Predictors of Depression for the Male Partner Following Miscarriage.

Simon N. Scarr


This thesis is submitted in partial fulfilment of the requirements for the degree of Master of Clinical Psychology, School of Psychology, University of Newcastle, Australia

June, 2014
Predictors of Depression for the Male Partner Following Miscarriage

Statement of Originality

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. I give consent to this copy of my thesis, when deposited in the University Library, being made available for loan and photocopying subject to the provisions of the Copyright Act 1968.

Signed: ___________________________ Date: ___________________________
Acknowledgment of Authorship

I hereby certify that the work embodied in this thesis contains a manuscript of which I am a joint author. I have included as part of the thesis a written statement, endorsed by my supervisor, attesting to my contribution to the joint publication/scholarly work.

Signed: Date:

(Endorsed by supervisor)
Acknowledgements

I wish to acknowledge the assistance and support provided to me by the following people in the preparation of this paper.

Newcastle University: Martin P. Johnson
Contents
Predictors of Depression for the Male Partner Following Miscarriage. ........................................ 1
Statement of Originality .................................................................................................................... 2
Acknowledgment of Authorship .................................................................................................... 3
Acknowledgements .......................................................................................................................... 4
Critical Literature Review ............................................................................................................... 7
  Abstract ........................................................................................................................................ 7
  Introduction .................................................................................................................................... 9
  Male Grief Following Miscarriage ................................................................................................. 10
  Male Depression ............................................................................................................................. 15
  Miscarriage as a Form of Bereavement ......................................................................................... 18
  Potential Moderators/Mediators of a Complicated Grief Reaction in the Male Partner Following
  Miscarriage ........................................................................................................................................ 21
    Active Grief and Despair ............................................................................................................... 22
    Incongruent Active Grief ............................................................................................................. 24
  Conclusion .................................................................................................................................... 25
  Aims of this Research .................................................................................................................... 26
  References ..................................................................................................................................... 27
Manuscript: Predictors of Depression in the Male Partner 12 months after Miscarriage ............... 33
  Abstract ........................................................................................................................................ 34
  Research highlights ....................................................................................................................... 35
  Keywords ....................................................................................................................................... 35
  Introduction .................................................................................................................................... 36
    The Nature of the Male Grief Reaction ....................................................................................... 39
    Incongruent Grief ......................................................................................................................... 41
    Increase in number of Visits to a General Practitioner .............................................................. 42
  Aims of this Research .................................................................................................................... 43
  Method .......................................................................................................................................... 44
    Research Instruments .................................................................................................................. 45
    Procedure ..................................................................................................................................... 46
  Results .......................................................................................................................................... 47
    Increase in Male Depression 12 months post Miscarriage .......................................................... 47
Predictors of Depression for the Male Partner Following Miscarriage

Critical Literature Review

Abstract

An abundance of research indicates that following miscarriage, both male and female partners can experience a grief reaction, similar in intensity to that which is felt following the loss of a loved one. There is less consideration of the possibility that miscarriage is a form of bereavement, with the potential to elicit complicated, long term grief that is associated with depression in both partners.

This review evaluates the literature which indicates that expectant mothers and fathers become attached to the unborn foetus and argues that the strength of this emotional attachment may help explain why the loss of an unborn foetus can be so significant for the potential parents and can be included as an example of bereavement. Nevertheless, the literature on bereavement appears to have largely ignored miscarriage. Yet it is an experience of loss that shares risk factors, consistently associated with complicated grief reactions to bereavement including; being sudden and unexpected, involving the loss of a child (even if imagined) and a lack of social support.

Despite this, the incidence of longer term psychological morbidity following miscarriage in either partner but particularly for males, has received scant attention. There is some evidence to suggest that a small group of males do experience depression and associated physical health problems. If this group of at risk males could be identified at an early stage, they may benefit from intervention and support. To that end, theories will be evaluated which suggest that moderating factors of this more complicated reaction in males may include; less active grief
Predictors of Depression for the Male Partner Following Miscarriage

following miscarriage, higher levels of despair following miscarriage and a grief reaction that is incongruent with that of the female partner.
Introduction

Miscarriage is the natural termination of pregnancy before the foetus is viable (Brier, 2008). In the United Kingdom, this is defined as prior to the 24th week of gestation (The Stillbirth [Definition] Act, 1992). The literature is in widespread disagreement about the prevalence rates for miscarriage ranging from 8-20% (Tulandi and Al-Fozan, 2011), 15-25% (Brier, 2008) and even 50% (El-Sayed, Mohamed and Jones, 2009). It is well established however, that following miscarriage, women and their partners can experience a grief reaction, similar in intensity and duration to that experienced following the loss of a loved one (Puddifoot and Johnson, 1997). Research into longer term health consequences, especially for women, has indicated an increased risk of psychological morbidity such as depression and anxiety following miscarriage (Lok and Neugebauer, 2007). There is however a paucity of research into the longer term consequences for the male partner’s physical and psychological health. Whilst for most, symptoms resolve naturally, some may experience more complicated grief with associated physical and psychological symptoms. Recent work by Evans, Blye, Oliffe and Gregory (2011) identifies a framework for understanding men’s health in the context of masculinity. They argue that men take health risks to conform to a construct of masculinity that varies amongst individuals, dependent on factors such as social context, ethnicity and stage of life. Identification of risk factors for the male partner that may increase the likelihood of longer term depression and ill health following miscarriage would enable intervention to be targeted at those who are most likely to benefit.
Male Grief Following Miscarriage

Grief is the short term “affective, physiological and psychological reaction to the loss of an emotionally important figure” (Brier, 2008, P.458). Murphy (1997) and Johnson and Puddifoot (1996), concluded that research in the decade prior to 1996 indicated that women experience a psychological reaction following spontaneous abortion, characterised by intense grief and symptoms consistent with anxiety and depression. To that point, the literature was relatively silent on the possibility that the male partner may also have emotionally attached himself to the foetus, and consequently, may also experience grief that is perhaps less visible but of a similar intensity.

The idea that both males and females can develop prenatal attachment (PNA) to a foetus arose from Bowlby’s Attachment theory (1969). Bowlby described a reciprocal relationship that begins at birth, motivated by the infant seeking security from their caregiver and the caregiver taking responsibility to provide that security. Attachment theory did not extend to the concept of PNA. However, the observation of emotional attachment to a foetus in both males and females has been the focus of some theory and research.

Lumley (1982) interviewed pregnant women (primigravidae) at three points in their pregnancy to measure Maternal Foetal Attachment (MFA). MFA was characterised by viewing the foetus as a real person, being concerned for safety of the foetus and behaviours such as talking to and stroking the foetus. Lumley’s study used semi-structured interviews and non-parametric techniques to conclude that MFA is weak in the first trimester but strengthened considerably by 18-22 weeks gestation. She hypothesised that this helps explain why spontaneous abortion
in the first trimester produces only a “mild, limited grief reaction” (p.109). Although Lumley failed to report whether her findings were significant, the study pointed to the possibility that a later miscarriage, where greater attachment has developed, may predict a greater and potentially more complicated grief reaction.

The main criticism of PNA has focused on whether PNA is attachment in the reciprocal sense that Bowlby intended (Brandon, Pitts, Denton, Stringer & Evans, 2009). Doan and Zimmerman (2003) proposed a working definition of PNA that “is an abstract concept representing the affiliative relationship between parent and foetus that is potentially present before pregnancy” (p. 110). Whilst this may be abstract and strictly speaking, not attachment, the idea that a relationship is developing before birth, has considerable face validity in explaining why a grief reaction might be observed in both partners following miscarriage.

Early studies of grief in the male partner following miscarriage were qualitative in design (Sedhev, Parker & Reddish, 1997; Murphy 1998; Puddifoot and Johnson, 1997). Although characterised by small sample sizes, they provided some important insights into the experience of male partners, with similar themes arising from the different studies. Sedhev et al. reported that males felt excluded from a “female event” and accepted that their role was to support their partner rather than grieve about a lost baby. Similarly, Murphy found that men were sad but very aware of a need to be strong for their partner and suppress their own feelings. Puddifoot and Johnson also reported male grief, including emotions of sadness and anger that seemed to be hidden by the perceived expectation that they stay strong and supportive. More recently, McCreight (2004) interviewed 14 men in Northern Ireland whose partners had
miscarried, finding that they experienced strong emotions, which as they are not valued by society, were not expressed. The consistent finding that male grief may be hidden is very important when evaluating quantitative studies, as a finding that they do not express an emotional response may not necessarily mean that grief is not being experienced.

The Perinatal Grief Scale (PGS) developed by Toedter, Lasker & Alhadeff (1988) has been used in multiple studies that have attempted to measure grief following miscarriage. As well as an overall measure of grief, it includes sub scales of active grief, difficulty coping and despair. Whilst Brier (2008) reports that the PGS has been criticized for focusing too much on the lost baby and for overlapping with depression, he concedes that it is a reliable measure, with good internal consistency, as well as convergent validity with other measures of mental health. The subscales of active grief and despair have the potential to delineate between different manifestations of grief, with the former more visible, whilst the items on the despair sub scale detect a grief that is hidden (Toedter, Lasker and Janssen, 2001). Given the qualitative studies indicating that men may suppress or deny overt displays of grief following miscarriage, the PGS sub scales are particularly useful.

Stinson, Lasker, Lohmann and Toedter (1992) first used the PGS to compare the grief reactions of men and women following miscarriage. In a longitudinal study they measured grief at 2 months, 1 year and 2 years after the miscarriage. They found that women scored higher on expressed active grief and overall grief, especially at 2 months. This difference was not sustained though and by 2 years, scores were more similar, particularly on the despair subscale. The longitudinal nature of this study is particularly important as it is the first to suggest that for
a sub-group of males the grief response following miscarriage may be more complicated and enduring.

Johnson and Puddifoot (1996) used the PGS to measure the grief response of the partners of women who miscarry. Males were found to experience high levels of overall grief similar to women. They also found that intensity of grief was associated with seeing imagery of the foetus and to a lesser extent, with duration of pregnancy, suggesting that some attachment to the unborn baby might have developed, especially for those who had viewed an ultrasound. The strength of this study was that it used a large sample (126 partners of women who miscarried) and it was followed up by qualitative interviews with a smaller sample which confirmed that whilst the men experienced anger and sadness, they did not talk about it and also that viewing an ultrasound had made the “pregnancy real”. This is consistent with the work of Lumley (1982) and her suggestion that intensity of grief following miscarriage may be related to duration of pregnancy and strength of pre natal attachment.

In 1999, Puddifoot and Johnson built on their earlier study, and like Stinson et al. (1992), used the sub-scales of the PGS to breakdown characteristics of the male response to their partner’s miscarriage. Firstly, this replicated the findings of their earlier study i.e. that on a measure of overall grief, male and female scores were congruent and also that intensity was related to seeing an ultrasound of the foetus and pregnancy duration. On the sub-scales however, scores for males and females differed. The males displayed less active grief but higher scores on both the despair and difficulty coping sub-scales. This finding that whilst men may not express grief,
they still feel grieved, is consistent with Stinson et al. and also the qualitative studies discussed earlier.

A German study carried out by Beutel, Willner, Dechardt, Von Rad & Weiner (1996) also compared male and female grief reactions following miscarriage. Beutel et al. used the Munich Grief Scale, an adaptation of the PGS to measure grief following miscarriage and a German Depression Scale to measure depression, in a longitudinal study conducted over 12 months. They concluded that men grieve less intensely and enduringly than their partners and do not respond with depression. Interestingly though, they do not comment on the finding that whilst women’s scores on the depression scale were falling at 12 months, scores for men seem to be increasing. This finding may indicate that for males, depressive symptoms are latent and emerge at a later stage than they do for females. As with Stinson et al. (1992), this again suggests that in the long term, a small group of males may experience a more complicated reaction to their partner’s miscarriage.

Whilst both the qualitative and quantitative studies discussed, report remarkably consistent findings with respect to male grief following miscarriage in comparison to females, there are limitations. Firstly, Brier (2008) points out in his review of the literature on grief following miscarriage, that in each of the studies conducted by Puddifoot and Johnson, rather than compare male results with their female partner scores, male results were compared with female norms, meaning that time intervals since loss were not controlled. Nevertheless, Brier does conclude that gender differences in “affective reactions to miscarriage … may reflect difference in the expression of emotion generally rather than affective reactions to miscarriage
per se” and this would seem to be the salient point to be taken from the research (p.457). Whether this is a cross cultural phenomenon is less clear. The majority of studies have been conducted in western countries such as the United Kingdom, Germany and the United States where the stereotype of the strong male is prevalent. Results may differ in countries such as Spain and Italy, where it is more acceptable for males to express emotion. Finally, although the longitudinal studies suggest that males who experience enduring grief characterised by despair, may be at risk of complicated grief and depression, they fall short of exploring whether this is the case.

**Male Depression**

It is perhaps unsurprising that the possibility that a small group of men may experience long term depression after their partner’s miscarriage has been largely ignored. In the absence of research into male depression following miscarriage, the literature that explores the nature of depression more generally, in men and especially fathers, has some relevance. As with a grief reaction following miscarriage, depression per se is more commonly associated with women and epidemiological studies “demonstrate that women experience depression almost twice as frequently as men” (Veskrna, 2010, p. 421). Like the male grief reaction following miscarriage, male depression can be hard to detect and subsequently, under reported and researched.

Norman (2004) reviewed the literature on gender bias in the diagnosis of depression. The studies reviewed indicated that in many countries women were more likely to be depressed than men and that owing to cultural factors, women were more likely to report symptoms associated with depression. A qualitative study conducted by Brownhill, Wilhelm, Barclay &
Gordon (2002) found that even if depressed, men were more likely to admit having a physical problem which made detecting depression difficult for their doctors. A follow-up study used grounded theory analysis of focus groups to explore how men expressed depression (Brownhill, Wilhelm, Barclay & Schmied, 2005). They identified themes such as anger, avoidant behaviour e.g. becoming absorbed in work, numbing strategies such as drinking and escapism in the form of risk taking behaviours. Such behaviours may not be readily identified as depression by general practitioners. The absence of studies into male depression following miscarriage may reflect the fact that it is less diagnosed, rather than indicate limited prevalence.

Whilst post natal depression in females is a well-known condition, depression in fathers following birth is also common. Paulson, Dauber and Leiferman (2006) for instance, using data obtained from 5089 families in a longitudinal study in the United States, found that 14% of mothers and 10% of fathers had moderate to severe depression 9 months after the birth of a child. If fathers are becoming depressed after the successful birth of a child, the possibility that they may also become depressed when this anticipated event does not occur owing to miscarriage, warrants some serious consideration.

Although only a report of a single case study, Veskrna (2010) provides some interesting insights into the presentation of depression in a male following the birth of his child. Consistent with the qualitative studies conducted by Brownhill et al. (2005), Veskrna’s client did not present with depression but headaches and fatigue. He reported being angry more than sad and it was only when a psychosocial history was taken that he stated he was having difficulty with his
Predictors of Depression for the Male Partner Following Miscarriage

wife’s depression. It is a presentation that bears striking similarities with the qualitative research into the male experience of miscarriage reviewed earlier.

Roberts, Bushnell, Collings & Purdie (2006), conducted a cross sectional study of fathers to compare the psychological health of fathers whose partners had post-partum depression with those whose partners did not. They found that the former group had more symptoms of depression and aggression concluding that living with a spouse who has depression in the post natal period is taxing. This gives rise to the possibility that living with a spouse who has depression following a miscarriage is also challenging and may provide a possible explanation as to why symptoms of depression become apparent later for males.

The literature on male depression is consistent with the studies that have been reviewed with respect to the male grief reaction following miscarriage. Specifically, the finding that men are less likely to display active grief on the PGS but score highly on the less visible scales of despair and difficulty coping (Puddifoot and Johnson, 1999) is consistent with the notion that male depression can be difficult to detect, as it is not expressed. The idea that male depression may be a reaction to their partner’s symptoms is also consistent with the findings of Stinson et al. (1992) and Beutel et al. (1996) that following miscarriage, male scores on the despair subscale of the PGS and a measure of depression, only became comparable with female scores in the longer term. Most significantly, the fact that males may become depressed after the birth of their child, leaves open the distinct yet understudied probability that they may become depressed after a miscarriage, particularly if they view miscarriage as akin to a bereavement.
Predictors of Depression for the Male Partner Following Miscarriage

Miscarriage as a Form of Bereavement

Stroebe, Schut and Stroebe (2007) define bereavement as the “loss of a significant person through death” (p.1960). Given this definition is widely accepted, the fact that legally, a miscarriage is not considered a death, explains why the bereavement literature does not generally include the experience of miscarriage. This is highlighted by the fact that in their review of studies investigating health outcomes of bereavement and risk factors associated with poor health, Stroebe et al. did not include studies on miscarriage. The fact that the experience of miscarriage shares much in common with bereavement indicates that an opportunity exists to apply what is known about bereavement to miscarriage which has not been taken to date.

The literature on Pre Natal Attachment suggests that expectant mothers and fathers can view the foetus as a little person, especially after viewing an ultrasound (Brandon et al., 2009). Paternal Foetal Attachment (PFA) has been measured using the Paternal Antenatal Attachment Scale (PAAS) and also found to increase as a pregnancy progresses (Habib and Lancaster, 2009). Whilst the validity of such measures has been debated particularly with reference to whether attachment is being measured (Brandon et al.), the positive response to items which indicate the future father sees themselves as a Caregiver, do imply that the foetus is viewed as a “significant person”. This may help explain why a grief reaction to the loss of a foetus can be as intense as that experienced when there is a death (Puddifoot and Johnson, 1997).

The work of Parkes (1988) on Bereavement as a Psychosocial Transition (PST) also adds weight to the suggestion that the loss associated with miscarriage may be experienced as
Predictors of Depression for the Male Partner Following Miscarriage

bereavement. Parkes defined a PST as the psychological change that takes place when people have to revise their assumptions about the world. He reviewed studies suggesting that life events that are more likely to precede mental illness; involve a major revision, have lasting implications and occur suddenly. He suggested that these criteria are “defining characteristics of events that can be termed psychosocial transitions” (p.55). Parkes does not specifically include miscarriage as an example of a PST but it seems that for a male or female who has started to create an internal world which has them in the role of parent and then loses that imagined future, these criteria would be met.

From the literature on bereavement, it is evident that there is a link between the loss of a loved one and an adverse impact on physical and mental health (Stroebe, Schut and Stroebe, 2007). In their review, Stroebe et. al. found that for survivors, bereavement is related to increased mortality, a decline in physical health, depression, anxiety and an increased use of medical services. Whilst grief is considered a normal reaction to loss from which most people recover without intervention, it was noted that for a few people, “mental and physical ill-health is extreme and persistent” (p.1960). Given that there are similar grief reactions following miscarriage as for bereavement, it seems likely that for some individuals, male and female, early pregnancy loss may have a longer term and negative impact on health.

Even for women though, there has been little research into the persistence of a grief reaction and associated mental health symptoms beyond the first 6 months after a miscarriage. In their review of studies looking at psychological morbidity following miscarriage, Lok and Neugebauer concluded that for women, symptoms could persist for up to 1 year after miscarriage (2007). As
early as 1992, Neugebauer at al., found that 6 months after loss, depressive symptoms for those women who had miscarried, were still 3 times those of women in the community. More recently, in 2013, Toffol, Koponen and Partonen have used a Finnish population based survey to find that a diagnosis of depressive disorder and the presence of depressive symptoms were more prevalent among women with a history of miscarriage. Whilst it is not clear that these studies controlled for independent variables, there is a suggestion that for women at least, longer term mental health problems may be a consequence of miscarriage.

The research into the psychological response of males following miscarriage is very limited and a little inconsistent. The longitudinal study by Beutel et al. (1996) using the PGS found 10% of males had elevated grief 1 week after loss but that only females had more symptoms than those in the community at 1 year. Stinson et al. (1992) compared grief for mothers and fathers following pregnancy loss and found that 2 months after the loss, men reported less depression than their partners. They did however note that for those males who stayed in the study, grief scores were less inclined than females to decline over time, especially on the sub scale of Despair. Conway and Russell (2000) found that males had a higher grief response than females four months after miscarriage on all sub scales of the PGS and particularly for Despair. Whilst this suggests that there may be a small group of males who are prone to more complicated grief, there has been little attempt to determine whether there is a long term impact on male mental health that may not resolve without intervention or upon what the moderators of such an impact may be.
Predictors of Depression for the Male Partner Following Miscarriage

Potential Moderators/Mediators of a Complicated Grief Reaction in the Male Partner Following Miscarriage

Much of the literature on bereavement focuses on identifying the situational risk factors for a complicated grief reaction. In their review, Stroebe, Schut and Stroebe (2007) identify the following risk factors that have emerged from the literature:

- A death that is sudden, unprepared or untimely
- Loss of a child leading to more enduring and intense grief than loss of spouse
- Lack of social support.

As we have seen, the experience of miscarriage includes elements of these characteristics, especially if it is accepted that as evidenced in the literature, expectant parents who have viewed an ultrasound scan become emotionally attached to foetus and the idea of being a parent. As with bereavement though, not everybody who experiences miscarriage will suffer complicated grief and mental health problems. Given the similarities between the two, the work that has been done to identify risk factors for a poor bereavement outcome may have relevance for identifying males who are more at risk following miscarriage.

Van der Houwen et.al. (2010) have suggested that the bereavement literature identifying risk factors for complex grief is limited because it does not consider the multitude of other factors that may impact upon the situation to increase the probability of a poorer outcome. For instance, they found that an unexpected death predicted grief reaction but only when attachment avoidance was included as a mediating variable, could depressive symptoms be predicted. This is important work, as it is impractical to intervene for all who are bereaved
Predictors of Depression for the Male Partner Following Miscarriage

unexpectedly but it may be more realistic to screen and intervene with those who score highly on attachment avoidance. Similarly, if it were possible to identify factors that predict depressive symptoms following miscarriage, it may be possible to identify those at risk and target interventions in a cost effective manner.

Active Grief and Despair

Literature on bereavement has explored the mediating impact of emotional disclosure (expression of grief) and rumination (thinking about the death) on bereavement outcome. These two variables share characteristics of active grief and despair respectively, as measured by the Perinatal Grief Scale. Given this similarity, the suggestion that emotional disclosure and rumination are mediators of bereavement outcome may be relevant for the miscarriage literature.

Pennebaker’s disclosure paradigm (Stroebe et al., 2002) maintains that expression of emotions following an upsetting experience has positive health implications whereas repression of emotions has a negative effect. The theory suggests that there is value in writing or talking about a traumatic experience. Stroebe et al. point out, that consistent with the disclosure paradigm, the idea that overcoming grief associated with bereavement requires one to confront loss and express thoughts and feelings, is a common viewpoint. The premise being then, that active grief following bereavement may be a healthy, normal reaction that will assist an individual to adjust to their loss and any psychosocial transition involved.

With respect to bereavement, the literature indicates however, that not everybody benefits from disclosure. Stroebe et. al. (2002) found no beneficial affect from talking or writing about a
Predictors of Depression for the Male Partner Following Miscarriage

loss in terms of reduced distress or fewer doctor’s visits at a 6 month follow up when compared to a control group. In a later paper, Stroebe, Schut and Stroebe (2005) suggest that those who are prone to express grief actively would not benefit from such an intervention as they basically do it for themselves and that this may explain discrepant findings. They proposed that it is those who are less securely attached and unlikely to express themselves naturally, who may be more at risk and more likely to benefit from intervention.

More recently, Van der Houwen et al. (2010) explored the mediating effect of rumination, grief avoidance and threatening grief interpretations on the bereavement outcome for individuals who had experienced the unexpected death of a significant person. They found that rumination, measured by a scale that asked how much people thought about the impact of the death, had the most significant impact on four bereavement outcomes:

- Grief Reaction
- Depressive Symptoms
- Emotional Loneliness
- Positive Mood

These findings in the bereavement literature add to the criticism that the literature related to the grief reaction of the male partner following miscarriage has not gone far enough in investigating risk factors for complex male grief. Both qualitative and quantitative research indicates that following miscarriage, the male partner is more likely to display an initial grief reaction characterised by despair rather than active grief. The sub scales of active grief and despair on the Perinatal Grief Scale include items that measure expressed emotion and
ruminative expression and depression related to life stress respectively. Lasker and Toedter (1991), hypothesised that high scores on despair compared to active grief is likely to be associated with a worse outcome in terms of chronic grief following miscarriage. Despite theory and emerging evidence dating back to the 1990’s that this may place the male partner at a greater long term health risk of depression, and the supporting evidence provided by studies on risk factors for bereavement, the significant shortfall in the miscarriage literature is that this has not been tested in a longitudinal study.

Incongruent Active Grief

The incongruent grieving hypothesis was developed by Peppers and Knapp (1980). Based on their observations and consistent with the theory of prenatal attachment, they suggested that following pregnancy, a couple bind to the foetus at different rates and that in the case of miscarriage, an unemotional reaction that is incongruent from the mother’s “may reflect the father’s true feelings at that stage” (p.66) and lead to relationship conflict. The miscarriage literature reviewed in this paper builds on this theory to suggest that overall grief may be congruent, even if the expression of emotion is incongruent e.g. (Puddifoot and Johnson, 1999).

As with active grief and despair, there has been little research into the mediating impact of incongruent grief on the long term health outcome for the male partner following miscarriage although some findings in studies reviewed earlier suggest that may be the case (Stinson et al., 1992) and (Beutel et al., 1996). Stinson et al. followed 36 couples for 2 years after pregnancy loss and found that a discrepancy in expressed grief was associated with marital conflict. Beutel et al. found that men felt more strain if their wives were depressed and irritable for a long
Predictors of Depression for the Male Partner Following Miscarriage

period. However, there has been no empirical investigation into the impact of incongruent grief following miscarriage on the long term mental health of the male partner.

A study related to miscarriage in the bereavement literature by Buchi et al. (2009), has investigated the relationship between incongruent grief, suffering, distress, anxiety and gender for both partners 2-6 years following stillbirth. Interestingly, they found that male suffering was higher when grief was concordant with their partner and they found no effect of gender or grief concordance on depression and anxiety. However, this study used an overall measure of grief, the Munchner Trauer-skala (MTS) with items drawn from the PGS. They did not break grief down to sub scales and so it is not possible to determine if there was discordance in active grief and what that relationship may be with the other measures.

Conclusion

Whilst the literature is strong in measuring the nature of the male partner’s grief reaction following miscarriage, suggestions that there may be some risk factors for long term depression for a small group of males have not been thoroughly investigated. It is likely that this may be because miscarriage is seen as a female event and male depression is often under reported and undiagnosed. As early as 1991, Lasker and Toedter were suggesting that scores on the despair scale of the PGS, on which men have scored higher in a number of studies, were associated with a worse long term outcome. The bereavement literature indicates that ambivalence about the loss, reduced expression of emotion and rumination are risk factors for complicated grief. All are characteristics, which in western cultures are associated with males rather than females. Finally, there is the literature suggesting that incongruent active grief between couples may
also lead to relationship difficulties and longer term suffering. It is understandable that the long term plight of the male partner has not received much attention. Indeed, the male partner is likely to be ignored until there is good evidence to indicate that there is a small group who are at risk and how they may be identified. Hence it is important that the research take the next step and test whether the mediating factors that have been suggested in the literature do in fact predict male depression following miscarriage.

**Aims of this Research**

This research aims to build upon existing theory and empirical studies to explore the impact of miscarriage on the long term mental health of the male partner. The first aim is to identify whether males who have experienced miscarriage are more likely to be experiencing symptoms of depression 12 months post miscarriage. If this is the case, the secondary aim will be to identify factors such as a depressive grief reaction and incongruent grief at the time of miscarriage that are predictive of Depression at 12 months post miscarriage.
References


Predictors of Depression for the Male Partner Following Miscarriage


Predictors of Depression for the Male Partner Following Miscarriage


Predictors of Depression for the Male Partner Following Miscarriage


Predictors of Depression for the Male Partner Following Miscarriage


Predictors of Depression for the Male Partner Following Miscarriage

Manuscript: Predictors of Depression in the Male Partner 12 months after Miscarriage

Martin P. Johnson

Simon N. Scarr

1 School of Psychology, University of Newcastle, New South Wales, Australia.

Corresponding Author: Martin P. Johnson, School of Psychology, University of Newcastle, University Drive, Callaghan New South Wales, 2308, Australia. Email: Martin.Johnson@newcastle.edu.au Tel: +61 (0) 2 49218864. Fax: +61 (0) 2 49216980
Abstract

Miscarriage has the potential for intense and enduring psychological consequences for a couple. However, much less is known regarding the longer-term grief outcomes for men. It has been hypothesized that incongruent grieving can result in increased negative psychological outcomes; yet, to-date, few studies have tested this empirically. This research explored the long term psychological impact of miscarriage on the male partner and identified predictors of ongoing depression up to 12 months post miscarriage. One hundred and sixty-nine male/female couples, whose pregnancy ended due to miscarriage, provided general and reproductive demographic details. The Beck Depression Inventory (BDI) was completed during the 1st trimester of pregnancy, at miscarriage, and 12 months post-miscarriage. Grief and incongruent grief were measured by the Perinatal Grief Scale (PGS) at miscarriage, and 12 months post-miscarriage. Information on frequency of General Practitioner (GP) visits in the 12 months prior to and post miscarriage was also collected. Findings indicate a significant increase in men’s depression scores at miscarriage, compared to during pregnancy, which then significantly decreased at 12 months post-miscarriage, but were still significantly above pregnancy levels. Further, there was a significant increase in GP visits in the 12 months following miscarriage. Significant predictors of depression 12 months post miscarriage were; depression at miscarriage, depression at pregnancy, an increase in GP visits following miscarriage, incongruent grief and PGS total score at miscarriage. We argue that an internal grief reaction following miscarriage, may be a risk factor for poorer mental health outcomes for the male partner in the long term, especially if that grief reaction is less expressive than the
Predictors of Depression for the Male Partner Following Miscarriage

female partner’s reaction. Further, the findings suggest that an increase in GP visits following miscarriage can be used as a proximal predictor of male depression.

**Research highlights**

- The male partner can experience signs and symptoms of depression for up to 12 months following miscarriage.
- GP visits made by the male partner in the 12 months following their partner’s miscarriage, correlate highly with scores on the Beck Depression Inventory (BDI) 12 months post miscarriage.
- Male scores on the BDI at miscarriage and an increase in GP visits following miscarriage are significant variables in predicting variance in BDI, 12 months later.
- An Incongruent Grief reaction where the male partner’s initial grief is less intense than their female partner, is also a significant variable in predicting longer term symptoms of male depression.

**Keywords**

Miscarriage, Male, Depression, Incongruent Grief.
Introduction

Miscarriage is the natural termination of pregnancy before a foetus is viable (Brier, 2008). In the United Kingdom this is defined as being prior to the end of the 24th week of gestation (The Stillbirth [Definition] Act 1992). The literature is in widespread disagreement about the prevalence rates for miscarriage ranging from 8-20% (Tulandi and Al-Fozan, 2011), 15-25% (Brier, 2008) and even 50% (El-Sayed, Mohamed and Jones, 2009). It is well established however, that following miscarriage, women and their partners can experience a grief reaction, similar in intensity and duration to that experienced following the death of any loved one (Puddifoot and Johnson, 1997); which is consistent with the work of Parkes (1988) who described bereavement as a Psychosocial Transition (PST), where following a significant loss, assumptions about the world need to be revised. An intense grief reaction following miscarriage suggests that assumptions about how the world will be, have been challenged, to the extent that a PST is required. It has been hypothesised that an internal grief reaction, characterized by difficulty coping and despair (Lasker & Toedter, 1991) and/or an incongruent grief reaction between male and female partners (Peppers and Knapp, 1980) may be related to long term grief. However this has not been fully explored in the literature, particularly for the male partner.

Miscarriage is a significant loss, the meaning of which is often ignored, especially for males (McCreight, 2004). That the loss of a foetus is significant, is consistent with research that has measured Pre Natal Attachment (PNA) and found that expectant parents start to view the foetus as a “little person”, especially if they have seen ultrasound imaging (Brandon, Pitts, Denton, Stringer & Evans, 2009). Johnson and Puddifoot (1998) identified that intensity of grief
Predictors of Depression for the Male Partner Following Miscarriage

following miscarriage was associated with viewing ultrasound imagery of the foetus for both parents. Expectant parents who have viewed an ultrasound scan image appear to develop an internal world in which they see themselves as parents. If they then experience a miscarriage and lose their role as future parents, in the sense of experiencing a PST, they are bereaved.

Stroebe, Schut and Stroebe, (2007) reviewed studies on bereavement in general, concluding that for some, it can have an adverse impact on mental health outcomes such as depression. For the female partner, research has demonstrated longer term risk of depression and anxiety following miscarriage (Beutel, Deckardt, Von Rad & Weiner, 1995; Lok and Neugebauer, 2007). Beutel et al. found that for the women in their study, a depressive internal grief reaction at the time of miscarriage rather than active grief, predicted long term health problems.

There is a lack of research into the longer term consequences for the male partner’s physical and psychological health following miscarriage. This is understandable, as miscarriage is generally seen as a female event (Sedhev, Parker & Reddish, 1997) and for most males, the short term symptoms of grief may appear to resolve naturally (Stinson, Lasker, Lohmann and Toedter, 1992). However, Stinson et al. suggested that some males may internalise feelings, whilst female grief was more demonstrative. They found that this type of less expressive male grief did not resolve as quickly and suggested that it may be associated with long term physical and psychological symptoms.

Generally, men are less likely than women to report symptoms associated with depression (Norman, 2004). Hence, male depression following miscarriage may well go undetected, especially if that grief is not expressed. The absence of studies on male depression following
Predictors of Depression for the Male Partner Following Miscarriage

miscarriage, may reflect the fact that it is seldom considered or diagnosed, rather than low prevalence.

Research has reported on male depression following the successful birth of a child. One longitudinal study found that 10% of fathers had moderate to severe depression 9 months after the birth of their child (Paulson, Dauber and Leiferman, 2006). Roberts, Bushnell, Collings & Purdie (2006) found that males had more symptoms of aggression and depression if their partners had postpartum depression. The fact that males can become depressed after the successful birth of their child points to the possibility that they may also experience longer term depression after their partner’s miscarriage.

Brownhill, Wilhelm, Barclay & Gordon (2002) found that even if men are feeling depressed, detecting their depression represents a challenge for physicians, as men are more likely to present to their doctor with physical problems rather than to discuss feelings. Similarly; anger, avoidance, risk taking and drinking have been identified as common presenting issues that mask depression in men (Brownhill, Wilhelm, Barclay & Schmied, 2005). For males, depression can be an underlying and hidden concern. This raises the possibility that even if it is not the stated reason for presenting to a doctor, increased utilization of medical services following miscarriage, may be a proximal measure and indicator of depression.

If it is the case that some males are at risk of longer term depression following their partner’s miscarriage, it becomes important to identify and screen for risk factors predictive of more complicated grief. Given prevalence rates, it is neither practical nor cost effective to provide
formal intervention for all males, whose partners miscarry. The literature has suggested a number of factors that may be relevant:

**The Nature of the Male Grief Reaction**

Early studies of grief in the male partner following miscarriage were qualitative in design (Sedhev et al., 1997; Murphy, 1998; Puddifoot and Johnson, 1997). The common themes arising from these studies were that men experienced emotions such as sadness and anger (Murphy) but were aware of an expectation that they remain strong for their partner (Puddifoot and Johnson). Consequently, men reported that they attempted to hide their emotions and neither received or expected psychosocial support (Sedhev et al.).

The Perinatal Grief Scale (PGS), (Toedter, Lasker & Alhadeff, 1988) has been used to quantify grief reaction following miscarriage. The PGS provides an overall measure of grief as well as 3 subscales; active grief, difficulty coping and despair. Active grief is expressed and visible, whilst items on the difficulty coping and despair subscales detect a less visible grief that is more similar to depression (Toedter, Lasker and Janssen, 2001). Toedter et al. (2001) reviewed 9 studies that used the PGS and mental health, as variables to measure the impact of pregnancy loss. They found that the PGS has high convergent validity with measures of mental health, social support and marital satisfaction, indicating that it may have utility as a predictor of long term grief and depression.

The PGS has been used to compare male and female grief reactions following miscarriage. In a longitudinal study (Stinson et al., 1992) found that women scored higher than men 2 months following miscarriage on both overall grief and active grief; but that this difference was not
Predictors of Depression for the Male Partner Following Miscarriage

present at 2 years, when scores were not significantly different. It seemed that the female grief was more likely to resolve during this period. Puddifoot and Johnson (1999) used the PGS and found that male’s overall grief scores following miscarriage were similar to females. However, there were subscale differences, in that males displayed less active grief, but they scored higher than females on difficulty coping and despair.

Combined, the studies on male grief following miscarriage are consistent in that males are less likely to express grief, even though it may be felt. It has been argued that high scores on the difficulty coping and despair subscales are more characteristic of depression and are indicative of being at risk of developing a longer term grief reaction that does not resolve spontaneously (Lasker & Toedter, 1991; Toedter et al., 2001). Lasker and Toedter (1994) also suggested that men are more likely to develop a chronic grief response following miscarriage as they are less likely to seek or receive support and understanding. Despite this speculation, the relationship between an internalized male grief reaction following miscarriage and long term depression has not been fully explored in the literature.

The hypothesis that an internal grief reaction is a risk factor for long term mental health problems is consistent with the literature on bereavement in general and the commonly held viewpoint that expressing thoughts and feelings is helpful in overcoming grief (Stroebe, Stroebe, Schut, Zech and Van den Bout, 2002). Research into this area has however, produced inconclusive findings. Stroebe et al. compared an experimental group who wrote and spoke about their grief and a control group who experienced no formal intervention. They found no beneficial affect from talking or writing about a loss in terms of reducing distress or fewer visits
Predictors of Depression for the Male Partner Following Miscarriage

to a physician at 6 months post bereavement. In a later paper, Stroebe, Schut and Stroebe (2005) attempted to explain their previous finding, hypothesising that formal disclosure would have little impact if grief was already being expressed naturally, thus confounding results in the earlier study. Their suggestion again being, that whilst individuals who express their grief may recover without intervention, those who internalise grief are more at risk and are likely to benefit from counselling and support.

**Incongruent Grief**

Research has suggested not only that the nature of the male grief reaction may be a risk factor for long term problems following miscarriage (Lasker and Toedter, 1991) but also that the very fact that there is a difference in the way grief is expressed between the two partners, may lead to conflict and have an impact on mental health (Stinson et al., 1992; Beutel, Willner, Deckardt, Von Rad & Weiner, 1996). Stinson et al. followed 36 couples for 2 years after pregnancy loss and found that a discrepancy in expressed grief was associated with marital conflict. Beutel et al. found that men felt more strain if their wives were depressed and irritable for a long period. Sedhev (1997) also reported that differences between partners in their grieving patterns, led to difficulties in their ability to support each other. This leads to the suggestion that the incongruence in grief may be a risk factor for the health of the male partner, with relationship conflict a mediating factor.

The incongruent grieving hypothesis, initially developed by Peppers and Knapp (1980), states that a marked difference in grief intensity between two members of a couple will lead to decreased marital satisfaction. It is argued that this occurs for two reasons: i) the partner with
Predictors of Depression for the Male Partner Following Miscarriage

the higher level of grief resents their partner’s perceived lack of sufficient grief (Buchi et al. 2009) and ii) the partner with the lower level of grief is frustrated by their partner seemingly choosing to grieve so intensely or for so long (Wallerstedt & Higgins, 1996). This resentment and frustration is hypothesised to lead to decreased within-couple communication and partner support satisfaction which in turn leads to decreased marital satisfaction (Vollbehr, 2011).

Therefore it can be argued that following miscarriage, whilst overall grief may be congruent, the expression of that emotion within a couple may be incongruent e.g. (Puddifoot and Johnson, 1999). According to the incongruent grieving hypothesis, such incongruence may have implications for both the relationship and potentially, for the health of either partner. However, there has been no empirical investigation into the impact of incongruent grief following miscarriage, on the long term mental health of the male partner.

**Increase in number of Visits to a General Practitioner**

The response of men to grief following miscarriage fits a hegemonic view of masculinity; where men are socially constrained to deny weakness or vulnerability (Connell & Messerschmidt, 2005). It is also consistent with the suggestion that male depression is a hidden concern (Brownhill et al., 2005). This may mean that in order to fully understand the male grief response and identify those at risk of depression, proximal measures of grief and depression, such as an increase in visits to a general practitioner, need to be utilised.

The consistent finding in the literature is that adult men make significantly fewer visits to their General Practitioner (GP) than women, independent of reproduction (Kandrack, Grant & Segal, 1991). If men are deliberately silent about their own grief reaction following miscarriage, as
Predictors of Depression for the Male Partner Following Miscarriage

argued by Puddifoot and Johnson (1997), this could be because psychological distress, and physical illness more generally, can reduce men’s perceived status within masculine hierarchies and raise doubts about masculinity and power relations (Charmaz, 1995), meaning that men are less likely to visit their GP than a female, especially if a problem is perceived as psychological. Consequently, if there is an increase in men’s GP attendance following a major life event such as miscarriage, this could be indicative of men reaching out for help with a psychological issue under the guise of more socially acceptable somatic reasons.

**Aims of this Research**

This research aims to build upon existing theory and empirical studies to explore the impact of miscarriage on the long term mental health of the male partner. The first aim is to identify whether males who have experienced miscarriage are more likely to be experiencing symptoms of depression 12 months post miscarriage. The secondary aim will be to identify factors at the time of miscarriage such as BDI scores, despair, difficulty coping and incongruent grief that are predictive of depression at 12 months post miscarriage and thirdly whether increased GP visits can be used as a proximal predictor of depression. Therefore we predict that: 1) there will be a significant increase in depression from the time of miscarriage to 12 months post miscarriage for males whose partners have experienced miscarriage; 2) male depression 12 months post miscarriage can be predicted at time of miscarriage, by internal grief reaction, incongruent grief and a subsequent increase in visits to their GP.
Method

The study was a longitudinal design. The sample was drawn from 20 General Practitioner surgeries in the United Kingdom. The surgeries gave letters of introduction outlining the study to pregnant patients. 904 couples requested further information about the study, and 801 couples returned usable data. This is a response rate of 88.6%. Of these 801 couples, 169 experienced a miscarriage. For the purpose of this study, miscarriage was defined as the loss of a baby prior to the 25th week of pregnancy.

Demographic information was collected via a purposely-designed questionnaire, which requested information on: parity, length of time trying to conceive, length of gestation and history of reproductive failure, in order to provide a full description of the sample.

The sample comprised of 169 male/female couples whose pregnancy ended due to miscarriage. The mean age of the men was 31.72 years (SD = 6.76 years) and the mean age of the women was 31.01 years (SD = 6.73 years). The mean occurrence of miscarriage was at 10.13 weeks of gestation (SD = 2.36 weeks). 77.5% of the pregnancies were reported by the male partner as being planned, with the remaining 22.5% reported as being unplanned. 89.9% of the pregnancies were reported as being welcomed as a positive event, whereas 10.1% were not. All of the pregnancies that were reported as being planned were reported as being welcomed, whereas of the pregnancies that were reported as being unplanned, 55.26% were reported as being welcomed and 44.74% were reported as not being welcomed. Finally, prior to the miscarriage, 74.3% of the male participants had been present at an ultrasound of the foetus, whereas 25.7% had not.
Research Instruments

The Perinatal Grief Scale (PGS) (Toedter et al., 1988) was used to measure the predictor variables of despair, difficulty coping, active grief and incongruent grief. The PGS scores for the female partners in this study were used only to calculate an incongruent grief score.

The PGS comprises of three subscales, ‘active grief’, ‘difficulty coping’ and ‘despair’; each having eleven items and a potential scoring range of eleven to 55. The overall score on the PGS is the sum of the three subscales. The reliability of this measure is well established (Hunfeld et.al, 1993), both for the total scale (Cronbach’s alpha = 0.95) and individual subscales (> 0.85). The validity of the scale is reported as 0.98 with the subscales ranging from 0.94 to 0.96 (Potvin, Lasker and Toedter, 1988). In this study the reliability coefficient for the total scale was 0.96 with the subscales ranging from 0.93 to 0.97.

In order to ascertain a measure of ‘incongruent grief’, male scores were subtracted from female scores on the total scale of the PGS and each of the three subscales. Scores on the incongruence measures were reduced. A score of 1 on incongruence meant that female grief minus male grief was > 5. A score of 2 meant that female grief minus male grief was < -5. A score of 3 meant that female grief minus male grief was between -5 and 5. Hence, a low score on incongruence indicated that female grief on that subscale was greater than male grief whereas a high score on incongruence indicates that the grief levels of males on that subscale were either higher or similar to their female partner.

The Beck Depression Inventory (BDI-I) (Beck, Ward, Mendelson, Mock & Erbaugh, 1961). This 21 item questionnaire is one of the most widely used and reliable instruments for detecting
Predictors of Depression for the Male Partner Following Miscarriage

depression in the general population (Beck, Steer & Garbin, 1988). Retest reliability with psychiatric populations range from 0.48 to 0.86 whereas with non-psychiatric populations the inventory is more stable with correlations of 0.60 to 0.83 reported. The validity of the inventory appears to be good with a 0.72 correlation between severity of depression on the BDI and clinical judgement (Beck et al). Lok, Yip, Lee, Shek, Tam and Chung (2004) found that the Beck Depression Inventory (BDI) administered to females 6 weeks after miscarriage was effective in screening psychiatric morbidity as measured by a subsequent clinical interview and concluded that it was an effective tool in screening for female psychiatric morbidity following miscarriage. In this study the reliability coefficient was 0.77.

**Somatic Response to Miscarriage** was measured by collecting data on the number of visits to the General Practitioner in the 12 months pre and post miscarriage. In the 12 months post miscarriage the mean number of GP visits rose from 0.35 to 1.1.

**Procedure**

Following ethical approval the sample were recruited via twelve large General Practitioners’ surgeries who advertised “Well Woman” clinics with antenatal care in the Midlands and a further eight surgeries in the North East of England. Participating practices were given letters of introduction outlining the nature of the research and were requested to give them to pregnant women under their care and to women who presented themselves for pregnancy testing and received a positive result. The letter of introduction also requested the support of their male partner in the study. Participants who expressed interest in participating received and returned the instruments by mail. All participants received relevant instruments during the first trimester
Predictors of Depression for the Male Partner Following Miscarriage

of the pregnancy, at miscarriage and twelve months post miscarriage. To control for order
effect, all instruments were presented in the package in random order.

Results

Increase in Male Depression 12 months post Miscarriage

In order to examine any changes in BDI scores at pregnancy [Mean = 4.65 and SD = 2.58],
miscarriage [Mean = 15.53 and SD = 7.86] and 12 months post miscarriage [Mean = 9.59 and SD
= 5.75] a one way ANOVA was conducted. This revealed that overall there was a significant
difference in BDI score over time F(2,336) = 676.531, p < .0001, \( \eta^2_p = .801 \). A post hoc pairwise
comparison between each pair of time intervals showed that all of the mean differences were
significant at the .05 level.

Using the descriptive criteria for depression outlined in the BDI –I (Beck et al., 1988), during
pregnancy none of the men were classified in the two highest categories of depression;
moderate to severe and severe depression. At the time of miscarriage, 57 of the male partners
were classified in these two highest categories and at 12 months post miscarriage, 14 of the
169 male participants or 8.3% were still classified in the moderate to severe category.

Men’s GP Attendance

The Mean number of GP visits made by men in the 12 months post miscarriage was 1.07 (SD =
1.21) which was significantly greater than the Mean GP visits in the 12 months prior to
miscarriage (0.35, SD = 0.49), \( t = -7.59, df = 168, p < 0.001 \).
Predictors of Depression for the Male Partner Following Miscarriage

There was also a positive correlation between GP visits 12 months post miscarriage and BDI 12 months post miscarriage ($r = .924$, $N = 169$, $p < .001$, one tailed). It is a very strong correlation: 85.4% of the variation is explained. This suggests that GP visits and BDI scores are measuring something very similar, and may be aligned to depression.

**Predictors of Male Depression 12 months post Miscarriage**

In order to test for predictors of depression at 12 months post miscarriage a blocked hierarchical regression was utilised.

In Block 1, pregnancy related demographics (gestation period at miscarriage, was the pregnancy planned, pregnancy welcomed, age, seen ultrasound scan) were entered into the equation. This produced a significant model ($F(5,163) = 5.56$, $P < .001$) explaining 11.9% of the variability, with only gestational period at miscarriage and was the pregnancy planned being significant predictors.

In order to control for depression during the pregnancy and at the point of miscarriage, and grief at miscarriage; BDI and PGS total scores were added in the 2nd block. Again this produced a significant model ($F(8,160) = 1278.76$, $P < .001$) adding 54.6% of variability explained. Depression at pregnancy and at miscarriage accounted for a significant contribution to the variability, but PGS Total score did not. Further, these additions attenuated gestational period at miscarriage and was the pregnancy planned to non-significance, but age became a significant predictor.
Predictors of Depression for the Male Partner Following Miscarriage

In block 3, in order to test whether GP visits could be a proximal predictor of depression, GP visits in the 12 months pre and post miscarriage were then entered. Again this produced a significant model ($F(10,158) = 1155.21$, $P<.001$) providing an increased explanation of .2% of the amount of variability with GP visits post miscarriage significantly contributing to the model. From the previous models, BDI at pregnancy and during miscarriage and age also remained significant.

When Incongruence scores at miscarriage were added in Block 4, again this produced a significant model ($F(13,155) = 935.63$, $P<.001$) explaining a further .1% of the variability. Depression at pregnancy and miscarriage and GP visits accounted for the highest amount of variability but incongruence the PGS and its subscales also explained a small but significant amount of variability.

**Insert Table 1 about here**

Therefore, in the final model (see Table 1), baseline levels of depression certainly predict depression at 12 months. However, it would seem that an increase in the number of GP visits in the 12 months post miscarriage can act as a proximal predictor of increased levels of depression following miscarriage and when a man’s grief scores in terms of active grief, difficulty coping and despair, as measured by the PGS are incongruent with his female partner, this is indicative of an increased risk of depression. The negative beta values for the incongruence variables indicate that it is when female grief is higher than male grief at the time of miscarriage, that an increase in male depression 12 months post miscarriage is predicted.
Predictors of Depression for the Male Partner Following Miscarriage

The descriptive statistics outlined in Table 2 confirm that a greater proportion of females scored higher than males on all subscales of the PGS at time of miscarriage. However, by 12 months post miscarriage, this incongruence is not so great with a greater proportion of males scoring higher than females, especially on the difficulty coping and despair subscales of the PGS.

Insert Table 2 about here

It is noted that there was significant collinearity between some of the predictor variables (See Table 3); notably the BDI, the PGS and its subscales. For instance, the correlation between the BDI at miscarriage and the PGS at miscarriage ($r = .986, N = 169, p < .001, \text{one tailed}$) is very strong, indicating that the two scales are measuring an almost identical construct. This explains why the PGS only explains a small amount of variability in the final model.

Insert Table 3 about here.

Discussion

This study is the first to investigate whether the nature of men’s grief reaction at miscarriage, and any subsequent incongruence with his female partner’s grief reaction together with an increase in the number of visits to a physician in the 12 months following miscarriage predicts male depression 12 months post miscarriage. The results of the study support our predictions in that following miscarriage there was a significant increase in depression from the time of miscarriage to 12 months post miscarriage for men whose partners have experienced a miscarriage and; male depression 12 months post miscarriage can be predicted at time of miscarriage, by an internal grief reaction, incongruent grief and a subsequent increase in visits
to their GP. Further, we have identified that an increase in men’s GP attendance in the 12 months following a miscarriage can be a proximal predictor of depression and is indicative of men having negative psychological sequelae.

**Increase in Depression Post Miscarriage**

It is apparent from this study that at 12 months following miscarriage, symptoms of depression reported by male partners were significantly higher than those reported during pregnancy, with 8.3% of the sample still falling into the moderate to severe category of depression, as measured by the BDI. At miscarriage, a very low proportion of males scored higher than females on any of the subscales of the PGS. The purpose of this research was not necessarily to explore sex differences in grief following miscarriage but to explore how partner’s grief can influence the psychological outcomes for men. This study confirms and extends previous literature indicating that females are more likely to express grief, whereas male grief tends to be hidden (Sedhev et al., 1997; Murphy, 1998; Puddifoot and Johnson, 1997). At 12 months however, a much larger proportion of men scored higher than their female’s partners on each of the subscales of the PGS and particularly for those measuring a more depressive reaction, despair and difficulty coping. This latter finding is consistent with Stinson et al., (1992) who found that initial sex differences in scores on the PGS were not sustained after two years. Similarly, for males in this study, the initial grief reaction following miscarriage did not resolve as quickly as it did for females and residual symptoms of depression were still evident at 12 months for the male partner, as measured by the BDI.
Predictors of Male Depression 12 months post Miscarriage

The Nature of the Male Grief Reaction

The results of this study indicate that an internalised, depressed grief reaction at miscarriage does explain much of the variance in male BDI scores at 12 months post miscarriage. Notably though, scores on the PGS subscales of active grief, difficulty coping or despair taken at miscarriage did not explain more variance over and above BDI scores taken at miscarriage when looking to predict depression 12 month post miscarriage. The most likely explanation of this is that owing to the large correlation between the PGS and BDI, the effect of the PGS and its subscales in the hierarchical regression was negated by the BDI. This is consistent with the criticism of the PGS by Brier (2008) who argues that the PGS has significant overlap with measures of depression. Nevertheless, the strength of the correlation with the BDI indicates that the PGS, and particularly the subscales of despair and difficulty coping, have some validity as predictors of later depression, as first suggested by Lasker and Toedter (1991).

The results of this study suggest however that the BDI itself would suffice as an initial screening tool for later depression. This is consistent with Lok et.al (2004) who found that the BDI was a valid predictor of psychological morbidity in females following miscarriage as later diagnosed via a structured clinical interview. The BDI is an easy to administer tool that could be used by GPs and other allied health professionals as an initial screen for at risk males with a tendency to internalise rather than express grief.
Predictors of Depression for the Male Partner Following Miscarriage

**Increased GP Visits in the 12 months following Miscarriage**

There was also a significant change in visits made by men to their General Practitioner in the 12 months following miscarriage. In the hierarchal regression, increase in GP visits made in this period emerged as a significant predictor of male BDI scores 12 months post miscarriage.

However, even though BDI scores correlate highly with these increased visits, depression may not have been the problem that was presented to the GP. Male under reporting of depression (Norman, 2004), is consistent with Charmaz’s view (1995) that males see psychological distress as a sign of weakness and are less likely than females to identify depression as a problem.

Similarly, Brownhill et al., (2002, 2005) reported that whilst depression may not be the problem presented to their GP by males, it is often an underlying reason for referral that is masked by physical problems, anger or behaviours such as increased drinking. These may be seen as more acceptable problems for males. The common experience for the males in this study, was the miscarriage experienced by their partner. It seems highly likely that the increase in GP visits was related to this experience and, to the somatic and behavioural consequences of a grief reaction that was being experienced, if not displayed or recognised. The extremely high degree of correlation between BDI scores at 12 months post miscarriage and increase in GP visits during that period, suggests that the increase in GP visits is a valid proximal predictor of male depression.

**Incongruent Grief at Miscarriage**

That each of the incongruent grief measures entered into the stepwise regression were significant in explaining variance in BDI 12 months post miscarriage, indicates that these are also a moderating factor in predicting depression. The results suggest that when the female
scores on each of the subscales are higher at miscarriage than their male partner, male BDI at 12 months post miscarriage is also higher. It is not clear however whether this is a direct relationship or whether it is the conflict that arises from the incongruence, which is a mediating factor in predicting male depression. This result is consistent with both the incongruent grieving hypothesis (Peppers and Knapp, 1980) and the findings of Beutel et al. (1996), that men felt strained by their wives depressive reaction. This study provides evidence for the incongruent grieving hypotheses and suggests that for the male partner, a risk factor for long term mental health problems after miscarriage, over and above their initial grief reaction as measured by the BDI or PGS, is the extent to which the male reaction differs from their female partner, especially when the initial male reaction is less intense.

Clinical Implications

Based on the literature, it is likely that even if depression is the underlying reason for increased GP visits made by the males after their partner’s miscarriage, men may not present with depression as their primary problem (Brownhill et al., 2002; Brownhill et al., 2005). Rather, males present to their physician with physical problems, drinking problems or feelings such as anger. This being the case, the importance of a GP taking a psychosocial history when confronted with a male patient with a history of good health and few GP visits, presenting with problems that do not have an obvious biomedical explanation, becomes paramount. Simply enquiring about major life events for them or their partner in the previous year, may provide a clue that psychosocial issues such as the aftermath of miscarriage are having an impact on their psychological and physical health. The BDI is also a screening tool that can be used to predict the possibility of longer term depression if it is not addressed.
Predictors of Depression for the Male Partner Following Miscarriage

It is important that allied health professionals and General Practitioners are aware, that although predominantly a female event, a miscarriage can have longer term consequences for the mental health of the male partner. However, as demonstrated by Stroebe et al. (2002), not everybody who experiences a bereavement benefits from formal intervention as they may have avenues to disclose their feelings and recover naturally. In this study for instance, the mean BDI at miscarriage reduced from 15.53 to 9.60 at 12 months post miscarriage and a corresponding reduction from 57 males in the moderate to severe and severe categories of depression at miscarriage to only 14 in the moderate to severe category at 12 months post miscarriage. This suggests that many may have recovered from their grief naturally, without any formal intervention but that a minority may have benefited from assistance to overcome their depression.

Should males present to their GP with medical problems in the months after miscarriage, especially when this represents an increase in frequency of GP attendance, the possibility of a depressive reaction should be considered. At miscarriage, a BDI score for the male partner that is in the moderate to severe range or higher may be a predictor of longer term problems. Furthermore, there is greater risk when this initial grief reaction is less intense, internalised and incongruent with their female partner’s reaction. Where both these factors are present, intervention and support for the male partner, combined with psycho-education for both partners about the nature of the differences between male and female grief reactions, may be beneficial in preventing longer term problems.
Predictors of Depression for the Male Partner Following Miscarriage

References


Predictors of Depression for the Male Partner Following Miscarriage


Predictors of Depression for the Male Partner Following Miscarriage


Table 1 - Hierarchical Regression Analysis of the Predictors of Depression in the Male Partner 12 months post miscarriage

<table>
<thead>
<tr>
<th>Block</th>
<th>β</th>
<th>t</th>
<th>Adj R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Block 1</td>
<td></td>
<td></td>
<td>.119***</td>
</tr>
<tr>
<td>Time of Miscarriage</td>
<td>.212</td>
<td>2.55*</td>
<td></td>
</tr>
<tr>
<td>Pregnancy Planned</td>
<td>.265</td>
<td>2.50*</td>
<td></td>
</tr>
<tr>
<td>Block 2</td>
<td></td>
<td></td>
<td>.665***</td>
</tr>
<tr>
<td>Age</td>
<td>.030</td>
<td>2.50*</td>
<td></td>
</tr>
<tr>
<td>BDI at pregnancy</td>
<td>.238</td>
<td>4.40***</td>
<td></td>
</tr>
<tr>
<td>BDI at miscarriage</td>
<td>.749</td>
<td>8.50***</td>
<td></td>
</tr>
<tr>
<td>Block 3</td>
<td></td>
<td></td>
<td>.667***</td>
</tr>
<tr>
<td>Age</td>
<td>.025</td>
<td>2.19*</td>
<td></td>
</tr>
<tr>
<td>BDI at pregnancy</td>
<td>.200</td>
<td>3.89***</td>
<td></td>
</tr>
<tr>
<td>BDI at miscarriage</td>
<td>.674</td>
<td>7.95***</td>
<td></td>
</tr>
<tr>
<td>GP visits 12 months post miscarriage</td>
<td>.108</td>
<td>4.59***</td>
<td></td>
</tr>
<tr>
<td>Block 4</td>
<td></td>
<td></td>
<td>.668***</td>
</tr>
<tr>
<td>BDI at pregnancy</td>
<td>.215</td>
<td>3.89***</td>
<td></td>
</tr>
<tr>
<td>BDI at miscarriage</td>
<td>.631</td>
<td>4.27***</td>
<td></td>
</tr>
<tr>
<td>GP visits 12 months post miscarriage</td>
<td>.104</td>
<td>-4.53***</td>
<td></td>
</tr>
<tr>
<td>Incongruence Active Grief</td>
<td>-.031</td>
<td>-2.87*</td>
<td></td>
</tr>
<tr>
<td>Incongruence Difficulty in Coping</td>
<td>-.027</td>
<td>-2.18**</td>
<td></td>
</tr>
<tr>
<td>Incongruence Despair</td>
<td>-.030</td>
<td>-2.77*</td>
<td></td>
</tr>
<tr>
<td>PGS Total</td>
<td>-.026</td>
<td>-2.01**</td>
<td></td>
</tr>
</tbody>
</table>

*P<.05, **P<.01, P***<.001
### Table 2 - Comparison of Incongruence (I) by Sex on subscales of the PGS at Miscarriage and at 12 months post Miscarriage

<table>
<thead>
<tr>
<th>Measure</th>
<th>At Miscarriage</th>
<th>12 months post Miscarriage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% Females higher</td>
<td>% Males higher</td>
</tr>
<tr>
<td>I = 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Active Grief</td>
<td>48.5</td>
<td>15.4</td>
</tr>
<tr>
<td>Difficulty Coping</td>
<td>49.7</td>
<td>6.5</td>
</tr>
<tr>
<td>Despair</td>
<td>57.4</td>
<td>6.5</td>
</tr>
</tbody>
</table>

### Table 3 - Pearson’s r Correlations for predictor variables at time of Miscarriage (Beck Depression Inventory, Perinatal Grief Scale and subscales)

<table>
<thead>
<tr>
<th>Measure</th>
<th>BDI</th>
<th>PGS Total Scale</th>
<th>Active Grief</th>
<th>Difficulty Coping</th>
<th>Despair</th>
</tr>
</thead>
<tbody>
<tr>
<td>BDI</td>
<td>1.000</td>
<td>.986**</td>
<td>.875**</td>
<td>.926**</td>
<td>.926**</td>
</tr>
</tbody>
</table>

**Correlation is significant at the .01 level**
Appendix A: Journal Submission Details and Guidelines for Authors

It is the intention of the authors to submit ‘Predictors of Depression for the Male Partner following Miscarriage’ for publication in Social Science and Medicine.

Information has been taken (‘cut and pasted’) from the Social Science and Medicine Guide for Authors.

SOCIAL SCIENCE & MEDICINE

AUTHOR INFORMATION PACK

DESCRIPTION

Social Science & Medicine provides an international and interdisciplinary forum for the dissemination of social science research on health. We publish original research articles (both empirical and theoretical), reviews, position papers and commentaries on health issues, to inform current research, policy and practice in all areas of common interest to social scientists, health practitioners, and policy makers. The journal publishes material relevant to any aspect of health from a wide range of social science disciplines (anthropology, economics, epidemiology, geography, policy, psychology, and sociology), and material relevant to the social sciences from any of the professions concerned with physical and mental health, health care, clinical practice, and health policy and organization. We encourage material which is of general interest to an international readership.

The journal publishes the following types of contribution:

1) Peer-reviewed original research articles and critical or analytical reviews in any area of social science research relevant to health. These papers may be up to 8,000 words including abstract, tables, and references as well as the main text. Papers below this limit are preferred.

2) Peer-reviewed short reports of research findings on topical issues or published articles of between 2000 and 4000 words.
Predictors of Depression for the Male Partner Following Miscarriage

3) Submitted or invited commentaries and responses debating, and published alongside, selected articles.

4) Special Issues bringing together collections of papers on a particular theme, and usually guest edited.

Please see our Guide for Authors for information on article submission. If you require further information, the journal's editorial staff will be happy to help.

AUDIENCE

Social scientists (e.g. medical anthropologists, health economists, social epidemiologists, medical geographers, health policy analysts, health psychologists, medical sociologists) interested in health, illness, and health care; and health-related policy makers and health care professionals (e.g. dentists, epidemiologists, health educators, lawyers, managers, nurses, midwives, pharmacists, physicians, public health practitioners, psychiatrists, surgeons) interested in the contribution of the social sciences.

IMPACT FACTOR

2012: 2.733 © Thomson Reuters Journal Citation Reports 2013

GUIDE FOR AUTHORS

INTRODUCTION Click here for guidelines on Special Issues.

Click here for guidelines on Qualitative methods.

Social Science & Medicine provides an international and interdisciplinary forum for the dissemination of social science research on health. We publish original research articles (both empirical and theoretical), reviews, position papers and commentaries on health issues, to inform current research, policy and practice in all areas of common interest to social scientists, health practitioners, and policy makers. The journal publishes material relevant to any aspect of health and healthcare from a wide range of social science disciplines (anthropology, economics, epidemiology, geography, policy, psychology, and sociology), and material relevant to the social
Predictors of Depression for the Male Partner Following Miscarriage

sciences from any of the professions concerned with physical and mental health, health care, clinical practice, and health policy and the organization of healthcare. We encourage material which is of general interest to an international readership.

Journal Policies The journal publishes the following types of contribution:

1) Peer-reviewed original research articles and critical analytical reviews in any area of social science research relevant to health and healthcare. These papers may be up to 8000 words including abstract, tables, and references as well as the main text. Papers below this limit are preferred.

2) Peer-reviewed short reports of findings on topical issues or published articles of between 2000 and 4000 words.

3) Submitted or invited commentaries and responses debating, and published alongside, selected articles.

4) Special Issues bringing together collections of papers on a particular theme, and usually guest edited.

BEFORE YOU BEGIN

Ethics in Publishing

For information on Ethics in publishing and Ethical guidelines for journal publication see http://www.elsevier.com/publishingethics and http://www.elsevier.com/ethicalguidelines.

Please note that any submission that has data collected from human subjects requires ethics approval. If your manuscript does not include ethics approval, your paper will not be sent out for review.

Conflict of interest

All authors are requested to disclose any actual or potential conflict of interest including any financial, personal or other relationships with other people or organizations within three years.
of beginning the submitted work that could inappropriately influence, or be perceived to influence, their work. See also http://www.elsevier.com/conflictsofinterest. Further information and an example of a Conflict of Interest form can be found at: http://help.elsevier.com/app/answers/detail/a_id/286/p/7923.

Submission declaration and verification

Submission of an article implies that the work described has not been published previously (except in the form of a conference abstract or as part of a published lecture or thesis for an academic qualification), that it is not under consideration for publication elsewhere, that its publication is approved by all authors and tacitly or explicitly by the responsible authorities where the work was carried out, and that, if accepted, it will not be published elsewhere in the same form, in English or in any other language, including electronically without the written consent of the copyright-holder. To verify originality, your article may be checked by the originality detection software iThenticate. See also http://www.elsevier.com/editors/plagdetect.

Changes to authorship

This policy concerns the addition, deletion, or rearrangement of author names in the authorship of accepted manuscripts: Before the accepted manuscript is published in an online issue: Requests to add or remove an author, or to rearrange the author names, must be sent to the Journal Manager from the corresponding author of the accepted manuscript and must include: (a) the reason the name should be added or removed, or the author names rearranged and (b) written confirmation (e-mail, fax, letter) from all authors that they agree with the addition, removal or rearrangement. In the case of addition or removal of authors, this includes confirmation from the author being added or removed. Requests that are not sent by the corresponding author will be forwarded by the Journal Manager to the corresponding author, who must follow the procedure as described above. Note that: (1) Journal Managers will inform
the Journal Editors of any such requests and (2) publication of the accepted manuscript in an online issue is suspended until authorship has been agreed. After the accepted manuscript is published in an online issue: Any requests to add, delete, or rearrange author names in an article published in an online issue will follow the same policies as noted above and result in a corrigendum.

Copyright

This journal offers authors a choice in publishing their research: Open Access and Subscription.

For Subscription articles

Upon acceptance of an article, authors will be asked to complete a 'Journal Publishing Agreement' (for more information on this and copyright, see http://www.elsevier.com/copyright). An e-mail will be sent to the corresponding author confirming receipt of the manuscript together with a 'Journal Publishing Agreement' form or a link to the online version of this agreement. Subscribers may reproduce tables of contents or prepare lists of articles including abstracts for internal circulation within their institutions. Permission of the Publisher is required for resale or distribution outside the institution and for all other derivative works, including compilations and translations (please consult http://www.elsevier.com/permissions). If excerpts from other copyrighted works are included, the author(s) must obtain written permission from the copyright owners and credit the source(s) in the article. Elsevier has preprinted forms for use by authors in these cases: please consult http://www.elsevier.com/permissions.

For Open Access articles

Upon acceptance of an article, authors will be asked to complete an 'Exclusive License Agreement' (for more information see http://www.elsevier.com/OAauthoragreement). Permitted reuse of open access articles is determined by the author's choice of user license (see http://www.elsevier.com/openaccesslicenses).
Predictors of Depression for the Male Partner Following Miscarriage

Retained author rights

As an author you (or your employer or institution) retain certain rights. For more information on author rights for: Subscription articles please see http://www.elsevier.com/journal-authors/author-rights-and-responsibilities. Open access articles please see http://www.elsevier.com/OAauthoragreement.

Role of the funding source

You are requested to identify who provided financial support for the conduct of the research and/or preparation of the article and to briefly describe the role of the sponsor(s), if any, in study design; in the collection, analysis and interpretation of data; in the writing of the articles; and in the decision to submit it for publication. If the funding source(s) had no such involvement then this should be stated. Please see http://www.elsevier.com/funding.

Funding body agreements and policies

Elsevier has established agreements and developed policies to allow authors whose articles appear in journals published by Elsevier, to comply with potential manuscript archiving requirements as specified as conditions of their grant awards. To learn more about existing agreements and policies please visit http://www.elsevier.com/fundingbodies.

Open access

This journal offers authors a choice in publishing their research:

Open Access

• Articles are freely available to both subscribers and the wider public with permitted reuse

• An Open Access publication fee is payable by authors or their research funder

Subscription
• Articles are made available to subscribers as well as developing countries and patient groups through our access programs (http://www.elsevier.com/access)

• No Open Access publication fee

All articles published Open Access will be immediately and permanently free for everyone to read and download. Permitted reuse is defined by your choice of one of the following Creative Commons user licenses:

**Creative Commons Attribution (CC BY):** lets others distribute and copy the article, to create extracts, abstracts, and other revised versions, adaptations or derivative works of or from an article (such as a translation), to include in a collective work (such as an anthology), to text or data mine the article, even for commercial purposes, as long as they credit the author(s), do not represent the author as endorsing their adaptation of the article, and do not modify the article in such a way as to damage the author’s honor or reputation.

**Creative Commons Attribution-NonCommercial-ShareAlike (CC BY-NC-SA):** for non-commercial purposes, lets others distribute and copy the article, to create extracts, abstracts and other revised versions, adaptations or derivative works of or from an article (such as a translation), to include in a collective work (such as an anthology), to text and data mine the article, as long as they credit the author(s), do not represent the author as endorsing their adaptation of the article, do not modify the article in such a way as to damage the author's honor or reputation, and license their new adaptations or creations under identical terms (CC BY-NC-SA).

**Creative Commons Attribution-NonCommercial-NoDerivs (CC BY-NC-ND):** for non-commercial purposes, lets others distribute and copy the article, and to include in a collective work (such as an anthology), as long as they credit the author(s) and provided they do not alter or modify the article.

To provide Open Access, this journal has a publication fee which needs to be met by the authors or their research funders for each article published Open Access. Your publication choice will have no effect on the peer review process or acceptance of submitted articles. The
Predictors of Depression for the Male Partner Following Miscarriage

publication fee for this journal is $3000, excluding taxes. Learn more about Elsevier's pricing policy: http://www.elsevier.com/openaccesspricing.

Language (usage and editing services)

Please write your text in good English (American or British usage is accepted, but not a mixture of these). Authors who feel their English language manuscript may require editing to eliminate possible grammatical or spelling errors and to conform to correct scientific English may wish to use the English Language Editing service available from Elsevier's WebShop (http://webshop.elsevier.com/languagediting/) or visit our customer support site (http://support.elsevier.com) for more information.

Submission

Submission to this journal occurs online and you will be guided step by step through the creation and uploading of your files. Please submit your article via http://ees.elsevier.com/ssm. The system automatically converts source files to a single PDF file of the article, which is used in the peer-review process. Please note that even though manuscript source files are converted to PDF files at submission for the review process, these source files are needed for further processing after acceptance. All correspondence, including notification of the Editor's decision and requests for revision, takes place by e-mail.

Reviewers

During submission you will be asked if you wish to suggest the names and email addresses of potential reviewers. Note that the editor retains the sole right to decide whether or not the suggested reviewers are used.

Additional information

Please note author information is entered into the online editorial system (EES) during submission and must not be included in the manuscript itself.
Predictors of Depression for the Male Partner Following Miscarriage

Social Science & Medicine does not normally list more than six authors to a paper, and special justification must be provided for doing so. Further information on criteria for authorship can be found in Social Science & Medicine, 2007, 64(1), 1-4.

Authors should approach the Editors in Chief if they wish to submit companion articles.

Information about our peer-review policy can be found here.

Please note that we may suggest accepted papers for legal review if it is deemed necessary.

PREPARATION

Use of word-processing software.

We accept most word processing formats, but MSWord files are preferred. All author-identifying text such as title pages and references must be removed. Submissions should be double spaced and use between 10 and 12pt font, and any track changes must be removed.

It is important that the file be saved in the native format of the original wordprocessor used. The text should be in single-column format. Keep the layout of the text as simple as possible. Most formatting styles will be removed and replaced during typesetting. In particular do not use the wordprocessor's options to justify or to hyphenate words. However, do use bold face, italics, subscripts, superscripts etc. Do not embed "graphically designed" equations or tables, but prepare these using the wordprocessor's facility. When preparing tables, if you are using a table grid, use only one grid for each individual table and not a grid for each row. If no grid is used, use tabs, not spaces, to align columns. The electronic text should be prepared in a way very similar to that of conventional manuscripts (see also the Guide to Publishing with Elsevier: http://www.elsevier.com/guidepublication). Do not import the figures into the text file but, instead, indicate their approximate locations directly in the electronic text and on the manuscript. See also the section on Electronic artwork. To avoid unnecessary errors you are strongly advised to use the 'spell-check' and 'grammar-check' functions on your wordprocessor. The editors reserve the right to adjust style to certain standards of uniformity.

Authors should retain an electronic copy of their manuscript.
Essential cover page information

The Cover Page should only include the following information:

• **Title.** Concise and informative. Titles are often used in information-retrieval systems. Avoid abbreviations and formulae where possible and make clear the article's aim and health relevance.

• **Author names and affiliations in the correct order.** Where the family name may be ambiguous (e.g., a double name), please indicate this clearly. Present the authors' affiliation addresses (where the actual work was done) below the names. Indicate all affiliations with a lower-case superscript letter immediately after the author's name and in front of the appropriate address. Provide the full postal address of each affiliation, including the country name and, if available, the e-mail address of each author.

• **Corresponding author.** Clearly indicate who will handle correspondence at all stages of refereeing and publication, also post-publication. Ensure that telephone and fax numbers (with country and area code) are provided in addition to the e-mail address and the complete postal address. Contact details must be kept up to date by the corresponding author.

• **Present/permanent address.** If an author has moved since the work described in the article was done, or was visiting at the time, a 'Present address' (or 'Permanent address') may be indicated as a footnote to that author's name. The address at which the author actually did the work must be retained as the main, affiliation address. Superscript Arabic numerals are used for such footnotes.

• **Any acknowledgements** Include if appropriate. These should be as brief as possible and not appear anywhere else in the paper.

**Text**

In the main body of the submitted manuscript this order should be followed: abstract, main text, references, appendix, figure captions, tables and figures. Do not place tables and figures in the main text. Author details, keywords and acknowledgements are entered separately during
the online submission process, as is the abstract, though this is to be included in the manuscript as well. During submission authors are asked to provide a word count; this is to include ALL text, including that in tables, figures, references etc.

Title

Please consider the title very carefully, as these are often used in information-retrieval systems. Please use a concise and informative title (avoiding abbreviations where possible). Make sure that the health or healthcare focus is clear.

Abstract

An abstract of up to 300 words must be included in the submitted manuscript. An abstract is often presented separately from the article, so it must be able to stand alone. It should state briefly and clearly the purpose and setting of the research, the principal findings and major conclusions, and the paper's contribution to knowledge. For empirical papers the country/countries/locations of the study should be clearly stated, as should the methods and nature of the sample, the dates, and a summary of the findings/conclusion. Please note that excessive statistical details should be avoided, abbreviations/acronyms used only if essential or firmly established, and that the abstract should not be structured into subsections. Any references cited in the abstract must be given in full at the end of the abstract.

Research highlights

Research highlights are a short collection of 3 to 5 bullet points that convey an article's unique contribution to knowledge and are placed online with the final article. We allow 85 characters per bullet point including spaces. They should be supplied as a separate file in the online submission system (further instructions will be provided there). You should pay very close attention to the formulation of the Research Highlights for your article. Make sure that they are
clear, concise and capture the reader's attention. If your research highlights do not meet these criteria we may need to return your article to you leading to a delay in the review process.

**Keywords**

Up to 8 keywords are entered separately into the online editorial system during submission, and should accurately reflect the content of the article. Again abbreviations/acronyms should be used only if essential or firmly established. For empirical papers the country/countries/locations of the research should be included. The keywords will be used for indexing purposes.

**Methods**

Authors of empirical papers are expected to provide full details of the research methods used, including study location(s), sampling procedures, the date(s) when data were collected, research instruments, and techniques of data analysis. Specific guidance on the reporting of qualitative studies are provided here.

**Footnotes**

Endnotes and footnotes should not be used and any such information incorporated into the main text.

**Artwork** *Electronic artwork General points*

- Make sure you use uniform lettering and sizing of your original artwork.

- Embed the used fonts if the application provides that option.

- Aim to use the following fonts in your illustrations: Arial, Courier, Times New Roman, Symbol, or use fonts that look similar.

- Number the illustrations according to their sequence in the text.

- Use a logical naming convention for your artwork files.
Predictors of Depression for the Male Partner Following Miscarriage

• Provide captions to illustrations separately.

• Size the illustrations close to the desired dimensions of the printed version.

• Submit each illustration as a separate file.

A detailed guide on electronic artwork is available on our website:
http://www.elsevier.com/artworkinstructions

You are urged to visit this site; some excerpts from the detailed information are given here.

Formats

If your electronic artwork is created in a Microsoft Office application (Word, PowerPoint, Excel) then please supply 'as is' in the native document format.

Regardless of the application used other than Microsoft Office, when your electronic artwork is finalized, please 'Save as' or convert the images to one of the following formats (note the resolution requirements for line drawings, halftones, and line/halftone combinations given below): EPS (or PDF): Vector drawings, embed all used fonts. TIFF (or JPEG): Color or grayscale photographs (halftones), keep to a minimum of 300 dpi. TIFF (or JPEG): Bitmapped (pure black & white pixels) line drawings, keep to a minimum of 1000 dpi. TIFF (or JPEG): Combinations bitmapped line/halftone (color or grayscale), keep to a minimum of 500 dpi.

Please do not:

• Supply files that are optimized for screen use (e.g., GIF, BMP, PICT, WPG); these typically have a low number of pixels and limited set of colors;

• Supply files that are too low in resolution;

• Submit graphics that are disproportionately large for the content.

Color artwork

Please make sure that artwork files are in an acceptable format (TIFF (or JPEG), EPS (or PDF), or MS Office files) and with the correct resolution. If, together with your accepted article, you
submit usable color figures then Elsevier will ensure, at no additional charge, that these figures will appear in color on the Web (e.g., ScienceDirect and other sites) regardless of whether or not these illustrations are reproduced in color in the printed version. **For color reproduction in print, you will receive information regarding the costs from Elsevier after receipt of your accepted article.** Please indicate your preference for color: in print or on the Web only. For further information on the preparation of electronic artwork, please see http://www.elsevier.com/artworkinstructions. Please note: Because of technical complications which can arise by converting color figures to 'gray scale' (for the printed version should you not opt for color in print) please submit in addition usable black and white versions of all the color illustrations.

**Figure captions**

Ensure that each illustration has a caption. Supply captions separately, not attached to the figure. A caption should comprise a brief title (not on the figure itself) and a description of the illustration. Keep text in the illustrations themselves to a minimum but explain all symbols and abbreviations used.

**Tables**

Number tables consecutively in accordance with their appearance in the text. Place footnotes to tables below the table body and indicate them with superscript lowercase letters. Avoid vertical rules. Be sparing in the use of tables and ensure that the data presented in tables do not duplicate results described elsewhere in the article.

**References**

*Citation in text*

Please ensure that every reference cited in the text is also present in the reference list (and vice versa). Any references cited in the abstract must be given in full at the end of the abstract. Unpublished results and personal communications are not recommended in the reference list, but may be mentioned in the text. If these references are included in the reference list they
Predictors of Depression for the Male Partner Following Miscarriage

should follow the standard reference style of the journal (see below) and should include a substitution of the publication date with either "Unpublished results" or "Personal communication" Citation of a reference as "in press" implies that the item has been accepted for publication.

Web references

As a minimum, the full URL should be given and the date when the reference was last accessed. Any further information, if known (DOI, author names, dates, reference to a source publication, etc.), should also be given. Web references can be listed separately (e.g., after the reference list) under a different heading if desired, or can be included in the reference list.

References in special issue articles, commentaries and responses to commentaries

Please ensure that the words 'this issue' are added to any references in the reference list (and any citations in the text) to other articles which are referred to in the same issue.

Reference management software

This journal has standard templates available in key reference management packages EndNote (http://www.endnote.com/support/enstyles.asp) and Reference Manager (http://refman.com/support/rmstyles.asp). Using plug-ins to wordprocessing packages, authors only need to select the appropriate journal template when preparing their article and the list of references and citations to these will be formatted according to the journal style which is described below.

The current Social Science & Medicine EndNote file can be directly accessed by clicking here.

Reference style

Text: Citations in the text should follow the referencing style used by the American Psychological Association. You are referred to the Publication Manual of the American
Predictors of Depression for the Male Partner Following Miscarriage


Video data

Elsevier accepts video material and animation sequences to support and enhance your scientific research. Authors who have video or animation files that they wish to submit with their article may do so during online submission. Where relevant, authors are strongly encouraged to include a video still within the body of the article. This can be done in the same way as a figure or table by referring to the video or animation content and noting in the body text where it should be placed. These will be used instead of standard icons and will personalize the link to your video data. All submitted files should be properly labeled so that they directly relate to the video file's content. In order to ensure that your video or animation material is directly usable, please provide the files in one of our recommended file formats with a maximum size of 10 MB. Video and animation files supplied will be published online in the electronic version of your article in Elsevier Web products, including ScienceDirect: http://www.sciencedirect.com. For more detailed instructions please visit our video instruction pages at http://www.elsevier.com/artworkinstructions. Note: since video and animation cannot be embedded in the print version of the journal, please provide text for both the electronic and the print version for the portions of the article that refer to this content.
Predictors of Depression for the Male Partner Following Miscarriage

**AudioSlides**

The journal encourages authors to create an AudioSlides presentation with their published article. AudioSlides are brief, webinar-style presentations that are shown next to the online article on ScienceDirect. This gives authors the opportunity to summarize their research in their own words and to help readers understand what the paper is about. More information and examples are available at http://www.elsevier.com/audioslides. Authors of this journal will automatically receive an invitation e-mail to create an AudioSlides presentation after acceptance of their paper.

**Supplementary data**

Elsevier accepts electronic supplementary material to support and enhance your research. Supplementary files offer the author additional possibilities to publish supporting applications, accompanying videos describing the research, more detailed tables, background datasets, sound clips and more. Supplementary files supplied will be published online alongside the electronic version of your article in Elsevier Web products, including ScienceDirect: http://www.sciencedirect.com. In order to ensure that your submitted material is directly usable, please provide the data in one of our recommended file formats. Authors should submit the material in electronic format together with the article and supply a concise and descriptive caption for each file. For more detailed instructions please visit our artwork instruction pages at http://www.elsevier.com/artworkinstructions.

**AFTER ACCEPTANCE**

**Use of the Digital Object Identifier**

The Digital Object Identifier (DOI) may be used to cite and link to electronic documents. The DOI consists of a unique alpha-numeric character string which is assigned to a document by the publisher upon the initial electronic publication. The assigned DOI never changes. Therefore, it is an ideal medium for citing a document, particularly 'Articles in press' because they have not yet received their full bibliographic information. Example of a correctly given DOI (in URL format; here an article in the journal Physics Letters B):
Predictors of Depression for the Male Partner Following Miscarriage

http://dx.doi.org/10.1016/j.physletb.2010.09.059 When you use a DOI to create links to documents on the web, the DOIs are guaranteed never to change.

Proofs

One set of page proofs (as PDF files) will be sent by e-mail to the corresponding author (if we do not have an e-mail address then paper proofs will be sent by post) or, a link will be provided in the e-mail so that authors can download the files themselves. Wherever possible, please return corrected proofs within 48 hours. Elsevier now provides authors with PDF proofs which can be annotated; for this you will need to download Adobe Reader version 7 (or higher) available free from http://www.adobe.com/products/acrobat/readstep2.html. Instructions on how to annotate PDF files will accompany the proofs (also given online). The exact system requirements are given at the Adobe site:

http://www.adobe.com/products/acrobat/acrrsystemreqs.html#70win. If you do not wish to use the PDF annotations function, you may list the corrections (including replies to the Query Form) and return them to Elsevier in an e-mail. Please list your corrections quoting line number. If, for any reason, this is not possible, then mark the corrections and any other comments (including replies to the Query Form) on a printout of your proof and return by fax, or scan the pages and e-mail, or by post. Please use this proof only for checking the typesetting, editing, completeness and correctness of the text, tables and figures. Significant changes to the article and author list as accepted for publication will only be considered at this stage with permission from the Editor. We will do everything possible to get your article published quickly and accurately. Therefore, it is important to ensure that all of your corrections are sent back to us in one communication: please check carefully before replying, as inclusion of any subsequent corrections cannot be guaranteed. Proofreading is solely your responsibility. Note that Elsevier may proceed with the publication of your article if no response is received.

Offprints

The corresponding author, at no cost, will be provided with a PDF file of the article via e-mail (the PDF file is a watermarked version of the published article and includes a cover sheet with the journal cover image and a disclaimer outlining the terms and conditions of use). For an
extra charge, paper offprints can be ordered via the offprint order form which is sent once the
article is accepted for publication. Both corresponding and co-authors may order offprints at
Authors requiring printed copies of multiple articles may use Elsevier WebShop's 'Create Your
Own Book' service to collate multiple articles within a single cover

AUTHOR ENQUIRIES

For inquiries relating to the submission of articles please contact the office of the Editors in
Chief at eicssm@gmail.com

© Copyright 2012 Elsevier | http://www.elsevier.com