1	2	3	4	5	6	7
My family really tries to help me	1	2	3	4	5	6	7
I get the emotional help and support I need from my family	1	2	3	4	5	6	7
I have a special person who is a real source of comfort to me	1	2	3	4	5	6	7
My friends really try to help me	1	2	3	4	5	6	7
I can count on my friends when things go wrong	1	2	3	4	5	6	7
I can talk about my problems with my family	1	2	3	4	5	6	7
I have friends with whom I can share my joys and sorrows	1	2	3	4	5	6	7
There is a special person in my life who cares about my feelings	1	2	3	4	5	6	7
My family is willing to help me make decisions	1	2	3	4	5	6	7
I can talk about my problems with my friends	1	2	3	4	5	6	7

**Appendix M: Ethical approval for study reported in Chapter 6 from The Gambia
Government/Medical Research Council Laboratories**

17th June 2009
Alexandra Sawyer
Psychology Department
University of Sussex
Brighton
East Sussex
BN1 9QH

Dear Alexandra,

Re: SCC R08004v3. 28th August 2008. Physical and psychological outcomes following childbirth in Gambian women.

Thank you for your clear and helpful responses to this committee's queries concerning the above project. We are happy to note the successful conduct of the pilot study which has informed your responses. We note with approval your plans to simplify and shorten the client interviews by the substitution of the questionnaires with shorter, pragmatic but validated instruments (i.e. the Self Reporting Questionnaire-20, the 12-item Multidimensional Scale of Perceived Social Support). We also note the inclusion of marital status as an important aspect for further exploration during the longitudinal stage of the research.

I am happy to record our committee's approval of the plans for the continuation of this study. We shall be interested to receive a summary report at the completion of the main study.

With best wishes

Mr. Malcolm Clarke
Chairman, Gambia Government/MRC Joint Ethics Committee

Appendix N – Demographic and obstetric questionnaire – Time 1 (used in Chapter 6)

In this section we will be asking for information about you and your pregnancy. This information will be confidential and anonymous.

Information about you

- 1 Your date of birth_____ Age last birthday_____
- 2 What is your ethnicity? _____
- 3 What is your marital status? *(please tick one box only)*
 - ☐ monogamous marriage
 - ☐ polygamous marriage (wife____)
 - ☐ living with your partner
 - ☐ have a boyfriend but not living together
 - ☐ separated
 - ☐ divorced
 - ☐ single
 - ☐ widowed
- 4 Who do you live with? *(please tick one box only)*
 - ☐ husband/partner
 - ☐ husband/partner & children
 - ☐ parents
 - ☐ friends
 - ☐ just your children
 - ☐ alone
 - ☐ other_____
- 6 What educational qualifications do you have? *(please tick all that apply)*
 - ☐ none
 - ☐ basic
 - ☐ secondary
 - ☐ tertiary
 - ☐ higher
 - ☐ other (please specify)_____
- 7 Do you work, or did you before getting pregnant? Yes No
If yes, please give details_____
- 8 Does your partner/husband work (if relevant)? Yes No
If yes, please give details_____

About your pregnancy

9 What is your expected date of delivery? _____

10 Are there any problems with your current pregnancy? Yes No

If yes, please provide details_____

11 Before you knew you were pregnant, how much did you want a baby? (Please circle a *number* to indicate how much you wanted a baby

Not at all 0 1 2 3 4 5 6 very much

12 Was your pregnancy: planned ☐ unplanned ☐

13 What sex baby do you hope for? boy ☐ girl ☐ no preference ☐

14 How many other children do you have (not including this baby)? _____

15 How many miscarriages have you had? _____

16 How many terminations (planned abortions) have you had? _____

17 How many still births have you had? _____

Delivery-related variables (if relevant)

18 Have you had an operational delivery? Yes ☐ No ☐

Appendix O – Birth experience questionnaire – Time 2 (used in Chapter 6)

1. How was your baby born?

- ☐ Normal delivery ☐ Operational delivery

2. Where was your baby delivered?

- ☐ Health Centre ☐ Hospital ☐ At Home

3. Who delivered your baby? _____

4. How long did your labour last? _____

5. Was your baby delivered: Early ☐ On time ☐ Late ☐

6. Were there any complications with the baby? Yes / No

If yes please give details: _____

7. How much pain did you feel during labour?

(please give a rating for the amount of pain you felt overall, 1 = none at all, 10 = worst possible pain)

1 2 3 4 5 6 7 8 9 10

8. Did you find childbirth a traumatic experience? Yes / No

Appendix P – Modified version of the Short Form of the Posttraumatic Growth Inventory (used in Chapter 6)

We are interested in how you think you have changed after childbirth. Below are a number of statements that may or may not be representative of how you think you have changed. Please read each statement carefully and circle the number that best describes how you feel. People react to events in many different ways.

1 = I **did not** change as a result of childbirth

2 = I am **not sure** if I experienced this change as a result of childbirth

3 = I **did** experience this change as a result of childbirth

I changed my priorities about what is important in life	1	2	3
I have a greater appreciation for the value of my own life	1	2	3
I am able to do better things with my life	1	2	3
I have a better understanding of spiritual matters	1	2	3
I have a greater sense of closeness with others	1	2	3
I established a new path for my life	1	2	3
I know better that I can handle difficulties	1	2	3
I have a stronger religious faith	1	2	3
I discovered that I'm stronger than I thought I was	1	2	3
I learned a great deal about how wonderful people are	1	2	3

Appendix Q: Modified version of The Posttraumatic Stress Diagnostic Scale (used in Chapter 6)

This section asks about your experiences during birth and whether it was difficult or traumatic for you. This includes the days immediately after your birth if things happened during this time that were difficult or traumatic, such as problems with your baby.

How long ago was the birth?

During your birth

- | | | |
|-----|----|--|
| Yes | No | Were you physically injured? |
| Yes | No | Was someone else physically injured? |
| Yes | No | Did you think that your life was in danger? |
| Yes | No | Did you think someone else's life was in danger? |
| Yes | No | Did you feel helpless? |
| Yes | No | Did you feel terrified? |

*Below is a list of problems that people sometimes have after a traumatic birth. Read each one carefully and circle the number (1-3) that best describes how you felt in a typical **MONTH** after birth.*

- | | | | |
|-------|----|----------------------|--|
| | 0) | No | I have not experienced this problem |
| | 1) | I am not sure | if I have experienced this problem |
| | 2) | Yes | I have experienced this problem |
| 0 1 2 | | | Having upsetting thoughts or images about birth that came into your head when you didn't want them to. |
| 0 1 2 | | | Having bad dreams or nightmares about the birth. |
| 0 1 2 | | | Reliving the birth, acting or feeling as if it was happening again. |
| 0 1 2 | | | Feeling emotionally upset when you were reminded of the birth (for example, feeling scared, angry, sad, guilty, etc) |
| 0 1 2 | | | Experiencing physical reactions when you were reminded of the birth (for example, breaking out in a sweat, heart beating fast) |
| 0 1 2 | | | Trying not to think about, talk about, or have feelings about the birth. |
| 0 1 2 | | | Trying to avoid activities, people, or places that remind you of the birth |
| 0 1 2 | | | Not being able to remember an important part of the birth. |
| 0 1 2 | | | Having much less interest or participating much less often in important activities. |
| 0 1 2 | | | Feeling distant or cut off from people around you. |

- | | | | |
|---|---|---|---|
| 0 | 1 | 2 | Feeling emotionally numb (for example, being unable to cry or unable to have loving feelings). |
| 0 | 1 | 2 | Feeling as if your future plans or hopes will not come true (for example marriage or a long life) |
| 0 | 1 | 2 | Having trouble falling or staying asleep. |
| 0 | 1 | 2 | Feeling irritable or having fits of anger. |
| 0 | 1 | 2 | Having trouble concentrating |
| 0 | 1 | 2 | Being overly alert (for example, checking to see who is around you, being uncomfortable with your back to a door etc) |
| 0 | 1 | 2 | Being jumpy or easily startled (for example when someone walks up behind you) |

Have these problems stopped you doing things (e.g. household chores, spending time with family)?

No
Yes

Finally, please indicate whether any of the following traumatic events have happened to you or you have witnessed them:

- | | | |
|-----|----|---|
| Yes | No | Serious accident, fire, or explosion |
| Yes | No | Natural disaster (for example flood) |
| Yes | No | Non-sexual assault (for example being mugged, physically attacked, shot, stabbed or held at gunpoint) |
| Yes | No | Sexual assault (for example, rape or attempted rape) |
| Yes | No | Military combat or experience of a war zone |
| Yes | No | Unwanted sexual contact when you were a child |
| Yes | No | Imprisonment (for example prison inmate, prisoner of war, hostage) |
| Yes | No | Torture |
| Yes | No | Life-threatening illness |
| Yes | No | Other traumatic event (please specify _____) |