

Social Support Following Miscarriage: Impact on Outcomes of Grief and
Growth.

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STATEMENT OF ORIGINALITY

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Abstract

Grief and growth are potential psychological sequelae of miscarriage but little is known about predictors of, or temporal changes in, these outcomes. This study aims to examine the impact of social support, partner support and marital satisfaction after miscarriage on the outcomes of grief and growth among women and men following unplanned pregnancy loss. Because social support is thought to facilitate the resolution of distress after trauma and to be associated with psychological growth we hypothesised that the use of support after miscarriage would be associated with improved outcomes in relation to grief and growth.

This study investigated predictors of grief and growth among 496 participants (248 couples) following miscarriage. Participants completed the following measures: the Significant Others Scale (SOS), Coping Response Inventory (CRI), Index of Marital Satisfaction (IMS), Perinatal Grief Scale (PGS) and Stress-Related Growth Scale (SRGS). Measures were taken at one and four months after miscarriage. The study employed a correlational design; data were entered utilising stepwise regression analysis. Grief and growth were taken as dependent variables in separate analyses. Sociodemographic characteristics and measures of support, marital satisfaction and coping were taken as predictor variables.

Favourable grief outcomes were associated with support satisfaction one month after miscarriage, marital satisfaction and coping style (with more use

of behavioural avoidance and less use of cognitive approach strategies predicting lower PGS scores). Growth was predicted by marital satisfaction. In unexpected findings a negative association was identified between support satisfaction and growth and no association was identified between coping style and growth.

These findings highlight the importance of social support and the quality of the marital relationship to individuals after miscarriage. Assessment by health professionals of salient aspects of support among individuals who have experienced miscarriage may lead to identification of those individuals who lack appropriate support resources and thus to interventions to enhance support which in turn could contribute to optimal psychological outcomes after miscarriage.

Extended Literature Review

Social support following miscarriage: impact on outcomes of grief and growth.

The loss of a baby through miscarriage is a common event affecting approximately 21-24% of pregnancies (Johnson & Puddifoot, 1996). In the United Kingdom (the context for this research), miscarriage is defined as pregnancy loss before the 24th week of gestation. Miscarriage is one form of perinatal death; others include ectopic pregnancy, stillbirth or premature birth, or the death of an infant during the neonatal period which encompasses the first four weeks of life (Wing, Clance, Burge-Callaway & Armistead, 2001).

Psychological responses to miscarriage

Parental responses to miscarriages vary enormously between individuals and can range from relief to intense psychological distress (Stratton & Lloyd, 2008; Swanson, 2000). Changes in individuals' responses over time, such as a decline in grief levels over the months after miscarriage have also been reported (Brier, 2008; Swanson, Chen, Graham, Wojnar, & Petras, 2009). For many affected parents miscarriage is a profoundly distressing loss (Adolfsson, 2011; Brier, 2008; Cuisinier, Janssen, de Graauw, Bakker, & Hoodguin, 1996; Frost & Condon, 1996; Lee & Slade, 1996; Wojnar, Swanson & Adolfsson, 2011). Grief following miscarriage is a common outcome in women and their partners (Brier, 2008; Johnson, Baker & Escott, 2005; Swanson et al., 2009) although the incidence is unclear. Brier's extensive review (2008) reported significant variation between studies, with

the incidence of grief in women following miscarriage in different papers ranging from 40% to 100%. For some affected individuals miscarriage can also be experienced as a traumatic event (Adolfsson, 2011; Lee & Slade, 1996; Sejourne, Callahan & Chabrol, 2010a).

Women's responses to miscarriage may include psychological morbidity with studies reporting negative psychological sequelae including symptomatology for depression (Adolfsson, 2011; Swanson, 2000; Swanson et al., 2009), anxiety (Sejourne et al., 2010b) and posttraumatic stress (Broen, Moum, Bodtker & Ekeberg, 2004) in some individuals. A relatively recent development in this field has been the acknowledgement of the psychological impact of miscarriage upon partners of women who have miscarried. While most published research continues to focus on the responses to miscarriage in women some studies have emerged that explore the ramifications of this event for partners. Differences in the response of women and men to miscarriage have been noted, although a full understanding of these differences has not yet been reached (Conway & Russell, 2000; Swanson et al., 2009). It is increasingly recognised that miscarriage has the potential to significantly affect both women and men (Conway & Russell, 2000; Johnson & Baker, 2004; Toedter, Lasker, & Janssen, 2001).

Miscarriage, stress and coping

While miscarriage can be a stressful experience (Sejourne, Callahan & Chabrol, 2010a) prior stress can also impact on psychological outcomes following miscarriage (Rowlands & Lee, 2010a). In their analysis of data from a longitudinal study on women's health Rowlands and Lee found that

lower mental health scores after miscarriage were predicted by a greater number of life events in the previous year and were associated with higher perceived stress.

Lazarus and Folkman (1984) addressed the shortcomings of early models of stress (Selye, 1973) by recognising the significance of the cognitive appraisal made by the person facing the potential stressor. They postulated that the individual's threat appraisal firstly of the event or circumstances and then of their capacity to cope with any identified threat mediates the reaction thus determining whether or not the person experiences the situation as stressful. This '*transactional approach*' highlighted the interactions, or transactions that occur between the person and their environment, including their resources.

Folkman and Lazarus (1988) explained coping as the attempts made by an individual to manage demands that they perceive as challenging or threatening. Cognitive and behavioural coping efforts are implemented in an attempt to mitigate the impact of stressful events or circumstances. These researchers describe two key types of coping; problem-focused coping, which attempts to modify the particular circumstances perceived as demanding, and emotion-focused coping which aims to manage the distress caused by the person's response to the stressor.

Another perspective was offered by Roth & Cohen (1986) who categorised coping strategies as either approach strategies, that orient a person towards the stressor; or avoidance strategies, which orient away from the threat. Approach coping can include information seeking, searching for meaning,

positive reappraisal, seeking and accessing social support, communicating one's emotions, and benefit finding; avoidance strategies include denial and focusing on matters other than the threat (James & Kristiansen, 1995; Roth & Cohen, 1986). An individual can employ both styles; Roth & Cohen suggest that the ideal would be the utilization of a mix of coping modes as both have specific advantages and disadvantages and situational factors influence to what extent each style is adaptive. Approach responses may lead to effective action and so are likely to be more advantageous when there is some potential to influence or control the situation, while avoidance may be beneficial in reducing stress and allowing the person time to integrate overwhelming information, and thus may be adaptive when the individual has no control over the circumstances (Roth & Cohen, 1986).

One study of coping after miscarriage in 305 French and Belgian women found approach styles were employed by the majority of respondents (seeking information, 93%; talking to partners, close family and friends, 86%; accessing internet support groups, 81% and discussion with other women who had experienced miscarriage, 64%) although the use of distraction, an avoidance mechanism was also reported by 75% of the women suggesting that both styles may be employed by women at different times during the aftermath of miscarriage (Sejourne, Callahan & Chabrol, 2010a). This provides support for the view that situational factors are significant in determining coping style (Lazarus & Folkman, 1984; Roth & Cohen, 1986). The method used was a researcher designed questionnaire distributed through internet forums related to miscarriage and other reproductive health

matters. This method it is more likely than a random sampling to capture those women who cope by actively seeking information or support, as reflected in their use of internet forums. Nevertheless, it provides an interesting glimpse into types of support used by women after miscarriage.

Social support

The use of social support is one coping strategy of interest to researchers investigating the psychological impact of miscarriage (Abboud & Liamputtong, 2005; Rowlands & Lee, 2010b; Swanson, 2000). Cutrona stated social support is mostly conceptualised as “responsiveness to another’s needs and, more specifically, as acts that communicate caring; that validate the other’s worth, feelings, or actions; or that facilitate adaptive coping with problems through the provision of information, assistance, or tangible resources” (1996; p. 10). The key dimensions of support identified in most models relate to five aspects: emotional support, membership of a supportive social network, esteem or self-efficacy support, instrumental support such as material assistance, and information or guidance (Cutrona, 1990). Primary sources of social support are family, friends and intimate partners (Zimet et al., 1988).

Social support provides protection against the potential negative health outcomes that can result from high levels of stress (Cohen & Wills, 1985). Two key models have been proposed as the mechanism through which this may occur; the direct-effect or main-effect model, which postulates that supportive interactions provide a benefit to the recipient which occurs

irrespective of whether or not that individual is under stress (Cohen, 1988), and the stress buffering hypothesis, which suggests that benefits to the individual of social support accrue over time, as the advantages of supportive exchanges impact on factors such as a person's sense of security and feelings of belongingness, providing a buffer against the potential deleterious impact of stressors (Cohen, 1988). Earlier research focused on somatic health benefits, exploring the impact of social support on the development and progression of disease (Cohen, 1988). Later studies have identified mental health benefits to individuals who receive greater social support, including lower mean scores on the Impact of Events Scale – Revised (IES-R) among women who attended support groups in a study of women following stillbirth (Cacciatore, 2007) and ratings of greater emotional strength as measured on a sub-scale of the Successful Self Scale (SSS) among 174 women following miscarriage (Swanson, 2000).

Various dimensions of support have been investigated as researchers attempt to understand the mechanism through which social support is beneficial. These have included quantitative aspects of social support such as the nature of the support offered or the size of a person's support network as well as qualitative aspects such as support adequacy (Zimet et al., 1988). In a sample of 177 people from a larger cross-sectional study of a representative sample of community residents Henderson (1981) found that the adequacy as perceived by the recipient of the support was more significant in contributing to mental health outcomes (the development of neurotic symptoms, measured by the General Health Questionnaire) than the

actual amount of available or received assistance. This data used for this analysis was from two waves of a series of interviews conducted four months apart (Wave 1 and Wave 2) and excluded those who had a high GHQ score at the initial point of data collection to avoid any confounding impact of poor mental health status at the time of the initial assessment. The study collected data on social network, social interactions, adverse experiences during the previous twelve months, and mental health.

Research into the psychological sequelae of pregnancy loss or perinatal loss has identified the importance to affected individuals of social support, with satisfactory support identified as beneficial and inadequate support as problematic (Rowlands & Lee, 2010b; Sejourne, Callahan & Chabrol, 2010a; Swanson, 2000). Women want and value support after miscarriage (Abboud & Liamputtong, 2005; Corbet-Owen 2003; Rowlands & Lee, 2010b; Sejourne et al., 2010a).

Various types of support have been reported after miscarriage including emotional support (Corbet-Owen, 2003; Wojnar et al., 2011), instrumental support (Abboud & Liamputtong, 2005; Corbet-Owen, 2003) and advice or information (Sejourne, Callahan & Chabrol, 2010a). However support attempts after miscarriage are not always appraised as supportive or as satisfactory by the person to whom they are directed; studies reporting that women found others' responses unhelpful and even upsetting are not uncommon (Abboud & Liamputtong, 2005; Rowlands & Lee, 2010b; Sejourne, Callahan & Chabrol, 2010a; Wojnar et al, 2011) and one study with

couples after miscarriage also reported received support was unsatisfactory (Johnson et al., 2005). Reporting findings from three phenomenological studies conducted with forty two women after miscarriage, Wojnar et al. (2011) observed that the majority of their sample encountered varied levels of understanding and support from their network including their partners, friends, family members and medical professionals. Many felt that others did not recognise the significant impact of the miscarriage for them and a number were disappointed with the support they received. Rowlands and Lee (2010b) used qualitative methods to analyse the experiences of nine women after miscarriage. They also reported that some responses were perceived by the recipient as insensitive and upsetting although they were presumably intended as supportive; one example given was the comment that the miscarriage was “for the best” (p.280).

While these studies support the importance of support after miscarriage they did not measure psychological morbidity, so no conclusions can be drawn from this data about the impact of support upon emotional wellbeing.

However some scholars have extended the research into this area.

Swanson (2000) studied 174 women who had miscarried and found no direct effect but an indirect negative effect of support on depressive symptoms, through increased emotional strength and impact on coping. A later study by Swanson and colleagues (2009) examined the effect on depressive symptoms and grief of three support interventions for 636 women and partners (318 couples) following miscarriage. The interventions were NC - nurse caring (providing three face to face counselling sessions), SC - self-

caring, (using audio-visual and printed resources) and CC - combined caring, (a combination of one face to face session and the SC resources). A control group (no treatment) was included. For women the face-to-face counselling was the most effective of the interventions in achieving more rapid resolution of depressive symptoms, and was more effective than no treatment in achieving more rapid resolution of both depressive symptoms and grief. However a different picture emerged for men, for whom the face-to-face counselling was beneficial in resolution of grief but not depression.

Treatment conferred no benefit on men in the resolution of depressive symptoms, with those in the no treatment control achieving similar results as those in the NC treatment, the most effective of the treatment groups. In contrast grief symptoms resolved more rapidly relative to no treatment in those men in either the NC or CC groups.

This comprehensive study (Swanson et al., 2009) was a randomised controlled clinical trial and used a repeated measures design. Other strengths of this research are the inclusion of women and men, the large sample size and that the time since miscarriage was controlled, with all participants being recruited within three months of the miscarriage. The couples were volunteers who responded to a range of media soliciting participants; this may reflect a greater willingness to face their reaction to miscarriage compared to couples who did not apply, potentially limiting application of these findings. It is also worth noting that participants who dropped out of the trial scored higher on grief related emotion than those who remained, suggesting that these results may not apply to those who exhibit

greater distress following miscarriage. Overall these findings suggest that support can provide an advantage to women in accelerating resolution of psychological symptoms following miscarriage, but suggest a more complex picture for men. Other studies have also reported differences in responses to miscarriage between women and men (Conway & Russell, 2000; Corbet-Owen, 2003). In a study of 68 men whose partners had miscarried Johnson and Baker (2004) found that men employed more avoidant coping strategies after their partner's miscarriage; the relative benefits of the no treatment group over some treatment interventions for men in the study conducted by Swanson and her colleagues (2009) may reflect a preference for avoidant style coping techniques for some men dealing with psychological sequelae of miscarriage.

Given the paucity of studies investigating the outcome on measures of the psychological impact of support on women after miscarriage, it may be possible to draw some conclusions from trials conducted in other areas of perinatal death. Cacciatore (2007) conducted an investigation using both qualitative and quantitative methods to explore the impact of support for 47 women following the loss of a baby through stillbirth. She found that attendance at a support group was associated with fewer symptoms of posttraumatic stress; this effect was maintained when controlling for time elapsed since the loss. In qualitative responses 39 of the 47 women nominated support (either participating in a support group or accessing other social support) as the most helpful factor in their dealing with the loss and in response to an open question ("Please share any other information you

believe will be helpful in this research” p. 82) many women again emphasised the importance to their recovery of support including of support groups, either commenting on the value they derived from support or on the difficulty they experienced as a result of inadequate support. That this was the most common theme in response to this open question speaks of the enormous significance of social support to the women in this study. The use of both quantitative and qualitative data collection methods enhances the validity of these findings. However the sample size of 47 is small, the sampling method was purposive (sampling through organizations that assist individuals following perinatal death) rather than random sampling and there was no control group of women who had not contacted agencies offering support following this unexpected perinatal loss. Nevertheless this data makes a valuable contribution to the body of literature that highlights the critical importance of support to those experiencing perinatal death.

To further investigate this area Wing et al. (2001) examined the literature on parental bereavement following perinatal loss including miscarriage. They reviewed thirteen studies (both qualitative and quantitative) on social support and concluded that individuals receiving support from networks of family, friends and medical professionals reported lower rates of distress and fewer ongoing adjustment difficulties. They also reviewed eleven studies on partner support and reported that poor partner support correlated with the outcome grief, with higher prevalence, more intense and longer lasting grief symptoms among both women and men reporting poor partner support after a perinatal loss. Wing and colleagues did not provide details in their review

of the measures of grief and psychological adjustment used in these various trials, making it difficult to determine the specific implications of the research for the impact of support on grief outcomes. They also failed to provide information about measures of psychological distress or morbidity, although they noted that measures of anxiety, depression and despair were included in some of the studies. In relation to support, the reviewers referred to emotional support in their discussion of some studies but did not identify the measures used to assess this, while in their discussion of other studies they used the broad terms support or social support; it is not clear therefore what dimensions of social support were found to be most effective following perinatal loss. These limitations highlight the need for further research to extend our understanding of the effect of support on psychological outcomes after miscarriage.

Partner support

Researchers investigating stress in couples have shown interest in the association between partner support, health outcomes and relationship quality (Cutrona, Russell & Gardner, 2005). People in an intimate relationship generally expect their partner to provide significant levels of support, particularly when they are facing adversity; the degree to which their partner can respond to this expectation can impact upon the relationship (Cutrona et al., 2005). Adverse health outcomes have been linked to negative marital functioning and protective health benefits of positive marital relationships have been identified in an extensive review of 64 studies (Kiecolt-Glasser & Newton, 2001).

The mechanism by which marital quality impacts on health is not well understood. Cutrona and her colleagues (2005) have proposed the relationship enhancement model to explain this association. This paradigm hypothesises that the experience of receiving consistent support from a partner (represented in support behaviours and in the partner's perceptions of available support) leads to the growth of trust and that greater trust contributes to the development of relationship stability and quality, which in turn contributes to the enhancement of physical and mental health outcomes for the individual. This model was tested in a study by Lawrence and colleagues (2008) who investigated support and marital satisfaction in 275 newly married couples using self-report scales. 234 of these couples also participated in a behavioural observation task. Scales measuring partner support (type, amount and adequacy), marital adjustment, quality of the marital relationship and marital satisfaction were completed. The observation system, the Social Support Interaction Coding System (SSICS) provides ratings based on analysis by coders of observations of a task intended to elicit supportive interactions. They found that partner support was associated with satisfaction in the marital relationship and suggested this data provided support for the relationship enhancement model. Interestingly the dimensions of support most predictive of satisfaction in their study differed by sex. For husbands, higher perception of support adequacy was associated with greater marital satisfaction. For wives both the amount and adequacy of support they received predicted marital satisfaction although the amount was a stronger predictor than the adequacy.

Strengths of this research include the large sample size and the use of a

multimethod design. However there are some limitations to the study.

Although all couples in this trial (Lawrence et al., 2008) had been married between three and six months, the length of their relationships prior to their marriage was not controlled. For the couples in the first of two samples in this study (N=103) the length of their relationship prior to marriage varied considerably, with a mean of 42 months and an SD of 26.1 months. 76% of this sample cohabited before their marriage with an average length of cohabitation of 21.1 months. Details of length of the relationship and time of cohabitation prior to marriage was not provided for those couples from the second sample (N=172 couples). These factors could be confounding variables limiting generalizability of results. It must be noted too that the findings may not be relevant to couples under stress including those who have experienced miscarriage as the study did not measure experience of trauma or stress and did not address the potential impact of stressors upon the measured variables.

In their review of research into grief after perinatal death Toedter et al., (2001) identified a relationship between marital satisfaction and grief, with a strong spousal relationship associated with lower grief scores in four studies. Given the association between partner support and relationship satisfaction (Lawrence et al., 2008) it is possible that partner support could impact on grief after miscarriage through marital satisfaction.

Support and sex differences

The association between sex and social support following miscarriage has

been investigated by a small number of researchers. Johnson & Puddifoot (1996) conducted a quantitative study of 126 male partners of women who had miscarried. From this cohort ten men participated in a semi-structured interview to allow discussion of their experiences; they reported having received minimal social support after the miscarriage from friends or associates. Conway and Russell (2000) investigated a sample of 39 women and 32 partners (partner sex was not specified) in the period up to three weeks after miscarriage (T1) and again at two to four months after the event (T2). While more women in their study than men valued social support they found that both women and their partners reported appreciation of support provided by family and friends after their loss. The majority of participants rated support received from relatives after the miscarriage as helpful (83% of women and 73% of partners), while similar numbers rated as helpful support from friends (86% of women and 71% of partners). The researchers stated that partners were more likely than women to consider the support from others “neither helpful nor unhelpful” (20% of the partners and 12% of the women rated family support this way and 18% of the partners and 7% of the women gave this rating for support from friends), however they do not report whether this difference was statistically significant. In this study social support was only identified as “support from relatives” and “support from friends”; more precise dimensions of support were not provided other than reporting a separate measure of whether or not participants discussed the miscarriage with relatives and friends. It is possible therefore that while women and their partners both rated as helpful the support they received there may be

gender differences in the type of support they recalled or appreciated when responding to this item. At follow up two to four months after the miscarriage women were twice as likely as partners to be still accessing emotional support, measured as still discussing the miscarriage with family or friends (41% of women and 19% of partners). Most participants indicated they were able to talk to their partner about the miscarriage at the time of the loss and at the follow-up, although more women than partners identified this as easy (59% of women and 49% of partners at T1). 95% of women reported having received partner support with 69% identifying both practical and emotional partner support, although around one third (36%) indicated they wanted additional support from their partner.

Interestingly Conway and Russell (2000) did not report any results from the women's partners for measures of partner support; these questions appear to have been only given to the women. It is noteworthy and a shortcoming that they did not ask this of the partners, nor explain this omission. After reviewing seven studies Cutrona (1996) concluded that women typically provide more and higher quality emotional support to their partners than do men; it would have been of interest to compare the men's and women's perceptions of partner support after the miscarriage in this study. Qualitative comments provided by participants in Conway and Russell's study suggest that the men were more focused on the welfare of their partner after the miscarriage than on their own wellbeing; other researchers have also reported this response (Abboud & Liamputtong, 2005; Johnson & Puddifoot, 1996). Conway and Russell suggest that the partners did not see

themselves as “the legitimate focus of support” (2000, p. 538). Nevertheless it would be enlightening to see the figures on men’s perceptions of partner support, particularly at the follow up, when the physical crisis experienced by the woman had passed. Conway and Russell did not report use of a standardized measure to investigate support, instead reporting only the use of a “short questionnaire” (p. 533) using a “5-point scale” (p. 535) that also included open questions; other than the Perinatal Grief Scale used for the grief outcome the measures used were not specified. In spite of limitations the findings provide some data from both women and partners in an area of the literature where studies are sparse and for that reason are of importance.

Growth after adverse experiences

Exposure to traumatic events can result in the development of psychological distress which may be long lasting (Tedeschi & Calhoun, 2004). However positive sequelae to trauma have also been identified. In historical writings and the research literature anecdotal accounts abound of individuals reporting positive psychological outcomes following the experience of trauma (Prati & Pietrantonio, 2009; Tedeschi & Calhoun, 2004). Positive changes identified to date include greater appreciation for life, a sense of having improved capacity to cope with adversity, greater empathy and a positive impact on interpersonal relationships (Tedeschi & Calhoun, 2004). A number of terms have been used to describe this experience including posttraumatic growth, positive psychological changes and stress-related growth. The expression posttraumatic growth coined by Tedeschi and Calhoun refers to “the experience of positive change that occurs as a result

of the struggle with highly challenging life crises” (2004, p. 1). This term has become increasingly popular in the literature and is now widely used.

In recent decades researchers have sought empirical support for the claim that personal growth can follow trauma and a convincing body of evidence has accumulated to support this view with growth identified in affected individuals following exposure to many types of trauma including war, motor vehicle and other transportation accidents, being taken hostage and a range of health crises. (Joseph & Linley, 2006; Tedeschi & Calhoun, 2004). In the realm of health related events, empirical studies show support for the claim that positive psychological change including personal growth can follow crises including the diagnosis of cancer and other life threatening illness, the diagnosis of a life threatening illness in one’s baby or child, the death of a family member including of a partner or a child, the death of a premature baby and miscarriage (Cacciato, 2007; Engelkemeyer & Marwit, 2008; Jenewein et al., 2008; Johnson et al., 2005; Joseph & Linley, 2006; Polatinsky & Esprey, 2000; Swanson, 2000; Tedeschi & Calhoun, 2004) and that more benefits may be perceived among those who have experienced more trauma than among those exposed to less challenging circumstances (Tomich & Helgeson, 2004).

Tedeschi and Calhoun (2004) proposed a model to explain the development of posttraumatic growth. They suggest that the traumatic event challenges a person’s fundamental assumptions and schemas and triggers a process of cognitive processing and reappraisal. This leads in turn to the development

of altered schemas and narratives that allow the individual to integrate the crisis into a new, more adaptive set of beliefs and meaning. They suggest social support could assist this process through different mechanisms; the benefits accrued from the sense of intimacy, acceptance and validation that develops as a result of disclosure to supportive others about one's experience and emotional response, and the beneficial impact on the individual's cognitive processing and reappraisal gained through talking to others about the event that may assist in the development of new, adaptive schema.

The nature of the relationships between trauma, distress including posttraumatic stress, and posttraumatic growth is unclear (Bensimon, 2012; Linley & Joseph, 2004). Exposure to trauma does not necessarily lead to either the development of posttraumatic stress or to posttraumatic growth (Bensimon, 2012; Joseph & Linley, 2006). Psychological distress following trauma and posttraumatic growth may co-exist in an individual; these two phenomenon appear to be independent (Buchi et al., 2007; Tedeschi & Callhoun, 2004). In bereavement, grief and personal growth may co-occur but cases have also been reported where grief symptoms have resolved in individuals who report no positive psychological changes as a result of the loss (Znoj, 2006). Clearly the presence of posttraumatic growth does not signal the end of psychological distress. Nevertheless posttraumatic growth does appear to have psychological benefits beyond the subjective experience of this change. Linley and Joseph conducted reviews of empirical studies and found support for the view that posttraumatic growth may be prognostic of enhanced longer term adjustment (Joseph & Linley,

2006; Linley & Joseph, 2004).

In recent years researchers have attempted to identify the variables associated with the development of growth after adversity. The use of adaptive coping strategies has been identified as significant; a meta-analysis of 103 studies conducted by Prati and Pietrantonio (2009) revealed an association between posttraumatic growth and coping strategies including positive reappraisal and seeking social support. Studies also support an association between adaptive coping strategies and the development of growth in pregnant women following a prenatal diagnosis of congenital heart disease (Rychick et al., 2013) and in bereaved parents (Znoj, 2006). Johnson et al. (2005) identified an association between coping styles and growth after miscarriage in a study of 97 couples, with growth in men predicted by avoidance coping and in women by approach coping and social support.

The relationship between the coping resource of social support and posttraumatic growth is complex and as yet is not well understood, with studies in this area presenting mixed findings (Park, Cohen & Murch, 1996; Paul et al., 2010; Sawyer, Ayers, Young, Bradley & Smith, 2012; Schroevers, Helgeson, Sanderman & Ranchor, 2010; Weiss, 2004). Park and colleagues (1996) reported on three studies with a total of 922 college student participants which identified social support satisfaction as one predictor of growth following stress. Schroevers and colleagues (2010) conducted a longitudinal study with 206 survivors of cancer and found a significant positive correlation between a measure of received emotional support in the months after diagnosis with measures of growth taken eight years after diagnosis. In a study of seventy two men whose wives were survivors of

breast cancer Weiss (2004) found that the social support, as measured by the size of a supportive network was associated with posttraumatic growth, but that satisfaction with the support was not. This study also found that partner support predicted growth, as did marital quality, measured by depth of marital commitment.

However other studies have failed to identify an association between social support and posttraumatic growth. Paul and colleagues (2010) studied 121 individuals (both female and male) experiencing infertility. While they found evidence of posttraumatic growth and of social support satisfaction no correlation was found between these variables. Sawyer et al. (2012) examined growth after childbirth in a prospective study of 125 women and found evidence of growth, but also reported no correlation between social support and growth. This study only measured growth at eight weeks after the birth, however it is possible that further growth may have developed after this time frame, as one study reported an increase in growth over a four month period following trauma (Johnson et al., 2005). The inconsistency in the data exploring the association between social support and growth following adversity highlights the need for further research to clarify determinants of the relationship between these variables.

This research will examine men and women's experiences of miscarriage, in relation to both negative (grief) and positive (stress-related growth) outcomes, and the impact of the coping resources social support, partner support and marital satisfaction on such experiences. It is possible to theorise that partner support and marital satisfaction could be associated

with the development of posttraumatic growth in both women and their partners after miscarriage. Partner support could contribute to growth following miscarriage through two mechanisms; the process of assisting constructive cognitive appraisal and through relationship enhancement which has been linked to improved mental health outcomes. Through the impact on enhanced adjustment to the miscarriage, growth could be associated with reduced levels of grief over time. This research will investigate whether the coping resources social support, partner support and marital relationship predict outcomes of grief and stress related growth.

The aims of the study were to investigate in a sample of women who have experienced miscarriage and their male partners (i) associations between social support satisfaction and outcomes of grief and growth; (ii) associations between partner support satisfaction and outcomes of grief and growth; (iii) any relationship between marital satisfaction and outcomes of grief and growth and (iv) any variability in outcomes based on sex differences.

**Manuscript: Social Support Following Miscarriage: Impact on
Outcomes of Grief and Growth.¹**

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**Social Support Following Miscarriage: Impact on Outcomes of Grief
and Growth.**

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Abstract

Grief and growth are potential psychological sequelae of miscarriage but little is known about predictors of, or temporal changes in these outcomes.

Because social support is thought to facilitate resolution of distress after trauma and to be associated with psychological growth we hypothesised that support after miscarriage would be associated with improved outcomes for grief and growth.

This study investigated predictors of grief and growth among 248 couples.

At one and four months after miscarriage participants completed the Significant Others Scale, Coping Response Inventory, Index of Marital Satisfaction, Perinatal Grief Scale and Stress-Related Growth Scale. The study employed a correlational design. Grief and growth were taken as dependent variables in separate stepwise regression analyses.

Sociodemographic characteristics and measures of support, marital satisfaction and coping were taken as predictor variables.

Favourable grief outcomes were associated with support satisfaction one month after miscarriage, marital satisfaction and coping style (with more use of behavioural avoidance and less use of cognitive approach strategies

associated with lower PGS scores). Growth was predicted by marital satisfaction. An inverse relationship was identified between support satisfaction and growth. These findings highlight the importance of social support and the quality of the marital relationship to individuals after miscarriage.

Introduction

The loss of a baby through miscarriage is a common event affecting approximately 21-24% of pregnancies (Johnson & Puddifoot, 1996). In the United Kingdom, miscarriage is defined as pregnancy loss before the 24th week of gestation. Parental responses can range from relief to intense psychological distress (Stratton & Lloyd, 2008; Swanson, 2000), with grief a common outcome (Johnson, Baker & Escott, 2005; Swanson, Chen, Graham, Wojnar & Petras, 2009).

Responses to miscarriage may include psychological morbidity with researchers reporting symptomatology for depression (Adolfsson, 2011; Swanson, 2000; Swanson et al., 2009), anxiety (Sejourne et al., 2010a) and posttraumatic stress (Broen, Moum, Bodtker & Ekeberg, 2004) in some women. A relatively recent development is the acknowledgement of the psychological impact upon male partners of women who have miscarried; it is increasingly recognised that miscarriage has the potential to significantly affect both women and men (Conway & Russell, 2000; Johnson & Baker, 2004; Toedter, Lasker & Janssen, 2001). As knowledge of the psychological consequences of miscarriage has increased, researchers have become interested in identifying variables that may contribute to improved outcomes following this loss.

Miscarriage is commonly experienced as stressful (Sejourne, Callahan & Chabrol, 2010b) and the use of social support is one coping strategy of

interest to researchers investigating the psychological impact of miscarriage (Abboud & Liamputtong, 2005; Rowlands & Lee, 2010; Swanson, 2000).

The stress buffering model (Cohen & Wills, 1985) hypothesises that social support provides protection against the potential negative health outcomes that can result from high levels of stress, with both physical health benefits (Cohen & Wills, 1985) and mental health benefits identified (Swanson, 2000) in individuals who receive greater social support after stressful events.

Women want and value support after miscarriage (Abboud & Liamputtong, 2005; Corbet-Owen, 2003; Rowlands & Lee, 2010; Sejourne, Callahan and Chabrol, 2010a) and may benefit from this through enhanced emotional wellbeing (Swanson, 2000). Swanson (2000) found an indirect negative effect of support on depressive symptoms in a large sample of women who had miscarried, through greater emotional strength, reduced passive coping and increased active coping. A later study examined the effect on depressive symptoms and grief of support interventions for 636 women and partners (318 couples) following miscarriage (Swanson et al., 2009). The interventions were nurse caring (NC), (face-to-face counselling sessions); self-caring (SC), (using audio-visual and printed resources); and combined caring (CC), (one face to face session plus use of the SC resources). A control group (no treatment) was also included. For women the face-to-face counselling was the most effective of the interventions in achieving more rapid resolution of depressive symptoms, and was more effective than no treatment in achieving more rapid resolution of both depressive symptoms

and grief. However a different picture emerged for men, for whom the face-to-face counselling was beneficial in resolution of grief but not depression. Treatment conferred no benefit on men in the resolution of depressive symptoms, with those in the no treatment control achieving similar results as those in the NC treatment, the most effective of the treatment groups. In contrast grief symptoms resolved more rapidly relative to no treatment in those men in either the NC or CC groups. These findings suggest that support can provide an advantage to women in accelerating resolution of psychological symptoms following miscarriage but suggest a more complex picture for men. Johnson and Baker (2004) found that men employed more avoidant coping strategies than approach strategies after their partner's miscarriage; the relative benefits for men in the study conducted by Swanson and her colleagues (2009) of the no treatment group over some treatment interventions in the resolution of depressive symptoms may reflect a preference for avoidant style coping for some men dealing with psychological sequelae of miscarriage.

Various dimensions of support have been investigated as researchers attempt to understand the mechanism through which social support is beneficial; these include quantitative aspects of social support (the nature of the support offered, the size of a person's support network) as well as qualitative aspects such as support adequacy (Zimet, Dahlem, Zimet, & Farley, 1988). Perceived adequacy or support satisfaction has been identified as more important than actual support in contributing to improved mental health outcomes after stressful events (Henderson, 1981).

Another specific aspect of social support is that provided by an intimate partner, which has been linked with improved mental health outcomes (Cutrona, Russell & Gardner, 2005). In a small study Conway & Russell (2000) identified that although most of the women (95%) received partner support after miscarriage, around one third (36%) wanted additional support from their partner, in the form of more understanding, needing his constant presence and wanting him “to relate more to the loss” (p 538). Partner support has been found to impact upon marital satisfaction (Lawrence et al., 2008). A relationship between marital satisfaction and parental grief was identified after perinatal death, with a strong spousal relationship associated with lower grief scores in four studies (Toedter et al., 2001). It is possible therefore that partner support could impact on grief after miscarriage through marital satisfaction.

Exposure to traumatic events can result in the development of psychological distress which may be long lasting (Tedeschi & Calhoun, 2004). However positive sequelae to trauma have also been identified; these include greater appreciation for life, a sense of having improved capacity to cope with adversity, greater empathy and a positive impact on interpersonal relationships (Tedeschi & Calhoun, 2004). Terms used to describe this experience include posttraumatic growth, positive psychological changes and stress- related growth. Growth has been identified in affected individuals following exposure to many types of trauma including a range of health crises (Joseph & Linley, 2006; Tedeschi & Calhoun, 2004), among them miscarriage (Johnson et al., 2005; Swanson, 2000). Various factors

have been associated with higher growth including a higher perceived threat (Armeli, Gunthert & Cohen, 2001), more challenging circumstances (Tomich & Helgeson, 2004) and female sex; women report more posttraumatic growth than men (Park, Cohen & Murch, 1996; Vishnevsky, Cann, Calhoun, Tedeschi & Demakis, 2010). Reviewers of empirical studies have reported support for the view that posttraumatic growth may be prognostic of enhanced longer term adjustment (Joseph & Linley, 2006; Linley & Joseph, 2004).

Growth results from the psychological struggle to cope with traumatic or adverse experiences (Linley & Joseph, 2004). Tedeschi and Calhoun (2004) proposed that exposure to a traumatic event challenges a person's fundamental assumptions and schema and triggers a process of cognitive processing and reappraisal. This leads in turn to the development of altered schema and narratives that allow the individual to integrate the crisis into a new, more adaptive set of beliefs and meaning. They suggested social support could assist this process through different mechanisms, one being that disclosure to supportive others about one's experience and emotional response enhances the development of a sense of intimacy, as well as feelings of acceptance and validation. Tedeschi and Calhoun also propose that talking to others and hearing alternative perspectives about the event is likely to facilitate the development of new, adaptive schema.

The relationship between social support and growth is complex and remains poorly understood with literature in this area presenting mixed findings (Park

et al., 1996; Paul et al., 2010; Sawyer, Ayers, Young, Bradley & Smith, 2012; Schroevers, Helgeson, Sanderman & Ranchor, 2010; Weiss, 2004). Some studies have reported associations between growth and various dimensions of social support including received emotional support (Schroevers et al., 2010) and a larger supportive network (Weiss, 2004). Importantly social support satisfaction rather than social support generally is mostly associated with growth after adversity (Linley & Joseph, 2004; Park et al., 1996), although the direction of this relationship is unknown (Linley & Joseph, 2004). Other aspects of support also associated with growth are partner support and marital quality (Weiss, 2004). One study identified a relationship between the use of social support coping and growth after miscarriage among women but not among men (Johnson et al., 2005). Conversely, some studies were unable to identify an association between social support and posttraumatic growth; these investigated support satisfaction after infertility (Paul et al., 2010) and perceived support after childbirth (Sawyer et al., 2012). Further research is needed to clarify determinants of the relationship between these variables.

A greater knowledge of predictors of enhanced psychological outcomes may assist the development of clinical interventions that could contribute to better outcomes in women and their partners after miscarriage. Using a correlational design the current study examined variables impacting on the psychological outcomes of grief and growth in a large sample of women who have experienced miscarriage and their male partners. The primary aim was to investigate predictors of grief and growth and to examine any impact upon

these outcomes of social support and partner support in the short and medium term (between one and four months). A secondary aim was to investigate any variability in the data based on sex differences. Because social support is thought to facilitate the resolution of distress after trauma and to be associated with posttraumatic growth we hypothesised that the use of social support after miscarriage would be associated with improved outcomes in relation to grief and growth.

Method

Participants and sample characteristics

Couples who had lost an unborn baby due to miscarriage (i.e. before the end of the 24th week of gestation) were approached by a research midwife at the Early Pregnancy Assessment Unit (EPAU) and gynaecology wards at teaching hospitals in the Midlands and in the North East of England. Three hundred and ninety-four female/male couples that had experienced miscarriage were recruited into a larger study. Both primiparous and multiparous women were recruited into the larger study, however for this analysis multiparous women were excluded to control for prior exposure to perinatal loss. This gave a final data set of 248 primiparous women and their partners, a total of 496 participants. The mean age for women (30.1 years; SD 6.6; range 17- 43 years) was slightly lower than for men (30.9 years; SD= 7; range 17 – 51 years). The mean age of all participants was 30.54 years. Mean gestation at the time of miscarriage was 10.67 weeks (SD=3.0); the range 5-22 weeks. 208 (83.9%) of the women had attended an ultrasound scan during the pregnancy; 176 (71%) of the men had also

attended and viewed the scan.

The major demographic and reproductive characteristics of the couples that completed all measures are provided in Tables 1 and 2. Tables 2 and 2a also summarize means and standard deviation values for measures one month (T1 – Table 2) and four months after miscarriage (T2 – Table 2a) of social support (actual or received support, ideal support and discrepancy between the two), partner support (actual or received support, ideal support and discrepancy), marital satisfaction, coping style (use of cognitive or behavioural strategies and use of approach or avoidance styles) and the presence of stress related growth.

TABLES 1, 2 AND 2a ABOUT HERE

Procedure

Following ethical approval participants were provided with measures at two time points. Participants were sent research packs one month after the miscarriage (T1) and four months after the miscarriage (T2). Women and men were sent separate research packs which contained identical information. Packs contained information for participants, a consent form, demographic and questionnaire measures, and a prepaid envelope for return of documentation.

Measures

Demographics.

Demographic information was collected via a purpose-designed

questionnaire which requested information on: age, parity, length of pregnancy, whether the pregnancy was planned, whether the pregnancy was welcomed and whether an ultrasound scan was viewed.

Index of Marital Satisfaction (IMS) (Hudson, 1982).

This scale measured the degree, severity or magnitude of problems within the marital relationship; that is, marital discord or dissatisfaction. 25 items were measured on a Likert scale. Each was scored 1 = rarely, to 5 = most or all of the time; with some items reverse scored. A formula is applied to provide a scoring range from 0 to 100. Higher scores indicate greater marital discord; that is, lower marital satisfaction, with a score over 30 indicating the presence of clinically significant problems. The IMS is reported to have excellent reliability (.96) and good validity (.82).

Significant Others Scale (SOS) (Power, Champion, & Aris, 1988).

The SOS measured four different social support functions (two emotion and two practical). Participants could nominate up to 7 individuals from whom they gain support. On each of the four functions participants rated on a seven-point scale (1 = never to 7 = always) the level of support they received and their ideal level of support. Therefore the scale produced three measures of support; actual, ideal and the discrepancy between ideal and actual which is typically used as a measure of satisfaction with support networks and has been identified as the most comprehensive measure of support. The SOS shows good reliability (.83) and validity (.74) (Power et al., 1988).

Perinatal Grief Scale (PGS) (Potvin, Lasker & Toedter, 1989).

The PGS comprised three subscales, 'Active Grief', 'Difficulty Coping', and 'Despair;' each having eleven items and a potential scoring range of eleven to fifty five. The overall score for the PGS, used in this study is the sum of the score on the three individual subscales. Higher scores indicate more intense grief. The reliability of this measure is well established (Potvin et al., 1989), both for the total scale (Cronbach's alpha = .95) and individual subscales (> .85). The validity of the scale is reported as .98 with the subscales ranging from .94 to .96 (Potvin et al., 1989).

Coping Response Inventory (CRI) (Moos,1990).

The 48-item CRI measured eight specific coping responses. Each item was scored on a four point scale scored from zero to three; higher scores indicate more frequent use of the strategy. The scores from these eight coping responses could be combined to produce two coping styles. These are Approach and Avoidance. Moos (1990) reports the internal consistency and test-retest reliability to be satisfactory as was the validity on other measures of coping CRI correlates within a range of .56 -.83.

Revised Stress-Related Growth Scale (RSRGS)(Armeli, Gunthert, & Cohen, 2001).

The RSRGS is a 43-item instrument, which measured eight growth domains (affect regulation, religiousness, treatment of others, self-understanding, belongingness, personal strength, optimism and life satisfaction). Total growth score is a simple summation of all of the

individual domains. Participants rated how much they felt they had changed on each domain as a result of a named stressor on a 7 point scale ranging from 1 = greatly decreased to 7 = greatly increased. Higher scores indicate greater growth. The reliabilities of all the domains have been reported as satisfactory, ranging from .67-.90 for adult populations (Park et al., 1996). In terms of validity, the SRGS equates well with a number of measures of stress appraisal ranging from .62-.81 (Park et al., 1996).

Design

This longitudinal study employed a correlational design to examine the predictive significance of measured variables on outcomes of grief and growth after miscarriage at two time points, one and four months after miscarriage. Stepwise regression analysis was utilized to evaluate the unique contribution of each of the variables in predicting these outcomes. Grief and growth were taken as the dependent variables in separate analyses. Sociodemographic characteristics and measures of support, marital satisfaction and coping were taken as predictor variables. Data were analysed with the SPSS software version 20 for Windows.

Results

Grief at Time 1

In order to identify the significant predictors of grief at T1 a blocked stepwise multiple regression analysis was utilised. All demographic variables,

support, marital satisfaction, coping and growth variables were entered into blocks. The first block was demographics (age, sex of respondent, length of pregnancy, whether the pregnancy was planned, whether the pregnancy was wanted and whether an ultrasound scan had been viewed). The second block was social support, which included the ideal level of social support, the actual level of social support received, and discrepancy between the actual and ideal support. Partner support was included in this block and was measured as the ideal level of partner support, actual level of partner support received and the discrepancy between the actual and ideal partner support. The third block was marital satisfaction. The fourth block was coping (behavioural approach, behavioural avoidance, cognitive approach and cognitive avoidance). The fifth block was growth`.

Nine variables made a significant unique contribution as predictors of grief levels one month after miscarriage (see Table 3). Sex explained 6.7% of the variance ($F_{1,494}=35.35, p < .001$), with women experiencing greater levels of grief as measured by total grief scores. Age explained a further 5.7% ($F_{1,493}=31.80, p < .001$); younger participants reported greater grief than older participants. Whether the pregnancy was planned explained a further 2% of the variance ($F_{1,492}=11.74, p = .001$), with those who had not planned the pregnancy reporting greater levels of grief than those who had. Whether respondents had attended an ultrasound scan explained an additional 1% of the variance ($F_{1,491}=7.00, p = .008$); those who had attended a scan reported greater grief than those who had not. Discrepancy between ideal and actual social support explained 22.8% of the variance of

grief ($F_{1,490}=180.997, p < .001$); smaller discrepancy between ideal and received support (which is a measure of higher support satisfaction) predicted lower levels of grief. The level of actual social support explained a further 2.7% of the variance ($F_{1,489}= 22.65, p < .001$), with more social support associated with lower grief scores. The level of overall social support wanted (ideal support) accounted for a small but significant amount (0.6%) of further variance ($F_{1,488}= 5.22, p = .023$), with those reporting higher levels of ideal social support reporting greater grief. Marital satisfaction accounted for a further 6% of variance ($F_{1,487}= 55.61, p < .001$), indicating that those reporting higher levels of marital satisfaction reported less grief. Stress related growth (total growth score) accounted for a further 13% of the variance ($F_{1,486}= 164.56, p < .001$) with higher growth predicting higher grief scores.

TABLE 3 ABOUT HERE

Grief at Time 2

To examine predictors of grief at T2 the significant predictors of grief at T1 (sex, age, whether the pregnancy was planned, whether an ultrasound scan had been viewed, social support discrepancy, actual social support, ideal social support, marital satisfaction and growth) and all the T2 variables were entered (i.e. the ideal level of social support, the actual level of social support received, discrepancy between the actual and ideal support, the ideal level of partner support, actual level of partner support received, discrepancy between the actual and ideal partner support, marital

satisfaction, coping [behavioural approach, behavioural avoidance, cognitive approach and cognitive avoidance] and growth). Predictors were again entered into blocks. The blocks were in order: social support variables, marital satisfaction, coping variables and growth.

Eleven variables were found to predict grief at T2 (see Table 4). Stress related growth at T1 explained 25% of the variance in grief four months after miscarriage ($F_{1,478}=159.999, p<.001$), with more growth at T1 associated with higher grief levels at T2. The discrepancy between actual and ideal social support at T1 explained a further 6.1% ($F_{1,477}=42.11, p<.001$); greater discrepancy between received and ideal support (which indicates lower support satisfaction) predicted higher grief scores. Marital satisfaction at T1 predicted another 4.9% of the variance in grief ($F_{1,476}=36.82, p<.001$); higher levels of marital satisfaction was associated with lower grief. Actual partner support at T1 accounted for an additional 3.3% of the variance ($F_{1,475}=26.18, p<.001$); higher levels of partner support at T1 was associated with less grief at T2. Women reported greater grief than men at T2 ($F_{1,474}=15.75, p<.001$); this accounted for an additional 1.9% of the variance. Whether the pregnancy was planned explained a further 1.4% ($F_{1,473}=11.32, p=.001$); those who had not planned the pregnancy reported greater grief than those who had. Grief levels at T1 explained a further 28%, with greater grief at T1 predicting greater grief at T2 ($F_{1,472}=452.24, p<.001$). Higher levels of partner support was associated with greater grief, with actual amount of partner support provided at T2 accounting for 0.8% of additional variance ($F_{1,471}=12.47, p<.001$). The discrepancy between

actual and ideal social support at T2 explained another 0.4% of variance ($F_{1,470}=7.07, p=.008$); smaller discrepancy (higher support satisfaction) at T2 predicted higher grief. This is in contrast to the direction of the T1 measure of this variable; smaller discrepancy at T1 predicted lower grief scores at T1 and at T2. The use of behavioural avoidance coping strategies at T2 explained a further 0.5% of the variance ($F_{1,469}=8.83, p=.004$), with greater use of these strategies associated with lower grief. The use of cognitive approach coping strategies accounted for another 0.5% of the variance ($F_{1,468}=8.63, p=.003$); greater use of these strategies was associated with higher grief at T2.

TABLE 4 ABOUT HERE

Growth at Time 1

In order to identify predictors of growth at T1 a blocked stepwise multiple regression analysis was performed. All demographic variables as well as support, marital satisfaction, coping and grief variables were entered into blocks. As with the first analysis the first block was demographics (age, sex of respondent, length of pregnancy, whether the pregnancy was planned, whether the pregnancy was wanted and whether an ultrasound scan had been viewed). The second block was social support (ideal level of social support, actual level of social support received, discrepancy between the actual and ideal support; and the ideal level of partner support, actual level of partner support and discrepancy between actual and ideal support from partner). The third block was marital satisfaction. The fourth block was

coping (behavioural approach, behavioural avoidance, cognitive approach and cognitive avoidance) and the fifth block was grief.

Eight significant variables predicted growth at T1 (see Table 5). Age explained 2.2% of the variance in growth ($F_{1,494}=11.03, p=.001$); younger age was associated with higher growth scores. The length of the pregnancy explained a further 2.0%, with later gestation associated with greater growth ($F_{1,493}=10.40, p=.001$). Whether an ultrasound scan had been viewed explained a further 1.3% of the variance ($F_{1,492}=6.86, p=.009$), with participants who had viewed a scan reporting greater growth than those who had not. Sex accounted for a small but significant amount (0.8%) of additional variance ($F_{1,491}=4.30, p=.039$); women reported greater growth than their partners. A larger discrepancy between actual social support received and ideal support (that is, lower support satisfaction) was associated with greater growth and accounted for a further 25.3% of variance ($F_{1,490}=181.51, p<.001$). Actual social support received explained an additional 0.6% ($F_{1,489}=4.64, p=.032$); less received support predicted greater growth. Marital satisfaction accounted for a further 0.7% of the variance ($F_{1,488}=5.39, p=.021$) with higher marital satisfaction associated with greater growth. Grief explained an additional 17.5% of the variance ($F_{1,487}=172.94, p<.001$). Higher grief scores predicted greater growth.

TABLE 5 ABOUT HERE

Growth at Time 2

The fourth analysis was performed to identify the T2 predictors for the dependent variable growth. Once again the significant predictors of growth at T1 (age, length of pregnancy, whether an ultrasound scan had been viewed, sex, social support discrepancy, actual social support, marital satisfaction and grief) and all T2 variables (i.e. the ideal level of social support, the actual level of social support received, discrepancy between actual and ideal support, the ideal level of partner support, actual level of partner support received and the discrepancy between actual and ideal partner support, marital satisfaction, coping [behavioural approach, behavioural avoidance, cognitive approach and cognitive avoidance] and grief) were entered into blocks. The order of block entry followed that previously described for growth at T1.

Seven variables that predicted growth at T2 are presented in Table 6. Grief at T1 explained 38.5% of the variance in growth after miscarriage at T2 ($F_{1,478}=299.55, p < .001$); higher grief levels one month after the miscarriage were associated with greater growth four months after the loss. Marital satisfaction at T1 explained a further 7.7% of the variance ($F_{1,477}=68.06, p < .001$); higher satisfaction was associated with greater growth. Discrepancy at T1 between the actual level of social support received and the ideal accounted for an additional 3.6% of the variance ($F_{1,476}=33.75, p < .001$), with a higher discrepancy (lower support satisfaction) predicting greater growth. Length of pregnancy at the time of miscarriage accounted for a further 2.0% of the variance ($F_{1,475}=19.65, p < .001$); later gestation

predicted greater growth. The discrepancy at T2 between the actual level of social support received and the ideal accounted for another 3.5% of the variance ($F_{1,474}=36.53, p < .001$). As with discrepancy at T1 higher discrepancy (lower support satisfaction) predicted greater growth.

Discrepancy between the actual and ideal amount of support provided by the partner at T2 predicted an additional 2.3% of the variance ($F_{1,473}=25.94, p < .001$); greater discrepancy (lower satisfaction with partner support) was associated with greater growth. Grief at T2, explained a further 0.4% of the variance ($F_{1,472}=3.93, p=.048$); lower grief at four months after miscarriage predicted greater growth.

TABLE 6 ABOUT HERE

Discussion

The main focus of this study was to identify predictors of grief and growth in couples following miscarriage.

Our findings provide partial support for the hypothesis that use of social support after miscarriage is associated with improved outcomes for grief. Of the three dimensions of social support that were examined only support satisfaction emerged as a predictor of grief. Higher social support satisfaction one month after miscarriage contributed to lower grief at both time points explaining 22.8% of the variance in grief. These findings provide support for previous research that identified the importance to wellbeing of the perceived adequacy of support or support satisfaction (Henderson, 1981), including after miscarriage (Conway & Russell, 2000;

Johnson et al., 2005; Sejourne, Callahan & Chabrol, 2010) and other forms of perinatal grief (Toedter et al., 2001). Actual support also predicted lower grief levels at one month after miscarriage. However an unexpected finding, and one that did not support the hypothesis, was that higher satisfaction with support at four months after the miscarriage was associated with higher grief scores at this time. Perhaps the presence in some individuals of more intense grief four months after the miscarriage elicited more support responses at this time.

In contrast the hypothesis that the use of social support would be associated with more favourable outcomes for growth was not supported; higher support satisfaction was associated with less favourable outcomes, being predictive of less growth at both time points. A higher amount of actual social support also predicted less growth one month after miscarriage but was not significant at four months. The literature in this area is sparse. One smaller study found higher support satisfaction after miscarriage predicted less growth in women but not in men (Johnson et al., 2005). Further research is needed to clarify the mechanisms through which social support impacts upon growth after miscarriage. One possible explanation may be found in the definition of posttraumatic growth proposed by Tedeschi and Calhoun (2004) which includes the condition of having struggled with highly challenging crises. This model is supported by findings that more challenging circumstances are associated with greater benefit finding (Tomich & Helgeson, 2004). It is possible therefore that those people without adequate support may feel more severely challenged by the miscarriage in comparison with those with more support, and thus experience more intense

psychological struggle and consequently greater growth.

The hypothesis that partner support would predict more favourable outcomes of grief was partially supported; higher actual partner support at one month after miscarriage appears to have facilitated a reduction in grief score.

Conversely higher actual partner support at four months after miscarriage predicted higher grief. Perhaps those whose grief remained higher four months after the loss elicited a partner response of increased support.

Contrary to expectations partner support satisfaction did not predict grief at either time point. However given that the broader construct of social support satisfaction was predictive of lower grief in this study it may be that partner support satisfaction is less important in contributing to the resolution of grief if support needs are being met by others in the person's support network.

While support from an intimate partner has been associated with improved mental health outcomes (Cutrona et al., 2005) including posttraumatic growth (Weiss, 2004) the hypothesis that partner support would predict more favourable outcomes of growth was not supported. Partner support satisfaction was not related to growth at one month after miscarriage, while higher partner support satisfaction four months after the miscarriage predicted less growth. No other dimensions of partner support predicted growth. Since higher levels of growth are associated with appraisal of the event as a greater threat (Armeli et al., 2001) it is possible that partner support provided some buffering effect against a perception of threat for those individuals receiving satisfactory partner support, thus reducing consequent growth. Partner support is wanted by women after miscarriage

(Conway & Russell, 2000; Corbet-Owen, 2003) but the value of this support does not appear to be related to growth. Weiss (2004) found partner support was positively associated with growth, but this study (investigating men whose wives had survived cancer) employed a retrospective design with measures taken one to five years after cancer diagnosis, making difficult comparisons between this study and the current work.

In contrast marital satisfaction contributed significantly to favourable outcomes in the current study, with higher levels associated with more rapid resolution of grief and more psychological growth at T1 and T2. This was the only support variable that contributed to favourable outcomes on grief and growth at both points in time. The association between a strong partner relationship and lower grief after pregnancy loss has been previously identified (Toedter et al., 2001). For the variable growth, marital satisfaction was a predictor for men but not for women after miscarriage in the only study known to have examined these phenomena (Johnson et al., 2005). The Index of Marital Satisfaction assesses a broad range of factors in the marital relationship in addition to support, including trust, relationship stability, shared interests, understanding and affection (Hudson, 1982). Clearly among this sample some other factor or factors (such as other dimensions of marital satisfaction or the overall quality of this relationship) were more important in determining better outcomes for grief and growth than the specific aspect of partner support.

An unexpected aspect of the findings related to the impact of coping. The use of approach coping by women has been associated with lower psychological morbidity after miscarriage (James & Kristiansen, 1995) and

lower grief (Johnson et al., 2005). It was thought therefore that coping would impact on outcomes and that approach coping may be associated with lower grief. Instead there was no association between coping and grief levels one month after miscarriage, and an unexpected association at four months, when more use of behavioural avoidance and less use of cognitive approach were associated with lower grief levels. This provides support for Roth and Cohen's view (1986) that the degree to which a specific style is adaptive is determined by situational factors and that avoidance may be more adaptive when the individual has no control over the circumstances. Taking time out from focusing on the miscarriage either cognitively or behaviourally appears to be important to assist the resolution of grief. The relationship between coping and growth after miscarriage has been investigated in only one study to this researcher's knowledge, when approach coping was found not to be significant and avoidance coping was predictive of less growth (Johnson et al., 2005) but in the current study coping did not contribute at all to growth outcomes. The relatively small overall impact of coping on outcomes suggests that most benefits of approach coping can be accounted for by the variable of social support, rather than by overall coping repertoire.

Grief and growth often co-occur after bereavement (Buchi et al., 2007; Johnson et al., 2005; Znoj, 2006). In this study growth predicted grief with a positive association at both points in time, and higher grief at one month predicted growth at both one and four months. Tedeschi and Calhoun (2004) propose that the cognitive reprocessing of the ramifications of the event that occurs after trauma leads to positive schema change and

facilitates posttraumatic growth. It is likely that this reprocessing focuses the person on their experience and may be reflected therefore in more intense grief. However in an unexpected result higher grief four months after the miscarriage predicted less growth at this time. Perhaps those individuals who are experiencing higher grief four months after the miscarriage have been unable to process their experience as effectively as those who are beginning to resolve their grief and so are not experiencing growth at this point.

Women's grief scores were higher than those of men; this replicates the findings of many previous studies into grief after miscarriage (Brier, 2008) or other perinatal loss (Buchi et al., 2007; Toedter et al., 2001). Brier (2008) proposes that the woman's physical experience of the pregnancy contributes to a higher psychological attachment which then contributes to more intense grief reaction following the loss. A contrary finding was presented by Conway and Russell (2000) who reported that men's grief scores were higher than their partner's after miscarriage; however the small sample size of this study may account for these results.

Many studies have reported that women report higher levels of growth than men following trauma (Park et al., 1996; Tedeschi & Calhoun, 1996; Vishnevsky et al., 2010) including perinatal death (Buchi et al., 2007; Jenewein et al., 2008) and the findings of this study provide some support for these results. In a small but significant difference women reported greater growth than men at one month after miscarriage, although this difference was no longer evident at four months. Lee and Slade (1996) commented on the physically traumatic aspect of miscarriage for women

and observed that some of the psychological sequelae of miscarriage may result from this aspect of the event. Perhaps the physical experience of the miscarriage increased the degree of psychological challenge associated with the event in the initial weeks for the woman in comparison to the partner, contributing to greater growth at this stage. It is not clear why this difference was no longer evident at four months after the miscarriage, particularly considering the common finding that women report more growth than men after a range of traumatic events. Perhaps the intimacy of their involvement with their partner after miscarriage contributed to the man's processing of the loss over time and thus to the development of growth. It should be noted that some studies reporting growth after perinatal loss recorded measures two to six years after the loss (Buchi et al., 2007; Jenewein et al., 2008); this difference limits the comparisons that can be made between these studies and the current research.

This study makes a contribution to a small body of research that examines the impact of support on outcomes of grief and growth after miscarriage. The large sample size and inclusion of women and their male partners are important aspects of the work. However there are several limitations of this work which must be considered when interpreting the results. Measures were posted to participants; it is not possible therefore to be certain that they were completed solely by the named respondent or completed without discussion between the partners. The presence of other stressors has also been linked to poorer outcomes (Rowlands & Lee, 2010a). The exclusion of multiparous women ensured the women in the sample had not experienced prior miscarriages or other perinatal loss; however other previous losses or

traumatic events could have potentially affected grief and growth measures. Good mental health prior to miscarriage has been associated with lower grief after the loss (Janssen et al., 1997) and better mental health outcomes (Rowlands & Lee, 2010a).

Social support satisfaction in the weeks immediately after miscarriage contributed to favourable grief outcomes, and marital satisfaction contributed to positive outcomes for both grief and growth in this study. With this knowledge medical and health professionals working with people after miscarriage could assess their support needs and where necessary, encourage interventions that will increase support which in turn could contribute to more rapid resolution of grief and improve longer term adjustment in individuals who have experienced this loss.

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Tables

Table 1

Demographic and pregnancy-related characteristics

Descriptor	Female - N	Female - %	Male - N	Male - %
Number of participants	248	100.0	248	100.0
Planned pregnancy (yes)	194	78.2	188	75.8
Welcomed pregnancy (yes)	222	89.5	208	83.9
Had USS (women) (yes)	208	83.9	-	-
Viewed USS scan (men) (yes)	-	-	176	71.0

Note. USS= ultrasound scan.

Table 2*Descriptive Statistics with Means: T1*

Descriptor	Mean	SD	Number
Age (years)	30.54	6.89	496
Time of miscarriage (weeks)	10.67	3.00	496
Grief	87.04	19.40	496
Actual social support	101.92	36.95	496
Ideal social support	99.93	37.48	496
Discrepancy SS	1.99	7.53	496
Actual partner support	11.45	7.18	496
Ideal partner support	13.24	7.61	496
Discrepancy PS	-1.88	6.78	496
Marital satisfaction	67.1	23.24	496
Cognitive approach coping	17.20	6.72	496
Cognitive avoidance coping	14.52	6.23	496
Behavioural approach coping	12.92	5.38	496
Behavioural avoidance coping	7.76	5.21	496
Growth	81.09	8.51	496

Note. Grief= Perinatal Grief Scale (PGS) total score. Measures for general social support and partner support (actual support received, ideal support and discrepancy between the two) are from scores on the Significant Others Scale (SOS). Discrepancy SS= Discrepancy between actual and ideal social support. Discrepancy PS= Discrepancy between actual and ideal partner support. Marital satisfaction score is from the Index of Marital Satisfaction (IMS). Coping style scores from Coping Response Inventory (CRI). Growth = total score of Revised Stress-Related Growth Scale (RSRGS).

Table 2a*Descriptive Statistics with Means: T2*

Descriptor	Mean	SD	Number
Grief	81.36	25.20	492
Actual social support	85.02	35.17	496
Ideal social support	86.79	35.26	496
Discrepancy SS	-1.77	8.44	496
Actual partner support	10.20	6.39	496
Ideal partner support	16.20	7.61	496
Discrepancy PS	-6.10	6.12	496
Marital satisfaction	94.37	20.27	487
Cognitive approach coping	16.92	4.90	496
Cognitive avoidance coping	14.52	6.23	496
Behavioural approach coping	13.49	4.98	496
Behavioural avoidance coping	9.19	5.69	496
Growth	86.98	8.45	493

Note. Grief= Perinatal Grief Scale (PGS) total score. Measures for general social support and partner support (actual support received, ideal support and discrepancy between the two) are from scores on the Significant Others Scale (SOS). Discrepancy SS= Discrepancy between actual and ideal social support. Discrepancy PS= Discrepancy between actual and ideal partner support. Marital satisfaction score is from the Index of Marital Satisfaction (IMS). Coping style scores from Coping Response Inventory (CRI). Growth = total score of Revised Stress-Related Growth Scale (RSRGS).

Table 3*Stepwise Multiple Regression of Predictors of Grief: T1 measures*

Variable	R ² (Adj)	β	SE	<i>b</i>	<i>t</i>	<i>p</i>	R ² (change)
Sex	.07	10.02	1.69	.26	5.95	.000	.067
Age	.12	-0.67	0.12	-.24	-5.64	.000	.057
PP	.14	6.85	2.00	.15	3.43	.001	.020
Viewed USS	.15	5.16	1.95	.11	2.65	.008	.012
DSS	.34	-1.28	0.10	-.50	-13.45	.000	.228
PAS	.40	-0.45	0.10	-.17	-4.76	.000	.027
ISS	.41	0.04	0.02	.08	2.28	.023	.006
MS at T1	.47	0.21	0.03	.25	7.46	.000	.060
Growth	.60	1.01	0.08	.44	12.83	.000	.132

Note. PP= Planned pregnancy, USS= Ultrasound scan, DSS=Discrepancy between actual and ideal social support, PAS=Partner actual support, ISS= Ideal social support, MS=Marital Satisfaction, Growth= Revised Stress- Related Growth Scale total score.

Table 4*Stepwise Multiple Regression of Predictors of Grief: T2 measures*

Variable	R ² (Adj)	β	SE	<i>b</i>	<i>t</i>	<i>p</i>	R ² (change)
Growth at T1	.25	1.47	.12	.50	12.65	.000	.251
DSS at T1	.31	-0.96	.15	-.29	-6.49	.000	.061
MS at T1	.36	0.24	.04	.23	6.07	.000	.049
PAS at T1	.39	-0.65	.13	-.19	-5.12	.000	.033
Sex	.41	7.38	1.86	.15	3.97	.000	.019
PP	.42	7.26	2.16	.12	3.36	.001	.014
Grief at T1	.70	1.07	.05	.83	21.27	.000	.280
PAS at T2	.71	1.38	.39	.35	3.53	.000	.008
DSS at T2	.71	0.38	.14	.13	2.66	.008	.004
CopBeAv at T2	.72	-.32	.11	-.07	-2.90	.004	.005
CopCoAp at T2	.72	0.43	.15	.08	2.94	.003	.005

Note. Growth= Revised Stress-Related Growth Scale total score, DSS=Discrepancy between actual and ideal social support, MS=Marital Satisfaction, PAS=Partner actual support, PP= Planned pregnancy, Grief= Perinatal Grief Scale total score, CopBeAv=Coping, Behavioural Avoidance, CopCoAp= Coping, Cognitive Approach.

Table 5*Stepwise Multiple Regression of Predictors of Growth: T1 measures*

Variable	R ² (Adj)	β	SE	<i>b</i>	<i>t</i>	<i>p</i>	R ² (change)
Age	.02	-0.18	.06	-.15	-3.32	.001	.022
TOM	.04	0.40	.13	.14	3.23	.001	.020
Viewed USS	.05	2.43	.93	.12	2.62	.009	.013
Sex	.06	1.56	.75	.09	2.07	.039	.008
DSS	.31	-0.59	.04	-.52	-13.47	.000	.253
ASS	.32	-0.10	.05	-.08	-2.15	.032	.006
MS	.32	-0.03	.01	-.09	-2.32	.021	.007
Grief	.50	-0.23	.05	-.21	-5.03	.000	.175

Note. TOM= Time of miscarriage, USS= Ultrasound scan, DSS=Discrepancy between actual and ideal social support, ASS=Actual social support, MS=Marital Satisfaction, Grief= Perinatal Grief Scale total score.

Table 6*Stepwise Multiple Regression of Predictors of Growth: T2 measures*

Variable	R ² (Adj)	β	SE	<i>b</i>	<i>t</i>	<i>p</i>	R ² (change)
Grief at T1	.38	0.27	.02	.62	17.31	.000	.385
MS at T1	.46	-0.10	.01	-.29	-8.25	.000	.077
DSS at T1	.49	-0.25	.04	-.23	-5.81	.000	.036
TOM	.51	0.41	.09	.14	4.43	.000	.020
DSS at T2	.55	-0.35	.06	-.35	-6.04	.000	.035
DPS at T2	.57	-0.24	.05	-.17	-5.09	.000	.023
Grief at T2	.57	-0.04	.02	-.11	-1.98	.048	.004

Note. Grief= Perinatal Grief Scale total score, MS=Marital Satisfaction, DSS=Discrepancy between actual and ideal social support, TOM= Time of miscarriage, DPS= Discrepancy between ideal and actual partner support.

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Appendices

Appendices

Appendix A

Ethics Approval: This project received Human Research Ethics Approval from the University of Newcastle's Human Research Ethics Committee [H-282-0906] and from Keele University's Human Research Ethics Committee [HRE-92-1141]

Appendix B

This appendix contains additional results of the data analysis beyond those that are directly relevant to the manuscript topic, and discussion of these findings.

Demographic predictors of grief and growth.

Several demographic variables emerged as predictors of grief and growth in this study. At both time points participants who had not planned the pregnancy reported greater grief than those who had. This result is counterintuitive; it could be expected that the loss of a planned pregnancy would be felt more intensely. No studies have been located that investigate this association or throw light upon this finding. Of course an unplanned pregnancy is not necessarily unwelcomed; perhaps some of those people whose pregnancies were unplanned had thought themselves unable to conceive, making the pregnancy especially precious and contributing to greater grief after miscarriage. Interestingly whether the pregnancy was welcomed did not predict either grief or growth; again an unexpected finding. Younger participants reported greater grief and more growth than older participants at one month after the loss but age was not a predictor of grief or growth at four months; this difference may reflect less experience with dealing with loss among younger respondents leading to greater initial distress, greater psychological challenge and thus more growth.

One month after miscarriage those who had viewed an ultrasound scan reported higher levels of grief than those who had not, supporting previous findings of a qualitative study into grief responses of men after miscarriage

(Johnson & Puddifoot, 1996). Some researchers have theorised that the degree to which the pregnancy seems to reflect the presence of a real baby may impact upon the level of grief felt after a miscarriage (Brier, 2008); it seems likely that the effect of having seen a scan makes more real the presence of a baby, thus potentially contributing to greater grief. Having viewed an ultrasound scan also predicted greater growth one month after the loss. These effects were no longer present at four months after the miscarriage when having viewed a scan predicted neither grief nor growth. Length of gestation did not predict grief in this study, supporting the findings of some research (Lee & Slade, 1996; Stratton & Lloyd, 2008) but contradicting the findings of others (Janssen, Cuisinier, de Graauw & Hoogduin, 1997; Johnson & Puddifoot, 1996). One review of research into an association between gestation and grief also reported inconsistent results (Brier, 2008). Perhaps for some individuals the significance of the pregnancy is unrelated to length of gestation. This area needs further research to clarify any association between gestation and grief. Later gestation was however associated with greater growth at both time points; this may reflect the impact of a greater physical challenge or trauma that may accompany a later miscarriage.

Younger participants reported greater grief and greater growth one month after the miscarriage than older participants but this difference was no longer evident at four months. Younger age has been associated with greater growth after trauma (Linley & Joseph, 2004). Given the conceptualisation proposed by Tedeschi and Calhoun (2004) of posttraumatic growth as

developing in response to events that challenge and change one's schema it may be that older adults, with greater life experience are more likely to have previously adjusted their schema in response to other events and so are less likely to have their world view challenged to the same degree by subsequent adversity. The literature throws no light upon the finding of greater grief among younger participants; no studies were found reporting any association with maternal age in a review of research into grief after miscarriage Brier (2008). Perhaps this difference also reflects less life experience among younger participants which may lead them to be more affected by the experience of this loss.

In the current study grief and growth were associated in all analyses. It was thought that higher growth would contribute to the resolution of grief as was found in a smaller study investigating outcomes of miscarriage (Johnson, Baker & Escott, 2005) but this was not the case in the current study, where higher growth scores predicted higher grief. With growth as the dependent variable higher grief was associated with more growth at one month after miscarriage but at four months this relationship had changed with lower grief scores being associated with more growth. Grief intensity after the death of a child was negatively associated with growth in one study (Engelkemeyer & Marwit, 2008) but very few studies have investigated the association of these variables after miscarriage leaving this relationship poorly understood. Additional research is needed to clarify the nature of any association between grief and growth after miscarriage.