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An Exploration of Psychological, Dyadic and Sexual Functioning Amongst Couples Following Recurrent Miscarriage, with an Examination of the Potential Function of Role and Goal Investment and Social Support.

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Abstract

Recurrent miscarriage is the loss of three or more consecutive pregnancies before 24 weeks gestation and affects up to 1% of women. Until recently there has been a paucity of research into the psychological impact of this experience, and the available research has tended to almost exclusively focus on the incidence and nature of maternal distress and wellbeing. Yet the research on the psychological impact of a single miscarriage suggests that the experience of recurrent miscarriage is likely to affect both partners as individuals and as a couple. The aim of the current study was to address the gap in the literature by carrying out a quantitative cross-sectional examination of the psychological, dyadic and sexual functioning in a sample of 80 couples attending the Recurrent Miscarriage Clinic (RMC) for their first appointment. Measures administered included an assessment of distress using the HADS, an assessment of coping strategies using the COPE, an assessment of couple adjustment using the DAS, and an assessment of sexual functioning using the GRISS. In addition, social support was assessed using the SOS, and the couple's investment in the roles and goals in their life, including becoming a parent, was assessed utilising the RAG.

Following the social cognitive and family life cycle models, it was proposed that partners who had relatively over-invested in becoming parents, in comparison with other roles and goals, would be most vulnerable to emotional distress and dyadic/sexual dysfunction, and would be most likely to use inadequate coping.

These hypotheses were not supported by the data. However as predicted, dyadic adjustment and avoidance coping were found to be significantly related to emotional distress in both men and women. Furthermore, female emotion-focused coping was significantly related to female anxiety. After controlling for dyadic adjustment, the only type of coping independently associated with emotional distress was female emotion-focused coping in relation to female anxiety. After controlling for coping, dyadic adjustment continued to be a predictor of male anxiety and depression and female anxiety, but not depression. Contrary to predictions sexual functioning was not associated with emotional distress and although social support was found to have a significant independent relationship with female depression, this relationship was no longer significant once other variables were controlled for. The results are discussed in light of clinical implications and with consideration of qualitative feedback also collected from participants.

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Introduction

1.1 Overview

Whilst a single miscarriage experience is relatively common and affects about 25% of women, the loss of three or more consecutive pregnancies is relatively rare and affects only 1% of women (Regan, 2001). Despite the fact that even a single miscarriage can be a devastating experience for many women and their partners (e.g. Cecil & Leslie, 1993), psychological research has only recently turned its attention to the study of repeated pregnancy losses. This has shown that women who experience recurrent miscarriage do experience psychological difficulties (e.g. Craig et al, 2002; Huchberger, 2001, Magee et al, 2003), with a subset of these women experiencing significant levels of anxiety and depression (Craig et al, 2002). Little is known about the male experience.

It is of course an entirely normal part of the family life-cycle (McGoldrick & Carter, 2003) to want to have a baby and to feel frustrated and distressed by repeated pregnancy losses (Huchberger, 2002) that prevent one from achieving that goal. However, a significant minority of women who have experienced recurrent miscarriage do suffer from clinically significant levels of depression, and there is prospective research to suggest that depression may be associated with a high miscarriage rate in these women (Sugiura-Ogasawara et al, 2002). Furthermore, levels of anxiety have been found to be quite high in a significant proportion of women following recurrent miscarriage (Craig et al, 2002, Magee et al, 2003). Therefore, it is important to gain a better understanding of the

psychological factors that may mediate and moderate the experience of psychological distress following recurrent miscarriage, in order to identify the most appropriate way in which to focus clinical interventions.

There have been only a few studies that have explored psychological factors in recurrent miscarriage. Qualitative studies in the field of recurrent miscarriage suggest that social support (Huchberger, 2001), and particularly the couple's relationship (Anderson, 1999), may influence the level of psychological distress experienced and this possibility requires more systematic examination. The need to gain a clearer understanding of the type of coping employed by individuals following recurrent miscarriage has also been highlighted (Rowsell et al, 2001).

Only one quantitative study in the field of recurrent miscarriage has been guided by a clear theoretical framework and this indicated that maternal levels of emotional distress (in women without children) are associated with *relative* over-investment in the role of becoming a parent, compared to other life roles and goals (Magee 2000; Magee et al, 2003). This is consistent with the social-cognitive model of depression (Champion & Power, 1995) that draws on the cognitive vulnerability approach (Beck et al, 1979) and the social vulnerability approach (Brown & Harris, 1978), to emphasis the importance of personal goals and plans in the onset of depression following significant life events.

The current study will therefore draw on the limited existing research in recurrent miscarriage, and use a social-cognitive framework (Champion & Power, 1995), informed by the life-cycle model (McGoldrick & Carter, 2003), to quantitatively explore specific psychological factors in relation to both male and female emotional distress following recurrent miscarriage. Specific factors that will be explored will include: pattern of role and goal investment, dyadic and sexual functioning; coping; and social support.

1.2 Miscarriage

This section will begin with a discussion of the main features and causes of a single miscarriage before reviewing relevant psychological literature in this area. The understanding of single miscarriage experience is relevant to the field of recurrent miscarriage, particularly as most of the available research has focused on single episodes of loss.

1.2.1 Features and Causes

In the United Kingdom 'miscarriage' is legally defined as the loss of a pregnancy within the first 24 weeks of gestation, before the baby can viably survive outside the mother's womb (Regan, 2001). Losses after that date are either referred to as 'intrauterine losses,' when the baby dies within the womb but is not spontaneously aborted, or 'stillbirths' when the baby dies and is spontaneously aborted (Regan, 2001). As such, miscarriage, also called sporadic miscarriage, is the most common complication of pregnancy, affecting at least 25% of all women who become pregnant (Regan, 2001). However, this percentage may vary according to age, with women over 40 years of age having a 25% chance of miscarriage, and younger women having as low as a 5% chance, depending on their obstetric and general medical history (Regan, 2001). It has also been suggested that the actual rate of miscarriages may be twice as high, because a sub-clinical early pregnancy loss (i.e. before a positive pregnancy test) is more likely to be viewed as a "late period" than a miscarriage (Deluca & Leslie, 1996). Although a single miscarriage is a very common event it has a significant

emotional impact on those who experience it. As Regan (2001) states, "miscarriage is one of the most devastating blows that nature can deliver" (p3).

The majority of miscarriages are 'early miscarriages' that occur by 12 weeks gestation. These early miscarriages are usually attributable to problems of implantation or genetic abnormalities in the embryo. More specifically, as many as 50% of early miscarriages are caused by chromosomal abnormalities in the foetus, and a further 5% of miscarriages are attributable to neural tube defects (Regan, 2001). There is also substantial evidence indicating that the risk of chromosomal abnormalities increases with maternal age (e.g. Hassold et al, 1980) and this has been put forward as an explanation for the increasing miscarriage rate (Balen & Jacobs, 2003) as women more frequently postpone having children whilst they pursue their career.

In contrast, 'late miscarriages' that occur between 13 and 24 weeks gestation, are thought to be relatively rare, and account for only 1% of miscarriages (Regan, 2001). The cause of late miscarriages are more frequently, although not exclusively, attributable to structural problems of the uterus (e.g. size of a fibroid) or cervix (e.g. incompetent cervix).

Additional maternal factors that have been implicated in the cause of miscarriage include hormonal deficiencies, chronic medical conditions that are not well controlled (e.g. diabetes, thyroid disease), infections, and autoimmune disorders (Regan, 2001). Furthermore specific lifestyle factors such as smoking,

alcohol, illicit drug use, significant intake of caffeine, extreme physical exertion, and environmental toxins (e.g. mercury) have also been identified as increasing the risk of miscarriage (Regan, 2001).

1.2.2 Psychological Research

The following section will describe certain key psychological research that has been conducted in the field of single miscarriage, where there have been numerous studies conducted. It is important to note, however, that much of the psychological research in this field has for the most part lacked the guidance of any explicit theoretical framework (Slade & Cecil, 1994) and there has been limited use of multivariate methods of analysis (Slade, 1994). Nevertheless, bearing this in mind, this research is of relevance to the unique, but related experience of recurrent miscarriage which has received significantly less research attention from a psychological perspective.

1.2.2.1 Bereavement and Loss

A significant proportion of the psychological research in miscarriage has used an implicit model of bereavement or loss as guidance (Slade & Cecil, 1994), although reference has also been made to attachment models (e.g. Moulder, 1994; Theut et al, 1989). Not surprisingly, numerous studies have found that grief is a typical reaction following miscarriage (e.g. Cecil & Leslie, 1993). Friedman and Gath (1989) found that following miscarriage two thirds of women showed emotional numbness, one third reported feelings of guilt, and a number of women described the experience as similar to losing a family member.

Indeed, Leon (2001) has made a poignant observation about the experience for women saying that:

"She faces the harsh finality of death when she least expects it, in the very act of creating life." (Leon, 2001, p149)

Such pregnancy loss has been described as "a crisis within a crisis" (Leon, 2001, p150) because in addition to the loss of a baby it is also a developmental interference preventing progression to the next stage in the lifecycle and affecting self-esteem in various ways. As Raphael-Leff (1991) has pointed out, this interrupted process of pregnancy therefore gives rise to a new process of adjusting to multiple losses, including that of the baby, the pregnancy, disruption of fertility and feminine identity; and loss of future goals and plans that had been made. Furthermore, as Leon (2001) has observed, unlike usual grieving that involves retrospective mourning (i.e. detaching oneself from a past relationship), grieving following a miscarriage involves prospective mourning (i.e. detaching oneself from a future relationship and plans). In addition, in their review of the literature, Lee and Slade (1996) highlighted that the grieving process is complicated by the fact that, particularly in the case of early miscarriage, there is no visible child to mourn and there is a lack of recognition of the significance of such a loss by society.

1.2.2.2 Anxiety and Depression

As a result of the focus on miscarriage as a loss event, research has tended to concentrate primarily on symptoms of depression (Lee & Slade, 1996). This research will therefore be explored first, before reviewing the limited research on anxiety.

Some studies have found that almost half of the women in their sample met 'psychiatric caseness' for depression within 3 months following the loss (e.g. Garel et al, 1993). In a study using the Centre for Epidemiological Studies – Depression Scale (CES-D), Neugebauer and colleagues (1997) reported that the risk of depression in women in the 6 months post miscarriage was two and a half times higher than that of a comparable community sample of women. In a more recent study that also used the CES-D, Neugebauer and colleagues reported a 4.2% increased risk for minor depressive disorder in women in the 6 months post loss compared to a community sample (Klier et al, 2000).

However, other studies have not found increased rates of depressive symptoms. Using the Hospital Anxiety and Depression Questionnaire (HADS), Prettyman and colleagues (1993) reported that depressive symptoms dropped significantly over time, from 22% of the women at 1 week post-loss to only 6% of the women at 12 weeks post loss – a figure that was comparable to the rate found in the general community. Similarly, Thapar and Thapar (1992) also used the HADS and questioned the significance of depressive symptoms. Thus, the findings regarding depression rates are equivocal (Lee and Slade, 1996).

By contrast, the limited research available has consistently shown that women are at an increased risk of anxiety symptoms post miscarriage. Using the HADS, studies have shown that clinically significant levels of anxiety are high and remain remarkably stable with the passage of time (e.g. Nikcevic et al,1999; Walker & Davidson, 2001), with reported anxiety rates being as high as 45% at 3 months post loss (Walker & Davidson, 2001). Furthermore, studies have also found greater increases in anxiety symptoms relative to depressive symptoms following miscarriage (e.g. Nikcevic et al, 1999). In their review of the literature Geller et al (2004) conclude that whilst the available research does show an increased risk of anxiety in women in the 4 months post miscarriage, the picture is less clear beyond that time. They also suggest that further research is needed before any firm conclusions can be drawn regarding the risk for onset of obsessive compulsive disorder as well as the risk for post traumatic stress disorder, although initial research (Geller et al, 2004) suggests that women who have miscarried may be at an increased risk for both of these.

1.2.2.3 Impact on the Male Partner and Relationships

Surprisingly, there has been very little research addressing the impact of miscarriage on the male partner and the couple's relationship as a whole. Ross's (1982) description of fathers as the "forgotten parent" seems apt in relation to the lack of research on the male perspective of miscarriage. From the little that is known about the male partner's experience of miscarriage, the neglect of this aspect of miscarriage appears to mirror the experience of men following miscarriage in that:

"husbands are often asked how their wives are doing, with little concern about how they themselves are faring..." and as a result the man "may feel it is his duty to cheer up his wife rather than share his grief with her, increasing his wife's isolation." (Leon, 2001, p155)

As Raphael-Leff (1991) has noted, the fact that the male partner has not experienced the physical loss of the miscarriage in the same way as his partner who has miscarried, may result in there being little social acknowledgement of his situation and his own grief. It has been suggested that this may lead to difficulties in communication within the couple, leaving each partner coping alone with their grief (Raphael-Leff, 1991). There is some support for this idea from a study by Rajan and Oakley (1993) that found that only two fifths of the women in their sample identified their partner as the most important person in helping them through the experience of miscarriage. The implication of this finding suggests that the most obvious source of support following a miscarriage - one's partner – may not always be available in reality. This is an important consideration given that it has been found that social support in general is important in the emotional adaptation to miscarriage (Lee & Slade, 1996; McGreal et al, 1997) as has been found in other areas of psychological research (Sarason, et al, 1990).

The limited research that has been conducted with male partners has primarily taken the form of qualitative research (e.g. Murphy, 1998) and the generalisability of the findings is limited. In one of the few quantitative studies in

this area, Puddifoot and Johnson (1999) used the Perinatal Grief Scale and found very high levels of grief in male partners that were comparable to female levels in terms of 'difficulty coping' and 'despair.' However, there was a difference in relation to 'active grief' which was found to be high for women but not men. They also found that factors such as duration of the pregnancy and having seen an ultrasound scan were related to distress, indicating that visible markers of the pregnancy and the baby may be important considerations in understanding male reactions to miscarriage. Levels of anxiety in men have also been found to be significantly lower than their female partners immediately following the loss (Beutal et al, 1996). In their review of the literature, Geller and colleagues (Geller et al, 2004) suggest that the only conclusions that can be drawn from the research to date, is that men may be affected by the loss, but that their coping strategies may be different from their female partners.

1.2.2.4 Psychological Factors that Influence Reactions to Miscarriage

A few studies have begun to explore specific psychological factors that may play a role in women's reactions to miscarriage. In their study of female reactions to miscarriage, James and Kristiansen (1995) examined whether women's attributional explanation for their miscarriage, their coping strategies and their knowledge about miscarriage influenced their psychological reaction to the experience. They found that coping strategies accounted for a significant amount of the variance in women's reactions to miscarriage (including anxiety and depression). In particular they found that cognitive restructuring (i.e. reclassifying the event, realizing that there were other good things in their lives,

and finding something positive in their experience) was associated with less severe reactions, whilst wishful thinking and social withdrawal were associated with more severe reactions. They also found that knowledge about miscarriage prior to the event was associated with less severe reactions. This latter finding is consistent with previous research that found that women who had an explanation for the miscarriage had fewer intrusive thoughts relating to the event (Turnaley et al, 1993). Turnaley and colleagues (1993) found that women in their sample typically wanted an explanation for their miscarriage in order to know whether it was their fault or due to a medical reason. They therefore concluded that establishing a personal understanding of the experience seems to curtail involuntary processing of the event (Turnaley et al, 1993).

A more recent study by Swanson (2000) looking at depressive symptoms in women indicated that women most at risk for increased depressive symptoms following miscarriage were those who lacked social support, attributed high personal significance to the miscarriage, lacked 'emotional strength' (i.e. how emotionally resourceful the woman rated herself on the Successful Self Scale developed by Swanson) and used passive coping strategies (i.e. detachment, self-blame, keeping to myself, and wishful thinking). Swanson (2000) also found that not conceiving or giving birth within a year after the loss was associated with increased risk for depressive symptoms.

1.3 Recurrent Miscarriage

This section will turn to the specific field of interest in the current study – recurrent miscarriage. First of all, the main features and causes of these repeated losses will be considered and presented, before turning to the limited psychological research in this field. Within this latter section there will also be some consideration of relevant research from the field of couple support and infertility. This will be followed by a summary of the relevant issues highlighted here which will be explored in the current study.

1.3.1 Features and Causes

Recurrent miscarriage refers to the loss of three or more consecutive pregnancies before 24 weeks gestation. Compared to sporadic miscarriage, recurrent miscarriage is relatively rare and affects no more that 1% of women (Clifford et al, 1997). Indeed, the calculated chance of three consecutive miscarriages is 0.34% (Rai et al, 1996). However, as Craig et al (2002) have pointed out, some clinicians include women who have experienced two miscarriages within this category (Gilchrist et al, 1991) and this raises the incidence rate to approximately 3% of women. The calculated chance of two consecutive miscarriages is also higher, at 2.3% (Stirrat, 1990).

Couples with recurrent miscarriage are considered to be fertile as they will have experienced two or three consecutive miscarriages (Balen & Jacobs, 2003). However, conception delays are more frequent in women with recurrent miscarriage and a degree of infertility is present in approximately one in three

couples with recurrent miscarriage (Regan, 2001). Therefore for a significant minority recurrent miscarriage co-exists with sub-fertility. Thus as Balen & Jacobs (2003) observe, the repeated losses add to the trauma of a long-awaited pregnancy.

Although the term 'recurrent miscarriage' may suggest that there is a single underlying cause for such miscarriages, this is not the case (Regan, 2001). For some couples the recurrent miscarriages are due to a persistent single problem. For others the miscarriages may be due to several different problems. The causes of recurrent miscarriage include genetic, anatomical, infectious, endocrine and immunological factors. Furthermore, in about 50% of women no identifiable cause for the recurrent miscarriage can be found (Li, 1998).

One particular cause that has been strongly associated with recurrent miscarriage is that of antiphospholipid antibodies (APA), a term that is used to collectively describe a large family of auto-antibodies. It has been found that the incidence of APA is approximately 15% in women with a history of recurrent miscarriage, compared to only 2% in women with no previous history of miscarriage (Regan, 2001). Randomised control trials have shown that treatment of APA with aspirin and heparin can reduce the miscarriage rate from 90% when left untreated, to 30% when treated (Rai & Regan, 1997).

Research findings suggest that being given a medical reason for the miscarriage may be a protective factor in terms of psychological distress (Turnaley et al,

1993), and Magee (2000) suggests that this may be particularly relevant in the case of a specific treatable diagnosis such as APA. Interestingly though, for those women in whom no identifiable reason can be found research shows that with appropriate supportive 'tender loving care' (e.g. emotional support, serial ultrasound scans) within a dedicated clinic (Stray-Pederson & Stray-Pederson, 1984) they will have approximately a 70% chance of having a live baby in their next pregnancy compared with the 48% rate reported in those who did not attend such a clinic (Clifford et al, 1997). Although a specific mechanism has not been identified to explain this finding, there has been some suggestion that 'tender loving care' may improve pregnancy outcome through psychoimmunological processes (Stray-Pederson & Stray-Pederson, 1984). This highlights the importance of identifying whether there is a known cause for the repeated miscarriages or not, as well as the value of support for women who have experienced recurrent miscarriage.

Whilst psychological stress is an accepted risk factor for pre-term labour, Bergant and colleagues (Bergant et al, 1997) point out that there has been considerable controversy regarding its impact on miscarriages. In their own study looking at the impact of psychological factors in recurrent miscarriage, they concluded that psychological factors seemed of secondary importance compared to physical abnormalities (Bergant et al, 1997). Indeed, Rock and Zucker (1983) suggested that it is the repeated losses that result in psychological distress rather than the reverse being true. However, recent prospective research conducted in Japan has reopened this debate and

suggests that high levels of female depression, in particular, may be associated with a high miscarriage rate in women with a history of recurrent miscarriage (Sugiura-Ogasawara et al, 2002).

1.3.2 Psychological Research

Despite the advances in the understanding and medical treatment of the causes of recurrent miscarriage, there has, until recently, been a paucity of research regarding the psychological aspects and impact of the experience. This section will present the limited psychological research that has been conducted.

1.3.2.1 Women & Recurrent Miscarriage

Several recent studies have now explored the rate of anxiety and depression in women following recurrent miscarriage (e.g. Craig et al, 2002; Klock et al, 1997). These studies have found that anxiety is the predominant reaction following recurrent miscarriage with 21% of the sample in Craig et al's (2002) study having trait anxiety scores on the Spielberger State-Trait Anxiety Inventory that were equivalent to that of a typical psychiatric out-patient population (Thapar & Thapar, 1992). Craig et al (2002) found that 9.9% of women in their sample were moderately depressed (i.e. scores of 20-29 on the Beck Depression Inventory (BDI-II)). However this figure rose to 33% of their sample when a cut-off of 14 (i.e. mild depression) was used on the BDI-II. These findings indicate that recurrent miscarriage can impact significantly on maternal psychological wellbeing, with a subset of women experiencing clinical levels of anxiety and depression. Interestingly, no significant difference was found in levels of anxiety

and depression between women who had children already and those who did not have children (Craig et al, 2002; Klock et al, 1997). Furthermore maternal age and time since the last miscarriage were also not associated with the degree of emotional distress (Craig et al, 2002).

An exploratory and primarily qualitative study by Huchberger (2001) using content analysis indicated that women's negative current concerns following recurrent miscarriage related to previous pregnancies, previous treatment, difficult emotions, and social issues, particularly relationships with others (e.g. partner and friends). Women's positive current concerns were found to relate to having a baby, future pregnancy and past pregnancy, as well as difficult emotions. Although the small size of the sample in this study limits the generalisability of the findings, it does indicate that the areas of social support and relationship with others are important considerations that warrant further investigation to understand their relationship to emotional distress following recurrent losses. This is consistent with psychological research in single miscarriage that has also highlighted the importance of social support (e.g. Swanson, 2000).

Huchberger (2003) subsequently utilised the findings from her previous research (Huchberger, 2001) to develop a psycho-educational booklet for women who have experienced recurrent miscarriage (St. Mary's Hospital, London). In developing the booklet, Huchberger (2003) emphasised the importance of helping women who repeatedly miscarry to find ways of coping with their

psychological distress. Rowsell and colleagues (2001) have looked at coping strategies utilised by women attending a pre-pregnancy counselling clinic who have experienced recurrent miscarriage. They found that avoidance coping and active coping strategies decreased over an average of 6.7 weeks from the baseline measurement at an initial consultation in the clinic, although this decline could not be attributed to their intervention. However, Rowsell and colleagues (2001) did not look at the direct relationship between emotional distress and coping. It would therefore seem important to gain a better understanding of the relationship between coping and emotional distress following recurrent miscarriage, particularly as the literature from single miscarriage experience suggests that particular types of coping may be more strongly associated with emotional distress (e.g. James & Kristiansen, 1995).

There has been only one quantitative study in the field that has been guided by a clear theoretical framework. Magee and colleagues (Magee 2000, Magee et al, 2003) utilised a cognitive and social-cognitive approach to examine the relationship between emotional distress and role/goal investment as well as future oriented thinking in women without children following recurrent miscarriage. Magee found that negative child-related thoughts *and* fewer non-child related positive thoughts, as well as *relative* over-investment in the domain of becoming a parent, relative to other life roles and goals (e.g. work, hobbies, important relationship, health) were associated with levels of emotional distress (as measured by the HADS and the Positive and Negative Affect Scale). Magee and colleagues (Magee e al, 2003) suggest that the findings indicate the need

for the experience of recurrent miscarriage to be understood within the context of other aspects of the woman's life rather than as simply a direct consequence of the miscarriage experience and the related sense of loss. More specifically, Magee and colleagues (Magee et al, 2003) suggests that high levels of investment in valued alternative roles and goals in life may be a protective factor for emotional distress in women following recurrent miscarriage. However, these findings apply to women without children, yet a substantial proportion of women presenting at specialist recurrent miscarriage clinics such as that at St. Mary's Hospital in London, already have at least one child (Craig et al, 2004). Therefore, as Magee and colleagues point out, further research is needed to also explore the pattern of investment in life roles and goals of women who already have children who have experienced recurrent miscarriage. Furthermore the pattern of investments of male partners also needs to be examined in relation to distress.

1.3.2.2 Couples & Recurrent Miscarriage

Research on the psychological impact of a single miscarriage suggests that the experience of recurrent miscarriage is likely to affect both partners, both as individuals and as a couple. However, to date there has been only one study that has examined the psychological effects of recurrent miscarriage on couples (Anderson, 1999). This study utilised a phenomenological approach and interviewed 12 couples who had experienced recurrent miscarriage. Anderson found that for many of the couples spousal support was crucial in being able to cope with recurrent miscarriage, particularly as the lack of understanding about

the experience in the wider community often left couples feeling isolated and alone. However, emotional support from friends and family was found to be helpful in coping with the experience. Couples also highlighted the importance of maintaining good communication with one another and remaining 'emotionally connected' in order to be able to share the experience and support one another. This ability to remain emotionally connected to one another was reported to be linked to the feeling of 'hope' that a cause would be identified for the miscarriages, and 'hope' that they would conceive and have a live baby. A further theme that emerged was the psychological impact of couple dependence on the medical system that was sometimes perceived as insensitive and uncaring, and which in some cases led to withdrawal from their physicians. Despite such difficulties, Anderson (1999) noted that some couples become closer as a result of the experience of recurrent miscarriage. Nevertheless she (1999) concluded that a better understanding of the "emotional map" of the experience of recurrent miscarriage for couples is needed in order to be able to assist them and guide them through this difficult and challenging experience.

Anderson's (1999) study provides valuable insight into the very private experiences of couples who have experienced recurrent miscarriage. However, for a number of reasons the generalisability of the findings is limited. Firstly, the sample was small and was recruited from adverts posted in the local area and at a local support group, suggesting a significant selection bias in terms of participants. Secondly, the participants had experienced fertility problems and treatment in addition to recurrent miscarriage. As previously explained, although

fertility problems are more frequent in this patient population they are in fact a problem for only a sub-group of couples who have suffered recurrent miscarriage. Thus the sample was not representative of the typical presentation of couples who have experienced recurrent miscarriage. Furthermore, there was a huge range in terms of the time that had elapsed since the couple's last miscarriage, which in some cases was up to fifteen years later. Nevertheless, Anderson's study (1999) clearly highlights the importance of widening the scope of research in this area, to include the male partner's perspective as well as considering the couple as a whole.

The importance of exploring the impact of recurrent miscarriage on both partners is also underlined by findings from research in various areas of couple support that indicates that informal support from a partner is related to measures of psychological and physical well-being (e.g. Picciotto, 1999). Furthermore, evidence suggests that an unsatisfactory relationship with a partner or spouse cannot necessarily be compensated for by other sources of support (e.g. Pistrang and Barker, 1995). As Picciotto (1999) points out, such findings have significant implication for the type of intervention that is likely to be most beneficial. More specifically, it is likely that simply increasing external sources of support made available to an identified patient may be insufficient. Instead, it may be more appropriate to focus the intervention on improving the couple's relationship. However, before this can be done a greater understanding of the impact of recurrent miscarriage on both partners' individual psychological well-being, as well as on the couple, is necessary. Whilst Anderson's (1999)

qualitative study provides an interesting insight into couple's experience, further empirical information with a more representative sample is therefore necessary to inform service provision.

1.3.3.3 The Sexual Relationship

A related concern regarding the couple's relationship is their sexual relationship. Research in the field of perinatal loss (e.g. Leon, 2001) and infertility (e.g. Monach, 1993) has shown that such stressful experiences can affect the couple's sexual relationship.

Leon (2001) suggests that following perinatal loss male and female partners may have different physical needs, with men being more likely to want sexual intercourse as a way of feeling close to their partner, whilst women may simply want to be shown affection and be cuddled. Raphael-Leff (1991) suggests that bodily disillusionment may also occur following miscarriage. Literature in the field of infertility suggests that couple's sexual functioning may become synonymous with the quest for pregnancy (Balen & Jacobs, 2003). Partners may feel they have to 'perform to order' as opposed to making love for pleasure and affection, and such pressure may result in avoidance of sexual intercourse (Balen & Jacobs, 2003). This in turn, can lead to distress and sexual difficulties within the couple's relationship. A couple's sexual relationship is of course one of the most private aspects of their overall relationship. Nevertheless varying degrees of stress are inevitably placed on this aspect of their relationship when undergoing fertility investigations and treatment. Balen and Jacobs (2003)

suggest that it is therefore important to "break the chain of silence" (p122) and acknowledge and talk openly about these problems.

To date this is an area that has not been looked at in the field of recurrent miscarriage. Yet standard medical advice following miscarriage advises abstaining from sexual intercourse for several weeks to allow for healing. Furthermore, women referred to specialist recurrent miscarriage clinics are typically advised not to get pregnant whilst they undergo medical investigations into the underlying cause for their recurrent miscarriage. Thus there is a possibility that recurrent miscarriage may well impact on the couple's sexual functioning, particularly when couples are undergoing further investigations to identify a cause for their problem. Clearly this is an important issue that needs to be explored further.

1.4 Relevant Issues for the Current Study

The social-cognitive model (Champion & Power, 1995) that was utilised as an empirical framework to structure Magee and colleagues' (2003) research in maternal distress appears to be a useful approach to use and build on in the current study. From their study (Magee et al, 2003) it would appear that relative role investment in becoming a parent, relative to other domains in life, is associated with emotional distress following recurrent miscarriage in women without children. However, this relationship needs to be explored further by inclusion of women who already have children and have experienced repeated miscarriages. Anderson's (1999) exploratory research indicates that the male

perspective also needs to be explored, and so it would seem important to look at male patterns of investment in life goals and roles

The research also suggests that certain factors in the social context also warrant further exploration. These include the quality of social support (Huchberger, 2001), and in particular the couple's relationship (Anderson, 1999). Literature from the field of perinatal loss (Leon, 2001), and infertility (Balen & Jacobs, 2003) indicates that within the couple relationship it may also be useful to look at the couple's sexual relationship in relation to emotional distress. Finally, research from single miscarriage (James & Kristiansen, 1995) and recurrent miscarriage (Rowsell et al, 2001) suggests that coping strategies may be related to emotional distress, and further research in this area is warranted.

Therefore the aim of the current study is to build on Magee and colleague's (Magee et al, 2003) research and use the social-cognitive model of depression (Champion & Power, 1995) to quantitatively explore both male and female emotional distress in relation to: role and goal investment; type of coping; dyadic and sexual functioning; as well as social support.

1.5 Theoretical Framework

The guiding theoretical model for the current study will be the social-cognitive model of depression (Champion & Power, 1995). In order to understand this model fully, the following section will initially look at the cognitive model of depression (Beck 1967, 1976) and research on the social context (Brown and Harris, 1978) of depression, both of which contribute substantially to the social-cognitive model. Following this, the social-cognitive model of depression (Champion & Power, 1995) will be examined.

Specific aspects of the social-cognitive model will then be discussed in turn with a focus on their relevance to the current study in recurrent miscarriage. These aspects include: aspects of the negative life event; the family life cycle (McGoldrick & Carter, 2003); roles and goals; social support, intimate confiding relationships and coping. A description of the current study will then follow, together with its aims and hypotheses.

1.5.1 The Cognitive Model of Depression

Beck's cognitive model of depression was developed to understand and treat depression (Beck, 1967, 1976). According to this approach, depression is considered to be primarily a disorder of cognition, characterised by the depressed individual's misperceptions and misinterpretations of their environment. Beck's theory proposes that there are three inter-related aspects of a depressed person's cognitions, these are namely: negative schemas; cognitive distortions; and 'the cognitive triad'.

According to Beck (1964), schemas are mental structures that screen, code and evaluate incoming information and enable individuals to categorise and interpret their experiences in a meaningful way. Schemas can also be regarded as the individual's beliefs or assumptions about themselves and the world that are acquired during the course of development. This ability to predict and make sense of one's experiences is essential to normal functioning (Fennell, 1989). However, some schemas are termed 'dysfunctional' as they are rigid, inappropriate and/or unrealistic. According to cognitive theory, such negative schemas can be re-activated by specific critical incidents.

The theory proposes that when such negative schemas are activated they result in cognitive distortions or faulty information processing. As a result, a depressed individual may filter out positive stimuli whilst negative or neutral stimuli may be disproportionately magnified, resulting in an increase in 'negative automatic thoughts.' This negative pattern of thinking is postulated to affect the way in which the individual views them self, their current situation and their future, and this is referred to as the 'cognitive triad'. In turn this leads to the other symptoms of depression.

Whilst this cognitive model was originally developed in relation to depression it has been extended to address a range of clinical disorders and is also relevant to the understanding of emotional disturbance of non-clinical intensity (Fennell, 1989). The aim of cognitive therapy is to assist the patient to question negative automatic thoughts and challenge the assumptions upon which these are based.

The reason for this focus is the belief that negative cognitions have a temporal primacy in the development of mood disturbance (Beck et al, 1979).

Although there is a growing evidence base to support the clinical efficacy of cognitive therapy (Roth and Fonagy, 1996), Beck's model and its therapy have received criticism. One particular criticism, of relevance to the current study, is the insufficient emphasis on social factors (Champion and Power, 1995). Whilst Beck and his colleagues (1979) acknowledge that positive interpersonal relationships can act as a buffer against the self-critical tendencies of a depressed individual, they maintain that cognitive distortions are pivotal to the onset of depression.

Yet, as Oatley and Bolton (1985) point out, "people often become depressed for understandable reasons rather than reasons of irrationality, although distortions may well contribute to chronicity" (Oatley and Bolton, 1985, p. 384). This argument is particularly pertinent to the specific issue of psychological adaptation to recurrent miscarriage, in that it is a threatening life event that is distressing, and that in some cases may lead to depression. Whilst the miscarriage is experienced physically by the woman, the emotional distress resulting from this loss is likely to affect both the woman and her partner, and by implication may impact on their interpersonal relationship. Furthermore, the repeated losses come during a major life-stage transition where couples are aspiring to achieve their 'ideal' family (be it to become parents for the first time or to complete their family unit with another child). Therefore, whilst cognitive

aspects of psychological adaptation to recurrent miscarriage are important, consideration of the social context within which these occur would seem crucial.

1.5.2 The Social Context of Depression

As Gotlib and Hammen (1997) point out, research into the social context of depression has not led to the development of "a cohesive theory in the same way that cognitive models have" (p141) been able to do. Nevertheless there has been significant empirical research in this domain and of particular importance is the seminal work of Brown and Harris (1978). In their community study of women in an inner London area, they found that the onset of clinical depression was most likely to occur following a "provoking agent," and in the presence of one or more "vulnerability factors." They defined a "provoking agent" as an event or difficulty representing a severe threat, lasting for longer than a week, and which directly affected the individual (e.g. death of a child). Whilst "vulnerability factors" were seen as circumstances that, whilst not in them self threatening, increased an individual's vulnerability to depression following a "provoking agent." Vulnerability factors included: having several young children; not having employment outside the house; and lack of social support, especially lack of an intimate and confiding relationship with a husband/partner. The relevance of these vulnerability factors to psychological adaptation to recurrent miscarriage will be returned to later in this chapter.

Subsequent work by Brown and colleagues (Brown et al, 1987) has shown improved predictability of depression when information regarding, level of

commitment to particular roles or activities, and role conflict are also considered. According to this approach, the likelihood of depression increases following a major life event that matches a person's 'vulnerabilities,' and in turn, these are defined as pre-existing and ongoing difficulties and/or areas of life in which the individual may be particularly committed (Brown et al, 1987). Adversity in a person's social world is therefore considered to be the main cause of the biological, cognitive and behavioural changes that are characteristic of depression (Champion, 2000).

1.5.3 The Social-Cognitive Model of Depression

The social-cognitive model of depression presented by Champion and Power (1995) draws upon the cognitive vulnerability approach (e.g. Beck et al, 1979) as well as the social vulnerability approach (e.g. Brown & Harris, 1978), described above, to emphasise the importance of personal goals and plans in the onset of depression following significant life events. By acknowledging the importance of both social and cognitive vulnerability factors, the social-cognitive model of depression (Champion & Power, 1995) seems to provide a logical theoretical framework for understanding and studying the psychological impact of recurrent miscarriage on individuals. Furthermore, its' particular emphasis on the importance of personal goals and plans seems highly relevant to the experience of recurrent miscarriage in which the plans for achieving the important goal/role of becoming a parent (either for the 'first time' or 'again') are being repeatedly disrupted and threatened.

According to Champion and Power (1995) a "goal" is a cognitive representation that combines the current or 'actual' situation together with the desired or 'ideal' situation. The discrepancy between these two states represents the steps or plans that must be made in order to reach the 'ideal' state. A "role" is defined as a social relationship that can also be looked at in terms of the 'actual' state of that relationship and the 'ideal' state wished for. Champion and Power (1995) suggest that both goals and roles have the same status, and that a role refers to an interpersonal goal that requires another individual to fulfil it. They therefore propose that a person's emotional response will, in part, depend on the discrepancy between the 'actual' and the 'ideal' state as well as the ability to devise individual and interpersonal plans to achieve the 'ideal' state.

The socio-cognitive model (Champion & Power, 1995) hypothesises that the loss of a highly valued goal or social role in an individual without alternative significant sources of self worth may leave the individual vulnerable to depression. The reason for this is that when alternative domains in life remain with little or no active involvement they cannot provide ongoing positive reinforcement, and as a result, the individual will have limited alternative sources of self-worth available to them following a severely threatening life-event (Champion & Power, 1995; Oatley & Bolton, 1985). Champion and Power (1995) argue that the mere presence of alternative roles and goals is insufficient to reduce vulnerability to depression, and that a crucial factor in the equation is the individual's perception of these alternative domains as being of value. Their proposed model of depression is outlined in figure 1.

As can be seen in figure 1, Champion and Power's socio-cognitive model (1995) proposes that when an over-valued or dominant goal/role is either threatened or lost as a result of a severely threatening life event, this will be accompanied by a loss of the goal's/role's inhibitory functions. In turn this is postulated to result in intra-psychic loss of control and an increase in unwanted thoughts, images and emotions. The model also proposes that because there will be few if any alternative sources of value once the dominant goal/role is lost, the individual will be left with a sense of "purposelessness and futility" (Champion and Power, 1995, p499).

A central tenet of this model is that a cognitive theory that focuses on the individual's goals and plans must also take into account the social context within which those goals and plans are created (Champion & Power, 1995). For, as other social-cognitive theorists have stated (Oatley & Bolton, 1985), depression arises as a result of the interaction between "mental" and "societal" reasons. More specifically, based on previous research (e.g. Brown & Harris, 1978) Champion & Power (1995) identify four key issues in the individual's social context that warrant consideration. Firstly, the nature and severity of the life event and ensuing difficulties must be considered. Secondly, they consider the stage in the life-cycle a crucial consideration in terms of both understanding the impact of the negative life event on the individual and on the roles/goals that they are pursuing at that stage in their life. Thirdly, attention also needs to be given to specific social vulnerability factors that may be relevant (e.g. unemployment; socio-cultural values). Finally, social support (both practical and

emotional), and in particular the quality of close relationships with a partner, are crucial issues to be considered in relation to vulnerability to depression. The relevance of each of these four issues to psychological adaptation following recurrent miscarriage will be returned to later in this chapter.

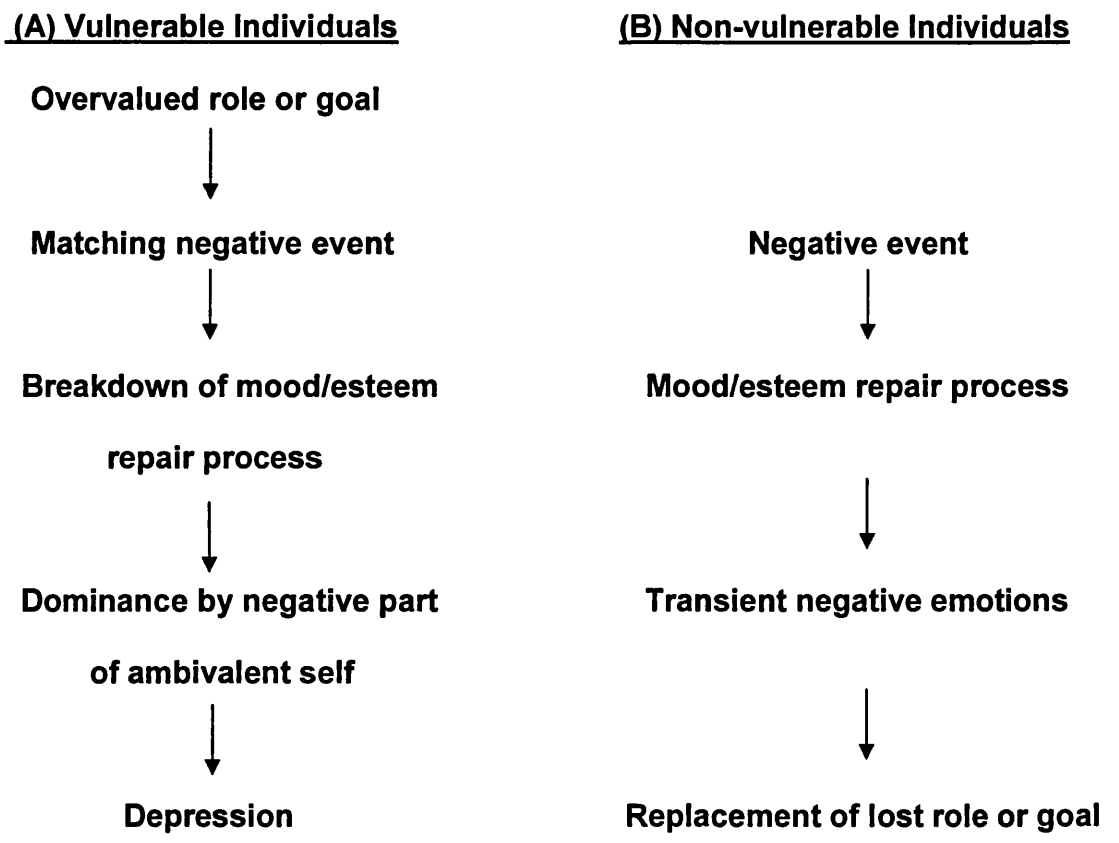


Figure 1: The Social-Cognitive Model of Depression (from Champion & Power, 1995)

As such, Champion and Power (1995) view their model as an "analysis of variance model" in that they believe that the main effects of cognitive and social vulnerability factors each have the capacity to cause depression independently of the other in extreme circumstances, but that typically the two factors interact

together. The model is proposed to account best for first episodes of unipolar depression, and whilst it does not specifically address the issue of biological vulnerability to depression, the importance of biology is acknowledged (Champion & Power, 1995).

Whilst the social-cognitive model (Champion & Power, 1995) was developed in relation to depression, other social-cognitive theorists have observed that depression and anxiety often co-exist (Oatley & Bolton, 1985) and as such the model is also relevant to the understanding of anxiety. Indeed, depression has been described as a response to loss, whilst anxiety represents a response to danger (Oatley & Bolton, 1985) and an anticipation of a future loss (Katz, 1980). Therefore, Oatley & Bolton (1985) suggest that not only is anxiety compatible with depression, but it is also a very likely emotion that will be experienced by the individual in anticipation of "a hapless future and further repercussions of the original loss" (p380). This is particularly pertinent in relation to recurrent miscarriage, where levels of anxiety have been found to be particularly high in women following this experience (e.g. Craig et al, 2002). This suggests that two different loss experiences may co-exist: the loss of the previous miscarriages; and the anticipation of future difficulties in achieving, and/or loss, of the goal/role of 'becoming a parent.'

1.5.3.1 The Social-Cognitive Model and Nature of the Life Event.

According to the social approach (e.g. Brown & Harris, 1978) and the social-cognitive approach (Champion & Power, 1995), the nature of significant threatening life events and how they affect the individual are a crucial consideration. Previous research in recurrent miscarriage has not found a significant difference in the psychological distress of women who have experienced two versus three or more miscarriages (Craig et al, 2002; Klock et al, 1997). Furthermore, prior research in this field has also found no significant difference in the psychological distress of women with and without children (Craig et al, 2002; Klock et al, 1997). The current study will examine certain background factors (e.g. time since last miscarriage, having children or not, number of miscarriages), to exclude them as predictors of emotional distress. However, it would seem that the timing of the miscarriage within the family life cycle and the disruption that the event may cause in the family's developmental transition within this cycle is of particular importance to understanding the event.

1.5.3.2 The Social-Cognitive Model and the Family Life Cycle

Social-cognitive theorists (Champion, 2000) have highlighted the importance of considering the individual's ability to negotiate major life-stage transitions and the increased risk for depression during such transitions as a result of significant alterations in available roles and goals. Indeed the family life cycle is the natural context within which to consider individual problems (McGoldrick & Carter, 2003), such as recurrent miscarriage, that arise within the context of a family's past history (e.g. recurrent miscarriages), the current tasks that it is trying to

tackle (e.g. achieving a "live take home baby" (Regan, 2001)), and future goals to which it aspires (e.g. creating the 'ideal' family unit). Despite the diversity of family forms, there are some unifying key ideas that McGoldrick and Carter (2003) use to define particular stages and tasks within the lifecycle. According to McGoldrick and Carter (2003) each individual, family and cultural system can be considered along two time dimensions: a historical one and a developmental and unfolding one.

For the individual, the historical dimension includes biological heritage, and genetic make-up, whilst the developmental dimension refers to the individual's emotional, cognitive, interpersonal, and physical development across the lifespan and within a socio-cultural context. According to this approach, certain individual stages may be more challenging to master as a result of both internal and external factors (McGoldrick & Carter, 2003).

For the family, the historical dimension relates to patterns of relating and functioning, as well as family attitudes, taboos, and expectations. The developmental dimension refers to how the family copes as it moves through time and deals with both predictable developmental stresses and unpredictable ones described as the "the slings and arrows of outrageous fortune" (McGoldrick & Carter, 2003) that can disrupt the life-cycle process.

At the cultural level, the historical dimension relates to both cultural and societal history, stereotypes, social hierarchies and beliefs. The developmental

dimension relates to community connections and current events that may impact the family and the individual at a given time. It also includes the impact of the society's "inherited" norms such, as ethnic and religious beliefs, on the individual's and family's day to day life (McGoldrick & Carter, 2003).

From this, one can see how the model is of clear relevance to the study of psychological adjustment to recurrent miscarriage, in that the experience not only presents a significant challenge to the individual woman in reaching her desired goal of becoming a mother (either for the first time or again), but it also has ramifications for the rest of the family. In particular, her partner is likely to be directly affected by the loss of each baby as well as by the impact, both physical and emotional, that the loss is likely to have on the woman. Whilst family distress would therefore be expected at such a time, the way in which the 'family' responds as a functional unit is likely to be critical for recovery (Walsh, 2003). However, as previously discussed, there has only been one study that has explored the psychological effects of recurrent miscarriage in couples (Anderson, 1999) and the generalisability of the findings are limited for a variety of reasons. One particular reason that is worth revisiting at this point is the fact that for some of the couples in Anderson's study (1999) up to 15 years had elapsed since their last miscarriage. One might expect that after fifteen years, the family unit is likely to be at quite a different stage in their life cycle compared to shortly after the miscarriages. However, this does not deny the fact that, as Carter & McGoldrick (1999) observe, emotional issues and developmental tasks

not resolved at appropriate stages are likely to be carried along as hindrances in future transitions and relationships.

Consistent with the social-cognitive model (Champion & Power, 1995), McGoldrick and Carter (2003) suggest that as families move along the developmental dimension of the family life cycle, stress is likely to be greatest at transition points from one stage to another. This notion of 'transitions' as journeys from one stable state to another, that require a period of change, disequilibrium and some psychological stress, has been borrowed from descriptions of early childhood development (e.g. Piaget, 1968). It has been proposed that major life transitions, like that of becoming a parent, involve qualitative reorganization of the self and the inner world, social roles and close relationships (Cowan, 1991). According to Cowan and Cowan (2003) such a developmental transition requires an adjustment in the way we see ourselves and who we will become, as well as a shift in the balance of internal regulation of affect. Furthermore, such individual changes will require reorganisation of other roles in the individual's life and in the network of roles in central relationships.

In the case of the transition to parenthood, such reorganisation has been found to have begun years earlier, when individuals first began thinking about the idea of parenthood for themselves (Cowan & Cowan, 2000). Indeed, couples are likely to have made a significant emotional investment in creating their ideal family unit, particularly via anticipation of, and investment in, their parenting

roles, and realigning their relationship within their family of origin to include parenting and grand-parenting roles. Thus the transition to parenthood, like any other transition, can be conceptualised as a set of linked processes that unfold over time (Cowan & Cowan, 2003). Interference, by way of recurrent miscarriage, with the transition from being either a 'childless couple' or a 'family with a child,' to the ideal family unit aspired to by the couple, may therefore significantly impact on the couple's relationship and disturb the balance of established marital and gender roles.

As Raphael-Leff (1992) has observed, not only is recurrent pregnancy loss a significant threatening life event that results in the woman being stripped of her role of motherhood (and by implication the man is also stripped of his role of fatherhood), but it can also pose "a threat to each partner's personal and gender identity and to their mutual future legacy" (p30). Furthermore, as McGoldrick and Carter (2003) observe, "human identity is inextricably bound up in one's relationship with others, and the notion of complete autonomy is a fiction" (p382). This seems a particularly poignant observation in the case of recurrent miscarriage and highlights the need to broaden the focus of research from the individual level (i.e. the woman) to the family level (e.g. the partner) and the cultural level (e.g. different ethnic groups).

1.5.3.3 The Social-Cognitive Model and Roles and Goals

The emphasis of the social-cognitive model on personal goals and plans fits well with the literature on the family life cycle reviewed above (Cowan & Cowan, 2003; McGoldrick & Carter, 2003), and seems a useful framework for broadening the focus of psychological research in recurrent miscarriage to include both male and female partners.

The social-cognitive approach is embodied in the Roles and Goals questionnaire (RAG - Lam & Power, 1991) that was specifically designed to assess an individual's important roles and goals in order to identify their pattern of relative investment in these. The questionnaire was designed to sample likely major domains in which an individual may be engaged at their particular stage in the life-cycle, such as an important personal relationship, their job, their personal leisure time. Support for the view that relative over-investment in one domain is a vulnerability factor for depression has been found in a number of studies using the RAG questionnaire (e.g. Lam and Power, 1991). It has also been utilised specifically in relation to the experience of recurrent miscarriage (Magee, 2000; Magee et al, 2003).

As previously discussed, In one of the few studies in the field of peri-natal loss that was guided by a clear theoretical framework, Magee (2000; Magee et al, 2003) utilised the social-cognitive model of depression (Oatley & Bolton, 1985; Champion and Power, 1995) to look at the potential function of *relative* investment in the role and goal of 'becoming a parent,' compared to other roles

and goals in life, in predicting levels of maternal distress following recurrent miscarriage. Magee (Magee 2000; Magee et al, 2003) found that, not surprisingly, most of the women in her study were highly invested in 'becoming a parent.' However *relative* over-investment in the role and goal of 'becoming a parent' compared to other life roles and goals was associated with higher levels of emotional distress in women. As previously noted, Magee (Magee et al, 2003) suggested that the findings could be interpreted as indicating that high levels of investment in valued alternative roles and goals represent a protective factor for emotional distress in women.

By contrast, to date, no study has looked at paternal distress following recurrent miscarriage or the potential function of *relative* investment in the role/goal of 'becoming a parent' in predicting such distress in the male partner. In addition, there has not been any research into how the *discrepancy* between individual partner's *relative* investment in 'becoming a parent,' may be related to emotional distress within the couple. These would appear to be important considerations given that not only is recurrent miscarriage experienced by both partners as individuals, but, as highlighted in the earlier review of the literature on the family life cycle, the role/goal of 'becoming a parent' also involves them both.

Epidemiological evidence has shown that, in general, there are gender differences in depression, with approximately twice as many women as men experiencing depression (Abramson et al, 2002). Although, this difference has, as yet, not been sufficiently explained, there is research that has found that

relative over-investment in one particular life goal or role (compared to other domains) may be stronger in women than men, particularly in those women who are depressed (Porter & Power, submitted paper, reported in Champion and Power, 1995). Of particular relevance to the current study is the fact that individuals who focus on the interpersonal domain tend more often to be women than men (Beck, 1983), and that within this domain a dominant role that centres on care-giving is often seen which is most likely the result of early learning and role models. Champion and Power (1995) propose that the "the greater the emphasis on this type of role (e.g. being a good wife and/or mother) in a woman's life to the *exclusion or neglect* of other roles or goals, the more at risk she will be for depression...following a life-event that threatens this role" (Champion and Power, 1995, p489). By contrast, men in general have been found to focus more on the achievement domain (e.g. work) compared to women (Beck, 1983). However, Simon (1992) found that despite the overall greater commitment of women to the parental role (i.e. an interpersonal goal), men with high commitment to this role were equally vulnerable to depression as were women following parental role strain. This suggests that male partners who may be *relatively* highly invested in the domain of becoming a parent,' compared to other domains in life, may be equally vulnerable to emotional distress following recurrent miscarriage as their female partners have been found to be (Magee, 2000; Magee et al, 2003).

Therefore, one aim of the current study is to include couples with and without children, and look at each partner's *relative* investment in the domain of

'becoming a parent,' compared to other roles and goals. The aim is to explore the relationship between this *relative* investment and male and female emotional distress following recurrent miscarriage. In addition, a further aim is to look at the *discrepancy* between couple's individual *relative* investment in this domain, and explore the relationship that this may have with levels of emotional distress in each partner.

1.5.3.4 The Social-Cognitive Model and Social Support, Couple Relationship, and Coping

Consistent with the family life cycle research (e.g. McGoldrick and Carter, 2003), is the finding that the lack of good social support, and in particular that of a supportive intimate relationship, is a critical risk factor for depression when individuals are experiencing major stressors in their lives (Brown & Harris, 1978; Costello, 1982). The importance of social support has been highlighted in a number of studies in single miscarriage research (e.g. Swanson, 2000), and has also been identified as a potentially important factor in recurrent miscarriage (Huchberger, 2001). Furthermore, the significance of the couple's relationship in coping with recurrent miscarriage has also been highlighted by Anderson (1999). According to social-cognitive theorists (Champion & Power, 1995, Oatley & Bolton, 1985,) lack of social support, and particularly a close relationship with a partner, may be a critical risk factor because it reduces the individual's potential roles and goals, and restricts the individual's ability to obtain alternative sources of value. Thus, social support and a close relationship with one's partner are of particular relevance in the social-cognitive model. The current

study aims to gain a greater understanding of what relationship these two important factors may have to emotional distress in both partners following recurrent miscarriage.

It is has also been suggested that social resources such as having an intimate confiding relationship and good social support, help individuals cope more effectively with stress that may arise as a result of significant life stresses (Gotlib & Hammen, 1997). Indeed, social support has been referred to as "coping assistance" (Thoits, 1986).

Coping refers to "changing cognitive and behavioural effort to manage specific demands that are appraised as taxing or exceeding the resources of the person" (Lazarus & Folkman, 1984, in Folkman, 1991). This definition comprises three elements (Folkman et al, 1991). Firstly, coping is process-oriented and refers to what the person actually thinks or does. Secondly, it is contextually defined by the specific situation that the person is facing. Finally, coping is the process of actually putting in to practice a particular response to deal with that particular situation.

Folkman and Lazarus (1980) have suggested two general coping strategies that are proposed to serve two different functions. Problem-focused coping has been proposed to serve the function of managing or altering the problem that is causing distress, and such strategies are usually utilised when situations are appraised as being controllable and amenable to change (Folkman et al, 1991).

By comparison, emotion-focused coping has been proposed to primarily regulate emotional responses to particular stressful situations and are strategies that are resorted to when situations are appraised as not amenable to change or controllable (Folkman et al, 1991). Avoidance of a stressor has also been found to arise in response to uncontrollable stressors (Eckenrode, 1991).

Research suggests that support is associated with the use of effective coping strategies, such as problem-focused coping, that are less related to the development of depressive symptoms (e.g. Billings & Moos, 1984). By contrast, having less support has been found to be related to use of higher avoidance coping (Billings and Moos, 1981). However, it is important to note that coping is a dynamic process that is likely to change depending on the circumstances, and as such there may be circumstances when avoidance coping and emotion-focused coping may be more helpful in reducing distress. Thus it seems important to gain a better understanding of the role of coping in relation to emotional distress following recurrent miscarriage.

1.6 Aims of the Study

There has been only one quantitative study (Magee 2000; Magee et al, 2003) in the field of recurrent miscarriage that has looked beyond the incidence of specific emotional reactions (e.g. Craig et al, 2002), to explore specific psychological factors in relation to emotional distress. This study looked at a very specific sub-group of women – those without children who had experienced recurrent miscarriage. Research shows that the emotional responses of women with children do not differ significantly from those without children. Furthermore, qualitative research highlights the need to examine men's emotional responses too. The aim of the study is to address this gap in the literature by using the social-cognitive model utilised in Magee and colleagues study (2003) as a framework to explore role and goal investment in both partners in relation to anxiety and depression. Additional aspects that also seem relevant from the available research will be considered within this theoretical framework, and with reference to the moderator-mediator variable distinction as outlined by Baron and Kenny (1986).

The additional factors that will be examined are dyadic and sexual functioning, as well as type of coping, and the mediating effect that these may have on the relationship between role investment and levels of distress. As Baron and Kenny (1986) state "mediators explain how external physical events take on internal psychological significance....mediators speak to how or why such effects occur" (p1176). The current study therefore conceptualizes coping and dyadic factors as consequences of role investment that in turn may bring about anxiety and

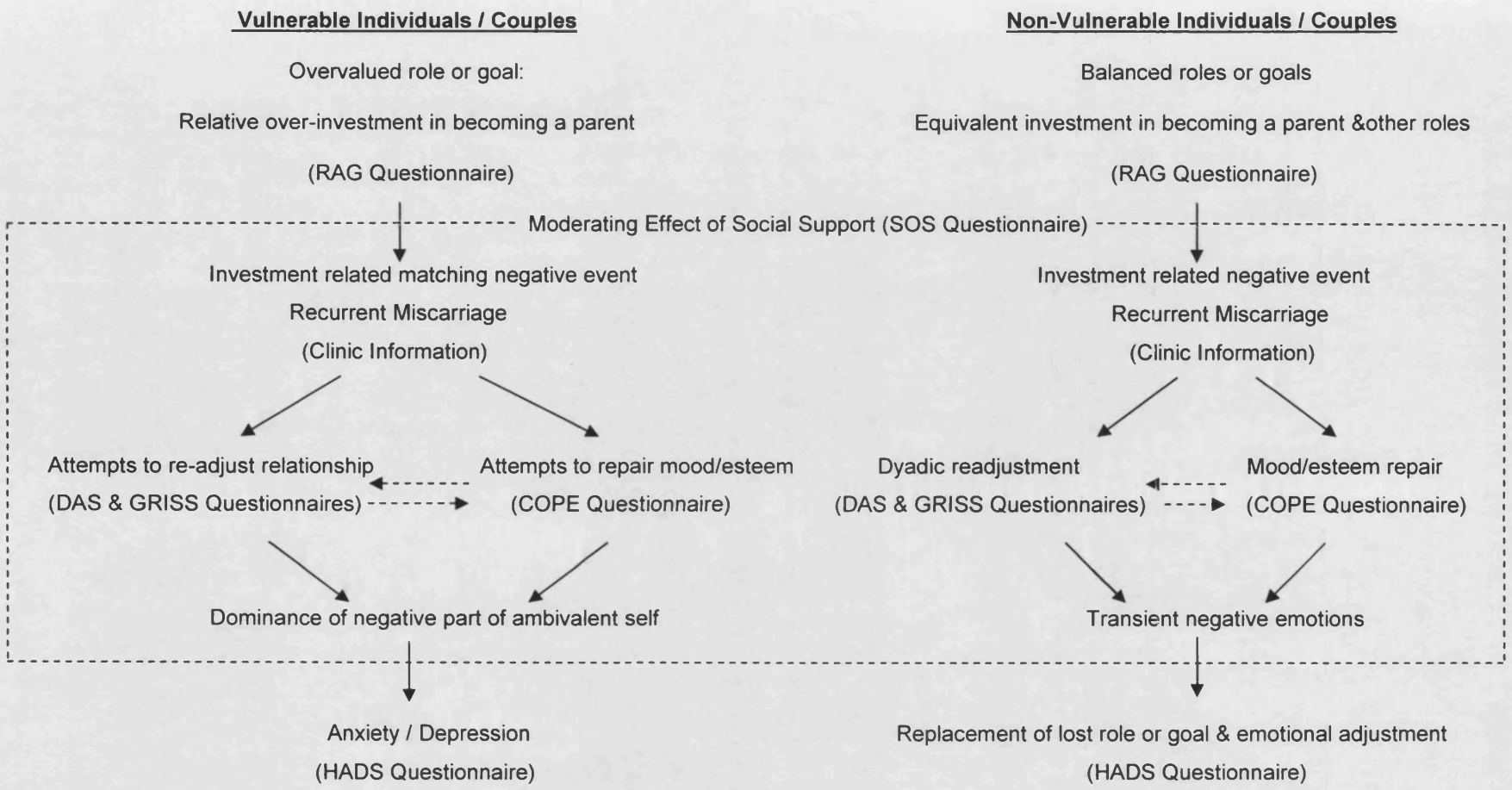
depression. Thus, for example, high relative investment in the role of becoming a parent may highlight for couples the link between sex and becoming pregnant, and this may influence the couple's sexual relationship and may be associated with emotional distress.

The moderating effect that social support may have on these relationships will also be explored. According to Baron and Kenny (1986), a moderator variable is one "that affects the direction and/or strength of the relation between an independent or predictor variable and a dependent criterion variable" (p1174).

No a priori predictions will be made regarding background variables. Any background variables that emerge as significant will be analysed post hoc.

An adapted version of the social-cognitive model (Champion & Power, 1995) incorporating these additional areas of focus is shown in figure 2.

Figure 2: Adapted Model of Vulnerability to Depression/Distress



1.6.1 Specific Study Hypotheses

The current cross-sectional quantitative study proposes that levels of anxiety and depression in couples following recurrent miscarriage may be explained by various cognitive and social factors. The specific hypotheses of the current study are as follows:

1) It is predicted that an increased amount of investment put into the role of becoming a parent, and a mismatch between partners of the amount of investment put into the role of becoming a parent, *relative* to other available domains in life, will be associated with high levels of anxiety and depression.

2) Inadequate coping, and dyadic and sexual problems, will be associated with high levels of anxiety and depression, and will mediate the relationship between relative investment in the role of becoming a parent and depression/anxiety.

3) Social support will moderate the impact of investment, dyadic adjustment and sexual dysfunction and coping on depression and anxiety. Specifically, having low social support will strengthen the impact of investment, dyadic adjustment, sexual functioning and coping on depression and anxiety.

2. Method

2.1 Location

The study participants were couples who had experienced recurrent miscarriage and were attending the Recurrent Miscarriage Clinic (RMC) at St. Mary's Hospital, London. This is a specialist tertiary service that receives referrals from Consultants and General Practitioners throughout the U.K. The RMC is the largest referral unit of its kind in Europe and has an international reputation for investigation, treatment and research in recurrent miscarriage.

The RMC advise all new patients to try not to conceive before they attend the clinic in order for certain investigations and any indicated treatment to be carried out prior to another pregnancy. In this way, the RMC hope to give the couple the best chance of a successful subsequent pregnancy.

Whilst couples wait for their first appointment they usually have certain blood tests carried out by their GP and these include tests for chromosomes, rubella status, and certain hormones. The investigations that are conducted at the RMC typically take place over two to three appointments that are scheduled at approximately eight week intervals to enable test results to be ready. The investigation protocol that is followed includes tests for: peripheral blood karyotyping of both partners; pelvic ultrasound scanning to determine uterine anatomy and ovarian morphology; screening for antiphospholipid antibodies on at least two occasions; mid-follicular phase serum gonadotropin measurements;

and a complete menstrual cycle of urinary luteinizing hormone (LH) measurements (Clifford et al, 1994).

Once these tests are complete, the results and any implications for future pregnancies are discussed with the couple. A specific cause for the recurrent miscarriages is identified in approximately 50 per cent of the couples attending the clinic (Clifford et al, 1994). The causes can be divided into six broad categories: endocrine; genetic; ineffective; anatomical; immune; and idiopathic (Rai et al, 1996). Approximately 30 per cent of the women attending the clinic are also experiencing sub fertility (Clifford et al, 1994).

2.2 Participants

The participants in this study were couples who were attending their first medical appointment at the RMC. Couples who had experienced two or more miscarriages were included in the study. Although, recurrent miscarriage is usually defined as the loss of three or more pregnancies, and affects 1% of women (Clifford et al, 1994), it has been noted (Bergant et al, 1997; Craig et al, 2002) that some clinicians consider that two or more miscarriages should be classified as recurrent miscarriage, and that 3% of women would fall into this category. Furthermore, research into the level of psychiatric morbidity of women attending the RMC has indicated that whilst levels are slightly lower amongst women with 2 consecutive miscarriages versus 3 or more miscarriages, this difference is not statistically significant (Craig et al, 2000). In view of this, and the fact that women attending the RMC primarily see themselves as having

'recurrent miscarriage' (Huchberger, 2003), it seemed appropriate to use this inclusion criteria.

Previous research has shown that there is no difference in the psychological distress experienced following recurrent miscarriage by women with and those without children (Craig et al, 2000; Klock et al, 1997). It was therefore felt appropriate to include couples with and those without children in the current study.

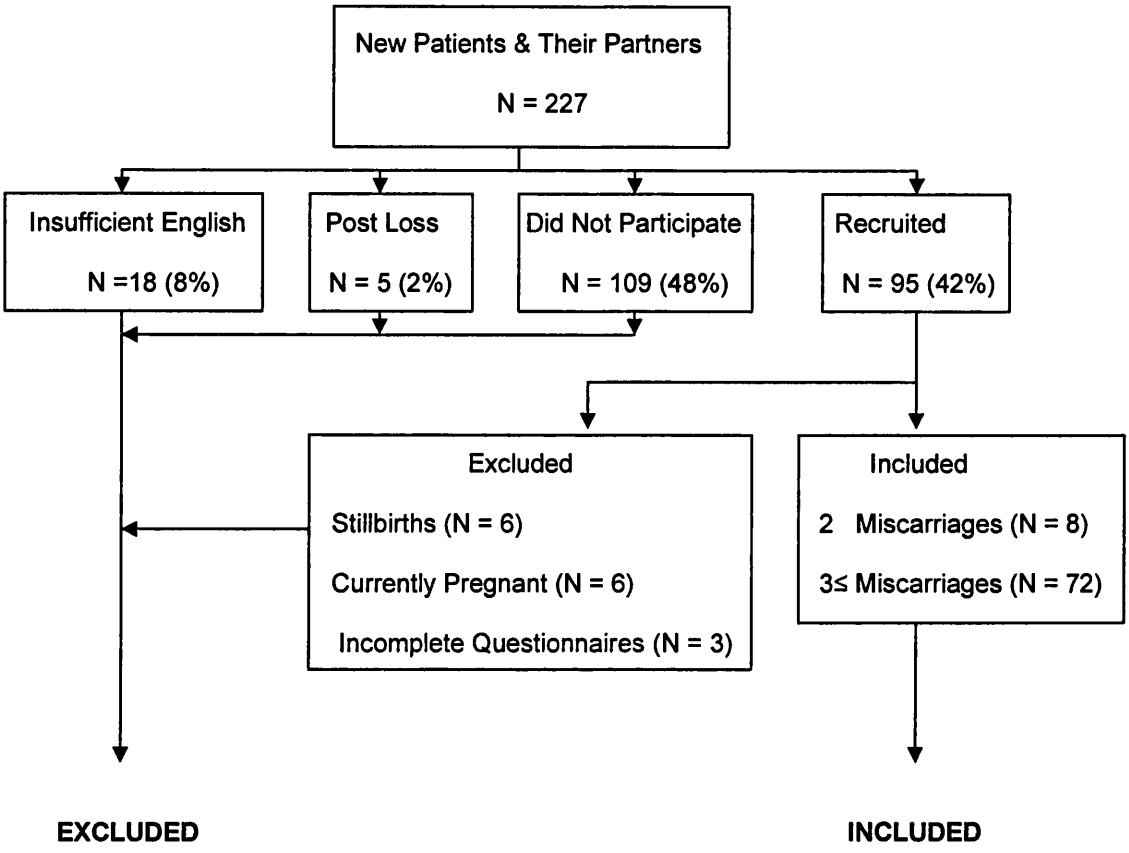
Couples with insufficient English to complete the measures were not included in the study. Couples identified by the RMC as being "post loss" (i.e. having very recently experienced their last miscarriage) were also not included as clinic staff felt that they were likely to be too distressed to participate in the current study.

Power analysis for correlations (see Howell, 1987) was utilised to estimate the power needed to show a correlation between the relative investment in the role of 'becoming a parent' and levels of distress. Effect size was taken from the study of Magee et al (2003) where the smallest correlation reported between the Roles and Goals Questionnaire and levels of distress was 0.31 at $p = 0.05$. Power analysis for the current study indicated that a sample of 79 was necessary to have 80% power to detect a correlation of 0.31 at $\alpha = 0.05$, representing a medium effect size (Cohen, 1992).

The participants were recruited from a consecutive series of patients attending their first medical appointment at the RMC. Of the 227 couples who were sent information about the study and were also subsequently seen in the RMC, 95 (42%) were recruited to the study between September 2003 and March 2004. The attrition rate and reasons for non-participation in the study will be discussed in detail in the results and discussion chapters.

As can be seen from the flowchart in figure 3, of the 95 couples recruited to the study, 15 couples were subsequently excluded from the study for three reasons. Firstly, 6 of the women were found to have had stillbirths. Secondly, a further 6 women were currently pregnant. It was felt that these two experiences were qualitatively different to the experience of recurrent miscarriage and it would therefore not be appropriate to include them. Finally, 3 couples were excluded from the study because they returned incomplete questionnaire packs. Of the 80 couples included in the study, there were 7 couples where only 1 partner returned their questionnaire pack (5 women and 2 men).

Figure 3: Flowchart indicating inclusion and exclusion criteria



The female participants were aged between 24 and 45 years of age, with a mean age of 35.1 (s.d. = 5.05). Although the ethnic background of the women varied, the majority were Caucasian (89.7%) whilst the remainder were Black (7.7%), and Asian (2.6%) women. The majority of the women stated that they were Christian (70.5%), although there were also women of Jewish (2.6%) and Muslim (1.3%) faith. The rest of the women did not specify their religious affiliation. Analysis of the occupational status of these women indicated that the majority were in paid employment (70.5%).

None of the women were attending counselling at the RMC at the time of participation in the study. However, 10.1% of the women disclosed that they had received therapy and/or taken anti-depressant medication prior to attending the RMC. A further 6.3% of the women indicated that they had tried alternative therapies (e.g. Chinese Herbalists; Meditation; Reflexology) prior to attending the RMC.

The male participants were aged between 25 and 61 years of age, with a mean age of 37.15 (s.d. = 7.16). Like their partners, the ethnic background of the majority of the men was Caucasian (89.5%), whilst the remainder were Black (7.8%) and Asian (1.3%). Like their partners, the majority of the men also indicated that they were Christian (60%), although there were also men of Jewish (4%) faith. The rest of the men did not specify their religious affiliation. Analysis of the occupational status of these men indicated that the majority were in paid employment (96%).

The majority of the couples were married (76.3%), with the remainder primarily co-habiting. The average length of the relationship was 8.9 years (s.d. = 4.9) with a range of 1.8 to 20.3 years. The average number of miscarriages that the couples had experienced was 3.87 (s.d. = 2.27), with a range of 2 to 20 miscarriages. The average time that had elapsed since each couple's last miscarriage and their first appointment at the RMC was 6.2 months (s.d. = 2.8), with a range of 1-13 months. Just over half of the couples were childless

(56.6%). Most of the couples that had children had one child (34.2%), although the range was 1-4 children.

2.3 Design

This is a cross-sectional correlational study, examining the relationship between role and goal investment and various psychological and medical variables in couples referred to the RMC.

2.4 Measures

Participants were given a confidential questionnaire pack containing six self-report measures.. These six measures will be discussed in detail in this section.

In addition, there was a blank sheet placed at the end of the pack where participants were invited to write any comments that they had regarding either the questionnaires that they had completed or other issues that they wished to raise relating to their experience of recurrent miscarriage.

Medical and demographic information was obtained from a self-completed participant information sheet as well as from the medical records.

2.4.1 The Hospital and Depression Scale (HADS; Zigmund and Snaith, 1983)

This is a widely utilised 14 item screening questionnaire specifically developed to assess anxiety and depression in medical patients, by avoiding any reference to somatic symptoms. Each item is scored on a scale of 0-3 and yields a total score for both the anxiety (7 items) and depression (7 items) subscales ranging between 0-21.

The HADS was chosen for a number of reasons. Firstly, it is brief and takes a short time to complete and this makes it a patient-acceptable measure. Secondly, it is routinely used as a screening tool in hospital outpatient settings and it is the most commonly used measure in medical populations (Hermann, 1997). Indeed, the Department of Health has recommended it as a screening tool for psychological distress in certain medical conditions (Department of Health, 2000). Thirdly, there is research to show that it is a reliable and valid measure for detecting clinically significant anxiety and depression in medical outpatient settings (Aylard et al, 1987). Finally, it has also been used to assess distress in women following miscarriage (Prettyman et al, 1993; Tharpar and Tharpar, 1992) and recurrent miscarriage (Huchberger, 2001, Magee et al, 2003).

In line with previous research in recurrent miscarriage (Huchberger 2001; Magee et al, 2003) the aim of the current study is to use the HADS as an indication of level of psychological distress rather than to obtain a diagnosis of mood disorder per se. In the original scoring system, proposed by Zigmund and

Snaith (1983), they suggested that optimum sensitivity was attained for both the anxiety and depression subscales by distinguishing between "non-cases" (a score of 0-7), "doubtful cases" (a score of 8-10), and "definite cases" (a score of 11 or more). The current study will therefore consider scores of 8-10 as indicating 'mild' clinical anxiety or depression, and scores of 11 to 21 as indicating 'clinically significant' levels of anxiety or depression.

2.4.2 The Dyadic Adjustment Scale (DAS; Spanier, 1976; Appendix 3)

This is a widely utilised 32-item instrument that provides an overall measure of adjustment and quality of marriage or similar dyads. The DAS has four sub-scales that include: dyadic satisfaction (10 items yielding a score of 0-50); dyadic cohesion (5 items yielding a score of 0-24); dyadic consensus (13 items yielding a score of 0-65); and affectional expression (4 items yielding a score of 0-12). These subscales can be utilised individually and can also be added together to yield a total dyadic adjustment score ranging between 0-151. It is this total dyadic adjustment score that will be considered in the current study.

According to Spanier (1976) dyadic adjustment can be defined as a "process of movement along a continuum which can be evaluated in terms of proximity to good or poor adjustment." The DAS is based on this definition of dyadic adjustment and so it has no specific cut-off scores. Instead there is a continuum on which lower scores on the DAS are indicative of poorer adjustment and higher scores are indicative of good dyadic adjustment.

The DAS was chosen because it is a brief measure that takes a short time to complete and it is one of the most widely used measures of relationship adjustment (Carey et al 1993). It has also been found to be a reliable and valid measure that can discriminate between married and divorced couples, and it can also be utilised with non-married couples (Carey et al, 1993).

2.4.3 The Golombok Rust Inventory of Sexual Satisfaction (GRISS, Rust & Golombok 1986a)

This short questionnaire is a 56-item (28 items for males and 28 for females) inventory developed to assess the existence and severity of sexual problems in heterosexual relationships. The male and female versions have been shown to have high split-half reliabilities, and the GRISS has been shown to have good reliability and validity and discriminates well between those with and without sexual problems (Rust and Golombok, 1986b). It contains the following subscales: impotence; premature ejaculation; anorgasmia; vaginismus; non-communication; infrequency; male and female avoidance; male and female non-sensuality; and male and female dissatisfaction. The raw scores obtained on each of these subscales are transformed using the GRISS transformation tables that yield scores of 1-9. The authors (Rust and Golombok, 1986b) suggest that transformed scores above five are indicative of a 'problem,' although they acknowledge that a 'normal' relationship is likely to yield at least one score of five. The authors also advise that the GRISS scores should be utilised as indicators for therapy rather than for diagnostic purposes.

Scores on the sub-scales can be summarised within a two-factor solution (Rust and Golombok, 1986a), with one factor representing male dysfunction and the other female dysfunction. The authors (Rust and Golombok, 1986b) suggest that for research purposes the scores on these two factors are the most important because they have higher reliability and validity and are therefore more sensitive to differences in sexual functioning. Therefore, the current study will utilise the scores obtained on these two factors for the main analysis, although scores on the different subscales will also be reported.

2.4.4 The Roles and Goals Questionnaire (RAG; Lam and Power, 1991, Appendix 4)

This questionnaire was designed to assess an individual's investment in important roles and goals in their life. The original measure included the domains of work, most important personal relationship, general health and leisure activities, and provided the option of adding additional relevant roles and goals specific to the population being studied. This measure has previously been utilised by Magee (2000) to assess the role and goal investment in women who have experienced recurrent miscarriage. In her study, Magee added the additional domain of "becoming a parent" to the original four domains proposed by Lam and Power (1991). The current study employed the same five domains measured by Magee (2000).

For three of the five domains each participant was asked to specify his/her current occupation, the name of their hobby or interest, and the person with

whom they have the most important personal relationship. The other two domains asked about their general views on their health and their views on becoming a parent. In each domain the same five questions were posed relating to: how good the domain made them feel; how much effort they put into it; how successful they thought they would be in it; to what extent other areas of their life were dependent on success in that domain; and to what extent they thought that life would be meaningless or unhappy without that domain. Each of these five questions is rated on a four-point scale: 1 = "very little", 2 = "moderate amount", 3 = "quite a lot", and 4 = "a great deal". An involvement score can be obtained for each domain by calculating the mean of the ratings for the five questions posed. Each domain can then be ranked from highest involvement and investment to lowest. The extent of overinvestment for the first-ranked domain in comparison with the level of investment in the other domains can be obtained by calculating the difference between the score for the most highly valued domain and the mean score for the remaining domains. That is:

Risk score =	maximum domain value –
	mean of the remaining less valued domains

As in Magee's (Magee, 2000; Magee et al, 2003) study of women who have experienced recurrent miscarriage, the present study will also calculate a "parental" risk score (PRAG) by finding the difference between the score for "becoming a parent" and the mean of the remaining four domains. An 'absolute' "parental" risk discrepancy score will also be calculated by finding the difference between both partner's individual PRAG scores.

Evaluation of the RAG scale has found it to have good internal consistency and good test-retest reliability (Lam and Power, 1991). Furthermore, validity for the measure was demonstrated by correlations with established measures including the Beck Depression Inventory (Beck et al, 1961) and the short form of the Dysfunctional Attitudes Scale (Weissman and Beck, 1978).

2.4.5 The COPE Multidimensional Coping Inventory (COPE, Carver et al, 1989). This 60-item measure of coping was developed to assess the different ways in which individuals respond in stressful situations. It contains 13 scales developed on theoretical grounds and previous research findings (Carver et al, 1989). Two further scales were added later ('alcohol/drug use' and 'humour'). Each scale comprises four items that are individually rated on a scale of 1 ('I don't do this at all') to 4 ('do this a lot'). The scores for each scale range from 4 to 16, with higher scores being indicative of greater use of a particular type of coping strategy. Individual coping profiles can be derived to look at which coping strategies are used more frequently.

The COPE questionnaire has been utilised extensively within health settings (e.g. Carver et al, 1993; Hasking and Oei, 2002) and research supports a three-factor higher order structure (e.g. Hasking and Oei, 2002; Ingledew et al, 1996; Lyne & Roger, 2000). The current study will utilise this three factor higher order structure (Ingledew et al, 1996) that includes: 'problem-focused coping,' 'avoidance coping' and 'emotion-focused coping'. The subscales that loaded .50 and above on these three factors (Ingledew et al, 1996) were included in the

analysis of this study (see table 1 for summary). The six subscales that were excluded are: alcohol/drugs; religion; restraint coping; acceptance; mental disengagement; and humour.

Table 1: The COPE factors and subscales analysed in the current study

Factor	*Subscale*
Problem-Focused Coping	Active coping
	Planning
	Suppression of competing activities
	Positive reinterpretation & growth
Avoidance Coping	Denial
	Behavioural disengagement
Emotion-Focused Coping	Seeking instrumental social support
	Seeking emotional social support
	Focus on venting of emotions

The dispositional coping format (typical responses to stressors) of the COPE was utilised with respondents instructed prior to administration that the researcher was interested in their responses to their experience of recurrent miscarriage. The dispositional coping format was chosen because new patients attending the RMC have experienced recurrent pregnancy loss (i.e. a repeated source of stress) and are also continuing to experience stress in terms of the medical investigations they are about to embark on within the clinic. As a result,

it was felt that the dispositional format would be appropriate in assessing coping strategies throughout this experience of recurrent miscarriage.

2.4.6 The Significant Others Scale (B) (SOS (B), Power et al, 1988)

This short version of the scale assesses four different social support functions (two emotional and two practical) in up to seven individuals and allows the respondent to select the key individuals to be rated. Each individual is rated in terms of the 'actual' and 'ideal' amounts of emotional and practical support that they provide the respondent. Ratings are made on a seven-point scale ranging from 1 (never) to 7 (always) and thus scores can be calculated for actual and ideal levels of support, as well as the discrepancy between these. It is the discrepancy that provides an indicator of the degree of satisfaction with the available support. This discrepancy score is calculated by subtracting the 'actual' rating from the 'ideal' rating for the each of the two different types of support.

The SOS is useful in that it does not impose normative values regarding the amount of support each person should have (Power et al, 1988) and it also allows for the fact that individuals vary in the amount of support that they require from individual relationships. As such, it is a flexible measure that has been found to be reliable and valid in assessing an individual's perceived support (Power et al, 1988). Participants in the current study will vary in the number of individuals that they choose to rate (range 1-7). Therefore, in line with the SOS

scoring reported by the authors (Power et al, 1988) the mean 'actual' and 'ideal' types of support and discrepancy ratings will be utilised.

2.5 Procedure

2.5.1 Ethical Approval

Ethical approval was obtained from St. Mary's Hospital Local Research Ethics Committee (Appendix 1). The research was also reviewed and approved by the London West Mental Health Research and Development Consortium (Appendix 2).

2.5.2 Study recruitment and procedures

Two weeks prior to their initial appointment at the RMC, women were sent a letter containing a covering letter (Appendix 5) and a patient information sheet (Appendix 6) explaining the purpose and nature of the study. It was explained that they were being sent information about the study in order to give them time to discuss and consider participation in the study with their partner. It was also explained that prior to their appointment in the RMC the researcher would try to contact them by phone to discuss the study with them and give them an opportunity to ask any further questions. They were informed that they would not be asked to make a decision regarding participation in the study at that point. Finally, it was explained that should the researcher be unable to get in contact with them (e.g. because there were no telephone contact details), they would be approached in the RMC when they attended their first appointment. Contact

telephone numbers for the researcher and the supervisor were also provided so that patients had the choice of getting in contact with the researcher themselves.

On arrival in the clinic new patients and their partners were approached and given the opportunity to discuss the nature of the study further. They were informed that the purpose of the study was to gain an idea about the way in which the experience of recurrent miscarriage may affect couples from a psychological perspective, so that this might inform service provision. It was explained that participants would be asked to complete a questionnaire pack on one occasion only and that this would not necessitate any additional hospital visits. The personal and intimate nature of some of the questionnaires was highlighted and explained. They were informed that their medical care and management would not be affected by their decision regarding whether or not to participate in the study. They were also assured that, should they so wish they would be able to change their mind regarding participation at any time. Finally, they were also informed that whilst responses on the questionnaires would be confidential, an information leaflet regarding the study (Appendix 7) would be sent to each female participant's General Practitioner.

Those couples who decided to participate were given a patient information and consent form to read and sign (Appendix 6). A copy of this consent form was placed in their medical records.

Although the majority of the women attending the RMC for their first appointment came with their partner, there were some women whose partners did not attend. These women, who were attending on their own and were interested in participating in the study, were given an information and consent form together with a questionnaire pack to discuss with their partner at home. Once again, the researcher's contact details were provided so that she could be contacted with any questions that the partner might have.

It had originally been hoped that the researcher would have a dedicated room within the RMC in which participants could sit and complete the questionnaire pack in the presence of the researcher. Unfortunately, this room was not available. Furthermore, the clinic waiting area was found to be a very busy environment with new couples having to see various health professionals (e.g. sonographers; nurses; doctors; phlebotomists) throughout the morning clinic. As a result, participants were offered two options. One option was for them to complete the questionnaire pack in the clinic and return it to the researcher. The other option was to start the questionnaire in clinic, and then complete it at home and return it in the stamped addressed envelope provided. Once again, the researcher's contact details were provided so that participants completing questionnaires at home could get in contact should any queries or issues arise whilst completing the pack.

A sheet was attached to the back of the questionnaire pack on which participants could indicate whether or not they wished to be sent brief individual

feedback letters regarding their own completed questionnaires (Appendix 9). Couples had the choice of either individual or joint feedback letters. Joint feedback letters were only sent if both partners consented to this.

Participants wishing to have feedback and who also had 'clinically significant' scores on the anxiety and/or depression scale of the HADS, were sent an additional letter stating that the researcher would try to contact them by phone to see whether they felt they needed any further support at the current time. This letter was followed up with phone contact and the individual needs were discussed. Individual appointments were offered to individuals who wished to discuss their needs further. Phone consultations were provided in those cases where geographical constraints precluded the option of an individual appointment. Where appropriate, a St. Mary's Hospital booklet on the psychological aspects of recurrent miscarriage (St. Mary's Hospital) was also provided. In some cases permission was sought from the participant to write to their General Practitioner and/or RMC Consultant to inform them of the psychological difficulties that they were experiencing and/or requesting a referral to local mental health services. This follow-up activity is summarised in table 2 overleaf.

Table 2: Follow-up of participants who requested feedback and whose responses on the HADS questionnaire were in the 'clinically significant' range.

Follow-up Activity	*Number of Participants*
No response to contact initiated by researcher	12
No further input requested (i.e. managing on own or with sufficient support from local services)	12
Extended phone consultation	4
Extended RMC clinic consultation	5
Individual appointment arranged with researcher	5
Booklet on the 'Psychological impact of Recurrent Miscarriage' provided	10
Consent given for letter to be sent to GP / RMC Consultant	9

3. Results

3.1. Overview

The Results chapter is divided into five main sections. The first section contains a detailed description of the sample, including the descriptive statistics for each of the measures completed by the participants. Sections two to four contain the main research findings. Finally, some additional comments and issues highlighted by participants on the sheet at the end of their questionnaire packs are briefly presented in section five.

The main research findings, in sections two to four, are presented in the following sequence. Section two initially looks at various background variables in relation to each of the measures used in the study, in order to identify the necessary background variables to be controlled for throughout the ensuing analyses. The remainder of section two looks firstly at the independent relationship between coping and emotional distress[1], followed by an examination of the relationship of dyadic and sexual functioning and emotional distress. The purpose of this will be to look at whether coping, dyadic and sexual functioning each have a relationship with emotional distress, that is independent of PRAG (relative investment in 'becoming a parent').

[1] 'Emotional distress' refers to anxiety and/or depression as measured on the HADS.

Section three looks initially at the relationship between female and male PRAG and coping, as well as dyadic and sexual functioning. This is followed by exploration of the relationship between PRAG and emotional distress, whilst controlling for mediating variables (coping, dyadic and sexual functioning), social support and relevant background variables. The purpose of this analysis is to look at whether, as predicted, there is a relationship between PRAG and emotional distress, and whether this relationship is mediated by coping, dyadic and sexual functioning. In order to examine the likely moderating role of social support in amplifying or attenuating the effects of PRAG, coping, and dyadic and sexual functioning, in relation to emotional distress, interactions between social support and these variables will also be explored in section three.

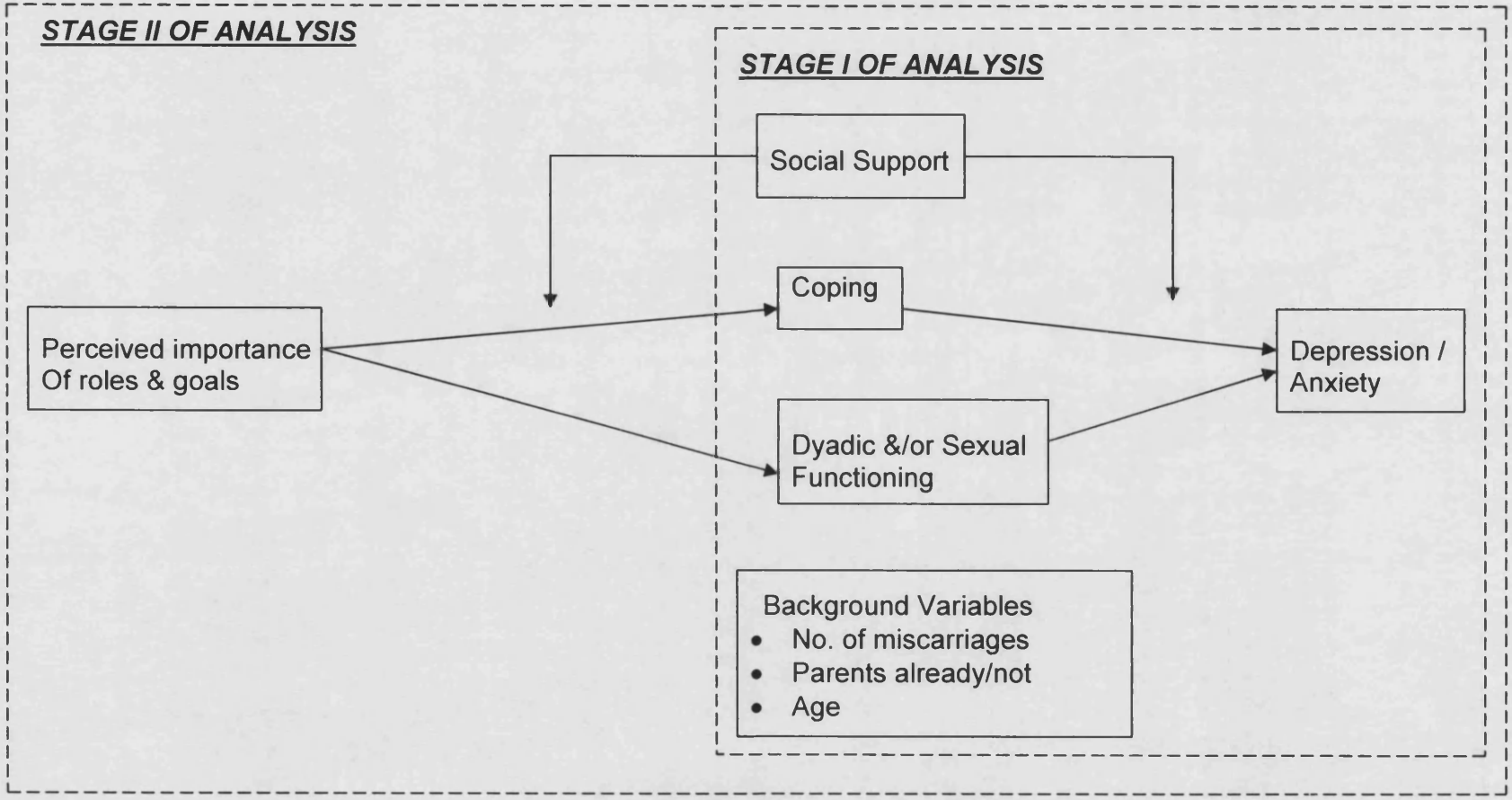
Throughout section two and three, female and male variables will be examined in separate analyses. However, section four will consider the link between female and male PRAG, by looking at the discrepancy between partners' PRAG scores in relation to emotional distress, whilst also controlling for the mediating, social support and background variables.

This plan for the analysis is illustrated in the three stages of analysis depicted in Figure 4. Sections two, three and four of the results map directly on to the 3 stages of analysis shown in figure 4. Thus section two of the results corresponds to "stage I" of the analysis, in which the relationship between coping, dyadic and sexual functioning, in relation to emotional distress, is explored. Section three of the results corresponds to "stage II" of the analysis, in

which the relationship between PRAG and coping, dyadic and sexual functioning is explored prior to looking at the relationship between PRAG and emotional distress. Section four of the results corresponds to "stage III" of the analysis, in which the relationship between the *discrepancy* between partners' PRAG scores and emotional distress is explored, whilst controlling for all the other variables.

Figure 4: Plan for the statistical analysis

STAGE III OF ANALYSIS:
Discrepancy / Mismatch in relative investment in roles & goals within the couple



3.1.1 Data Preparation

All the variables were checked for accuracy of data entry, missing values, and distributions before the analysis was begun. Missing values were not replaced. Skewness and kurtosis were reduced by transformation of data where necessary, so as to meet the assumptions of parametric/multivariate analysis (Tabachnick and Fidell, 1996).

Male anxiety and depression scores, male and female social support discrepancy scores, and the discrepancy between both partners' individual PRAG scores, were skewed and required square-root transformations. These variables subsequently met the assumptions of normality. In order to allow for comparison, the women's anxiety and depression scores were also square-root transformed.

Male and female dyadic adjustment scores were skewed and were reflected prior to being square-root transformed. They subsequently met the assumption of normality.

The GRISS total scores and the cope avoidance scores were skewed for both men and women and required logarithmic transformations to meet the assumptions of normality.

The relative investment scores for 'becoming a parent' (RPRAG) for both women and men were skewed. There was one outlier score among the female PRAG scores and, according to Tabachnick and Fidell (1996), this outlier was recoded to one score below the next lowest score on RPRAG (i.e. recoded from -1.65 to -1.10). However, the distribution remained skewed, and both male and female PRAG needed to be reflected prior to square-root transformation. They subsequently met the assumptions of normality.

The number of miscarriages variable and the age of male partners were both skewed. The number of miscarriages variable had one outlier score that was recoded, according to Tabachnick and Fidell (1996), to one score above the next highest score (i.e. recoded from 20 to 10). However, the distribution remained skewed. Square-root and logarithmic transformations did not bring the distribution of these two variables to normal, therefore non-parametric tests were utilised in the analysis of these variables.

3.1.2 Participant Information

Of the 80 couples included in the study, 39 (49%) completed their questionnaires whilst at the RMC clinic for their first appointment. The remaining 41 (51%) couples completed the questionnaires at home and returned them by post.

Of the 109 couples who decided not to participate in the study, specific reasons were given by 50 (46%). These reasons are summarised in table 3, and indicate

a range of reasons given for non-participation. Interestingly, of the reasons given, nearly 30% (15 women/couples) relate to personal relationship issues such as the male partner not being interested or available, or general relationship difficulties.

Table 3: Reasons given for not participating in the study

Reason stated	*Number of Couples*
Male partner not interested/unavailable	13
Relationship problems / couple separated	2
The research is of an intimate nature	2
Recent life events / other losses	3
Wanting to focus on medical investigations	8
Not interested in participating in research	16
Not wanting GP to be informed about participation	1
Being a re-referred patient (i.e. not the first time at the clinic)	5

No specific reason was obtained for the non-participation of the remaining 59 couples (54%). These 59 couples had expressed interest in participation when approached by the researcher in the RMC clinic and had been given questionnaire packs to complete which they had taken home with them. However, as indicated in the patient information sheet and consent form (Appendix 14), the couples had been assured that, should they so wish, they would be able to change their mind regarding participation at any time. Since the

decision not to participate was taken once they had left the clinic and not in the presence of the researcher, it was not possible to ascertain the reason(s) for their eventual decision not to participate. This large unexplained drop-out rate will be returned to in the discussion chapter. However, it is nevertheless important to bear in mind that the 42% return rate of questionnaires in the current study is in line with the typical response rates of 30-60% for postal return questionnaires (Viljoen & Wolpert, 2002).

3.1.3 Descriptive analysis of the sample

3.1.3.1 Mood

Mean ratings of mood as measured by the Hospital Anxiety and Depression Scale (HADS) were calculated for the sample and are shown in Table 4. This shows that there was a large range in the responses given.

Table 4: Scores on the HADS for the recurrent miscarriage sample.

HADS Subscale	***Women (Identified Patient) (N=78)***			***Men (Patient's Partner) (N=75)***		
	Mean	**SD**	**Range**	**Mean**	**SD**	**Range**
Anxiety	8.93	4.59	0-19	5.49	3.89	0-17
Depression	4.72	3.41	0-15	3.16	3.04	0-15

The levels of distress of the 78 female participants as measured by the HADS were examined. Using the suggested cut-off score of 8-10 (Zigmond and Snaith,

1983), 45 (57.9%) women met the borderline level of clinical anxiety and 16 (20.5%) met the borderline level of clinical depression. Using the more stringent cut-off of 11 or more to indicate "definite cases," 29 (37.2%) women scored within the clinical range for anxiety and 3 (3.8%) for depression.

The levels of distress of the 75 male participants as measured by the HADS were also examined and 21 (28%) met the borderline level of clinical anxiety, and 6 (8%) met the borderline level of clinical depression, when a cut-off score of 8-10 was used. Using the more stringent cut-off of 11 or more, 9 (12%) men scored within the clinical range for anxiety and 2 (2.7%) for depression.

A paired samples t-test confirmed that the difference in the level of distress between women and their male partners was significant for both anxiety, $t(72)= -5.92$, $p=.001$, and depression, $t(72) = -3.21$, $p=.002$.

3.1.4.2 Dyadic Functioning

All the participants completed the Dyadic Adjustment Scale (DAS). However, 3 women and 3 men chose not to complete the Golombok-Rust Inventory of Sexual Satisfaction (GRISS) because of the intimate nature of the questionnaire. Mean ratings of dyadic functioning as measured by the DAS and the GRISS were calculated for the sample and are shown in table 5. This shows that there was a large range in the responses given.

As previously stated, the DAS does not have any specified cut-off scores because it sees dyadic adjustment as a process that moves along a continuum (Spanier, 1976). However, the mean DAS total score for divorced couples (70.7, s.d. = 23.8) and for married couples (114.8, s.d. = 17.8) that was reported by Spanier (1976), would suggest that couples with DAS total scores of 94.5 and below are likely to be currently experiencing poor adjustment. Using this figure as a tentative and exploratory cut-off score, 8 women (10.3%) and 9 (12%) men could be identified as currently experiencing 'poor adjustment' in their relationship. A paired samples t-test showed that there was no statistically significant difference between the DAS scores of the women and their male partners.

Table 5: Scores on the DAS and GRISS for the recurrent miscarriage sample.

Dyadic Measure & Subscales	*Women (Identified Patient)*			*Men (Patient's Partner)*		
	Mean	**SD**	**Range**	**Mean**	**SD**	**Range**
DAS		(N=78)			(N=75)	
Consensus	49.18	8.72	2-63	48.02	8.98	3-63
Satisfaction	39.39	6.13	17-49	40.45	5.25	28-49
Cohesion	15.97	4.29	4-24	16.53	3.67	8-23
Affectional Expression	8.65	2.15	2-12	8.68	2.51	2-12
Total	113.21	16.19	63-142	113.83	15.52	66-144
GRISS		(N=75)			(N=72)	
Infrequency	4.92	1.79	1-9	4.69	1.76	1-9
Non-Communication	3.83	1.64	1-7	3.71	1.68	1-8
Dissatisfaction	2.47	1.32	1-6	2.46	1.77	1-9
Avoidance	3.48	1.76	1-7	2.55	1.6	0-6
Non-Sensuality	3.83	1.64	1-7	2.86	1.99	1-7
Vaginismus	3.04	1.94	0-8	N/A	N/A	N/A
Anorgasmia	3.15	1.11	1-6	N/A	N/A	N/A
Impotence	N/A	N/A	N/A	2.64	1.52	1-6
Premature Ejaculation	N/A	N/A	N/A	3.72	1.64	1-8
Overall 'Dysfunction'	2.23	1.50	1-6	3.08	1.78	1-8

The existence and severity of sexual problems, as measured by the GRISS was examined using the authors' (Rust and Golombok, 1986b) suggestion that whilst scores above 5 are indicative of a 'problem,' a 'normal' relationship would be expected to yield at least one score of 5. Therefore a cut-off score of 6 was utilised as an indicator of the existence of a sexual 'problem' and the frequency of reported difficulties are summarised in table 6 overleaf. It is important to note that the existence of sexual 'problems' on the GRISS is not intended to be interpreted as a diagnosis of a major sexual dysfunction, but rather as an indication for the possible need for therapy.

From table 6 one can see that using the stringent cut-off score of 6, a range of sexual 'problems' were identified on the GRISS. However, only 1 woman (1.3%) and 4 men (5.3%) indicated 'significant dissatisfaction', as measured by the GRISS, with their overall sexual relationship.

When all the GRISS subscales are summarised within the two factor solution (Rust and Golombok, 1986a) representing female and male dysfunction, there are 2 women (2%) and 8 men (11.1%) with 'significant dysfunction' as indicated on the GRISS. A paired samples t-test confirmed that this difference between female and male 'dysfunction' was statistically significant, $t(68) = -4.75$, $p = .001$.

Table 6: Frequency of sexual 'problems' (scores of 6≥) indicated on the GRISS.

GRISS Subscales	*Women with scores of 6≥ (Identified Patient) (N=75)*		*Men with scores of 6≥ (Patient's Partner) (N=72)*	
	Frequency	**Percent**	**Frequency**	**Percent**
Infrequency	9	12	21	28
Non-Communication	10	13.3	10	13.9
Dissatisfaction	1	1.3	4	5.3
Avoidance	12	16	5	6.7
Non-Sensuality	19	25.3	12	16.7
Vaginismus	11	14.7	N/A	N/A
Anorgasmia	3	4	N/A	N/A
Impotence	N/A	N/A	4	5.5
Premature Ejaculation	N/A	N/A	10	13.9
Overall 'Dysfunction'	2	2.67	8	11.1

3.1.4.3 Coping

One woman and two men did not complete the COPE questionnaire utilising the specified rating scale and so their responses on this questionnaire were not valid and were not included in the analysis. Mean ratings for the three factors of 'problem-focused,' 'emotion-focused' and 'avoidance' coping were calculated for the sample and are reported in table 7 overleaf.

From table 7 one can see that on average, women and men appeared to be using comparable levels of 'problem-focused' and 'avoidance' coping, as measured on the COPE. One can also see that, on average, there appeared to be a difference between women and men in the amount of 'emotion-focused' coping that they reported on the COPE. The mean score for 'emotion-focused' coping was 35.75 for women and 24.11 for men, indicating that women reported more 'emotion-focused' coping than men. A paired samples t-test confirmed that this difference in 'emotion-focused' coping between women and their male partners was statistically significant, $t(69) = 10.98$, $p=.001$. There was no statistically significant difference between women and their partners on 'problem-focused' and 'avoidant' coping.

Table 7: Scores on the COPE for the recurrent miscarriage sample.

COPE Factors	***Women (Identified Patient) (N=77)***			***Men (Patient's Partner) (N=73)***		
	Mean (Median)	**SD**	**Range**	**Mean (Median)**	**SD**	**Range**
Problem-focused coping	44.74 (44)	7.97	29-63	43.30 (44)	9.00	19-63
Emotion-focused coping	35.75 (37)	7.22	17-48	24.11 (24)	7.29	12-40
Avoidance coping	11.86 (11)	3.18	8-20	11.05 (10)	3.05	7-20

3.1.4.4 Social Support

All the female participants completed the Significant Others Scale (SOS), however one woman only rated the 'actual' level of support that she received and did not rate the 'ideal' level of support that she would like, and her SOS scores were therefore not included. Two men did not complete the SOS, and a third man only rated the 'actual' level of support that he received and not the 'ideal' level of support he would like and so his SOS scores were not included. Mean ratings for 'actual' and 'ideal' emotional and practical support were calculated, together with the mean discrepancy score for each type of support. These are summarised in table 8. From this table one can see that the discrepancies for emotional and, in particular, practical support appear to be somewhat higher for women than for men. However, a paired samples t-test indicated that this difference was not statistically different.

Table 8: Scores on the SOS for the recurrent miscarriage sample.

SOS Types of Support	***Women (Identified Patient) (N=77)***			***Men (Patient's Partner) (N=72)***		
	Mean	**SD**	**Range**	**Mean**	**SD**	**Range**
Discrepancy Emotional	1.29	1.28	-1.6-6.29	1.08	1.31	-3.7-5.29
Discrepancy Practical	1.39	1.42	-0.6-6.75	0.89	1.05	-1.1-4.71

Inter-correlations

The relationship between the SOS discrepancy emotional and practical variables for men and women were examined, using a Pearson's product-moment correlation. The SOS discrepancy emotional and practical variables were found to be significantly correlated with one another for both women ($r = .78$, $p < 0.01$) and men ($r = .71$, $p < 0.01$), indicating that high discrepancy between 'ideal' and 'actual' levels of support on one factor was associated with high discrepancy on the other factor.

Since the SOS discrepancy emotional and practical variables were found to be so highly correlated with one another, for both women and men, it was felt appropriate to combine the scores for these two variables into one variable for each sex. This combined variable was labelled 'social support,' and was utilised throughout the remainder of the analysis. From this point onwards, "*high* social support" will be used to refer to *small* discrepancy scores between perceived levels of social support, and "*low* social support" will be used to refer to *large* discrepancy scores.

3.1.4.5 Roles and Goals

The mean "parental" risk score (i.e. PRAG – the *relative* investment in the role of becoming a parent compared to other roles/goals) was calculated by finding the difference between the investment score for "becoming a parent" and the mean of the remaining four domains. The mean PRAG score for women was 0.38 (s.d. = 0.54), whilst for men it was 0.22 (s.d. = 0.55), indicating slightly higher relative

investment levels for women compared to men. However, a paired samples t-test indicated that this difference was not statistically different.

3.2 Stage I of the Analysis

In this section the correlation between background variables and 1) coping, 2) dyadic and sexual functioning, 3) PRAG, and 4) emotional distress, will be examined first, in order to identify the relevant background variables to control for in the following stages of the analysis.

The specific background factors considered in the analysis were: the number of miscarriages experienced; the time that had elapsed since the most recent miscarriage (in months); whether or not the couple had children already; participants' age (male and female); and length of each couple's relationship (in years and months).

Following this, two specific relationships will then be analysed further using hierarchical regression analysis. These are namely, the relationship between coping and emotional distress, and the relationship between dyadic/sexual functioning and emotional distress. The purpose of this analysis will be to see whether coping and dyadic and sexual functioning account for a significant amount of the variance in female and male emotional distress, independently of PRAG.

3.2.1 The relationship between specific background variables

Using a Spearman's rho correlation, male and female age were found to be significantly correlated ($r = .64$, $p<0.01$).

3.2.2. Background variables in relation to coping

Using a Pearson's product-moment correlation, female age was found to be significantly positively correlated with male problem ($r = .35$, $p<0.01$) and emotion focused ($r = .31$, $p<0.01$) coping, and significantly negatively correlated with female avoidance coping ($r = -.39$, $p<0.01$). This indicates that the partners of older women in the sample were using higher levels of problem and emotion focused coping compared to partners of younger women. The older women were themselves using less avoidance coping than younger women in the sample.

Using Spearman's rho correlation, male age was significantly positively correlated with male emotion-focused coping ($r = 0.34$, $p<0.01$), indicating that older men were using more emotion-focused coping.

3.2.3 Background variables and dyadic and sexual functioning

There was one significant correlation between background and dyadic variables. Using a Spearman's rho correlation, the relationship between female dyadic adjustment and number of miscarriages was found to be significantly negatively correlated ($r = -.32$, $p< 0.01$), indicating that high female dyadic adjustment was associated with having experienced a smaller number of miscarriages.

3.2.4 Background variables in relation to PRAG

The only significant correlation was between having children/not having children and male PRAG ($r = .339$, $p<0.01$). This indicates that having children was associated with higher *relative* investment in 'becoming a parent' for men.

3.2.5 Background variables in relation to emotional distress

No significant correlations were found.

3.2.6 Summary regarding background variables

On the basis of these correlations, it was felt that the number of miscarriages experienced, having or not having children, and participant age, were background variables that should be controlled for in the subsequent regression analyses. The remainder of the background variables were not considered further.

Having checked for these possible confounding relationships, we now turn to the main hypotheses of the current study.

3.2.7 The relationship between coping and emotional distress

Hierarchical regression analysis was used to see whether type of coping was predictive of levels of anxiety and depression, independently of PRAG. Male coping and emotional distress were analysed separately from female coping and emotional distress. The coping variables were entered in block two of the analysis, whilst background variables (i.e. number of miscarriages, having

children or not and age) and social support were controlled for. The regression results are summarised in table 9 and discussed below.

Table 9: Summary of hierarchical regression analysis for coping, social support and background variables in relation to anxiety and depression.

	Female Anxiety		***Female Depression***		***Male Anxiety***		***Male Depression***	
Regression statistics	**R^2**	**β**	**R^2**	**β**	**R^2**	**β**	**R^2**	**β**
BLOCK ONE	.089		.134		.014		.040	
Age•		-223		-.230		-.004		-.024
Miscarriages		.090		.006		-.118		-.111
Child/No Child		.101		.101		.011		-.048
Social Support•		.086		.246*		.007		.150
BLOCK TWO	.175**		.080		.157**		.089	
Coping•:								
Problem-focus		.001		.010		-.210		-.100
Emotion-focus		.330**		-.20		.205		.035
Avoidance		.328**		.317**		.313*		.277*

Note * Correlation is significant at p<0.05 (2-tailed)
** Correlation is significant at p<0.01 (2-tailed)
• Refers to female scores for female emotional distress and male scores for male emotional distress.

Female coping and female anxiety

From table 9 one can see that the R^2 change in block two is statistically significant (R^2=.175, $p<0.01$) indicating that coping accounted for a significant proportion of the variance in female levels of anxiety. Two of the three types of coping had unique significant positive relationships to female anxiety. These were emotion-focused and avoidance coping, indicating that after controlling for background variables and social support, higher use of these two types of coping by women was associated with higher levels of anxiety in women.

Female coping and female depression

From table 9 one can see that coping did not significantly account for the variance in female depression scores (i.e. R^2 change was not significant). However, having controlling for background variables, female avoidance coping was found to have a unique significant positive relationship to female depression, showing that women with higher levels of depression were using more avoidance coping than women with lower levels of depression. Female 'social support' also had a unique significant positive relationship with depression, indicating that low levels of support (i.e. a large perceived discrepancy) by women was associated with higher levels of depression.

Male coping and male anxiety

As can be seen from the R^2 change in table 9, after controlling for background and social support variables, a statistically significant proportion of the variance in male levels of anxiety was accounted for by the type of coping utilised by men

(R^2 = .157, $p<0.01$). Avoidance coping had a unique significant positive relationship to male anxiety, indicating that higher levels of male avoidance coping were associated with higher levels of male anxiety.

Male coping and male depression

Similar to women, coping did not significantly account for the variance in male depression scores. However, from table 9 one can see that male avoidance coping had a unique significant positive relationship to male depression, indicating that higher levels of male depression were associated with higher levels of male avoidance coping.

3.2.8 The relationship between dyadic and sexual functioning and emotional distress

As with the coping variables, hierarchical regression analysis was utilised to see whether dyadic and/or sexual functioning were associated with anxiety and depression, independently of PRAG. As previously described, male and female variables were analysed separately and background variables and social support were controlled for. Dyadic and sexual functioning variables were entered in block two of the analysis. The regression results are summarised in table 10 and are discussed below.

Table 10: Summary of hierarchical regression analysis for dyadic and sexual functioning, social support and background variables in relation to anxiety and depression in females and males.

	Female Anxiety		*Female Depression*		*Male Anxiety*		*Male Depression*	
Regression statistics	R^2	β	R^2	β	R^2	β	R^2	β
BLOCK ONE	.058		.111		.011		.064	
Age•		-.172		-.152		.037		.036
Miscarriages		.078		-.048		-.079		-.086
Child/No Child		.048		.074		-.037		-.085
Social Support•		.114		.273*		-.001		.207
BLOCK TWO	.153**		.118**		.182**		.235**	
Dyadic Adjustment• (DAS total)		-.413**		-.356**		-.394**		-.519**
Sexual Functioning• (GRISS Total)		.036		.045		.098		-.040

Note * Correlation is significant at p<0.05 (2-tailed)
** Correlation is significant at p<0.01 (2-tailed)
• Refers to female scores for female emotional distress and male scores for male emotional distress.

Female and Male dyadic and sexual functioning and emotional distress

From table 10 one can see that, having controlled for background and social support variables, a statistically significant proportion of the variance in female levels of anxiety (R^2=.153, p<0.01) and depression (R^2=.118, p<0.01), as well as male levels of anxiety (R^2=.182, p<0.01) and depression (R^2=.235, p<0.01), was accounted for by dyadic adjustment. For both sexes, dyadic adjustment was significantly negatively associated with levels of anxiety and depression. This indicates that for both sexes, higher levels of dyadic adjustment were associated with lower levels of anxiety and lower levels of depression. Sexual functioning was not significantly associated with female or male anxiety and depression.

3.2.9 Summary of Stage I findings

Several significant relationships were found in this stage of the analysis.

Firstly, avoidance coping was significantly positively associated with both male and female emotional distress. This indicates that as use of avoidance coping increased so did emotional distress. Similarly, female emotion-focused coping was significantly positively associated with female anxiety, indicating that higher levels of female emotion-focused coping were associated with higher levels of female anxiety. However, emotion-focused coping did not have a significant relationship with female depression or with male depression and anxiety.

Secondly, as predicted, dyadic adjustment was significantly negatively associated with both male and female emotional distress. This indicates that

lower levels of dyadic adjustment were associated with higher levels of emotional distress. However, contrary to the study predictions, sexual functioning was not significantly associated with emotional distress.

Finally, social support was only found to have a significant independent positive association with female depression, indicating that low social support (i.e. high discrepancy in perceived levels of 'ideal' versus 'actual' support) was associated with higher levels of depression. After controlling for the other variables, none of the background variables were significantly related to emotional distress.

3.3 Stage II of the Analysis

In this section the relationship between perceived importance of life roles and goals (i.e. PRAG – *relative* investment in the role/goal of 'becoming a parent' to other roles/goals) and coping, dyadic and sexual functioning, and emotional distress will each be examined in turn using hierarchical regression analysis. Male variables are analysed separately from female variables. The purpose of this analysis is to examine whether, as predicted, PRAG is associated with emotional distress, and to look at the effect that coping, dyadic and sexual functioning may have on that relationship.

3.3.1 The relationship between PRAG and coping

The first step in this stage of the analysis was to explore the relationship between PRAG and coping. Background variables and social support were controlled for and the PRAG variable was entered into block two. The three types of coping were entered separately as the dependent variable. The results are presented in table 11.

Female PRAG and coping

From table 11 one can see that the change in R^2, in block two, was not significant, indicating that PRAG did *not* explain a statistically significant proportion of the variance in female coping. However, the background variables and social support entered into block one did account for 21% of the variance in female avoidance coping. Bearing in mind the univariate correlations previously reported in the second section of the results, it is not surprising that female age

had a significant independent relationship to female avoidance coping (β = .328, $p<0.01$).

Male PRAG and coping

As can be seen from table 11, PRAG did *not* predict a significant amount of the variance in coping for male participants either (i.e. the change in R^2 was not significant). It should be noted that the relationship between PRAG and male problem-focused coping (see footnote 2) approached significance, suggesting the possibility that a significant relationship might be found given a larger sample. Nevertheless, this finding should be treated with caution.

The background variables and social support entered into block one, accounted for 23.9% of the variance in male emotion-focused coping. As previously found in the univariate correlations summarised in section two of the results, male age had a significant independent relationship with male emotion-focused coping (β = ,339, $p<0.01$).

Table 11: Summary of hierarchical regression analysis for PRAG together with social support and background variables in relation to the three types of coping in female and males.

	Female Problem Coping		***Female Emotion Coping***		***Female Avoid Coping***		***Male Problem Coping***		***Male Emotion Coping***		***Male Avoid Coping***	
Regression Statistics	**R^2**	**β**	**R^2**	**β**	**R^2**	**β**	**R^2**	**β**	**R^2**	**β**	**R^2**	**β**
BLOCK ONE	.072		.026		.210**		.137		.239**		.085	
Age•		.153		.117		-.328**		-.234		.339**		-.035
Miscarriages		-.128		-.025		.221[2]		-.140		-.227		.145
Child/None		.153		-.095		.113		.236		-.130		.073
Soc. Support•		.081		.056		-.009		-.089		.134		-.219
BLOCK TWO	.017		.000		.025		.054[2]		.017		.013	
PRAG		-.159		-.021		.189		-.265[2]		-.148		.129

Note * Correlation is significant at p<0.05 (2-tailed) ** Correlation is significant at p<0.01 (2-tailed)
• Refers to female scores for female emotional distress and male scores for male emotional distress.

[2]These figures approached significance.

3.3.2 The relationship between PRAG and dyadic and sexual functioning

The second step in this second stage of the analysis was to look at the relationship between PRAG and dyadic and sexual functioning. Background variables and social support, were controlled for, and the PRAG variable was entered into block two of a hierarchical regression analysis. The dyadic adjustment variable and the sexual functioning variable were entered separately as the dependent variable. The results are discussed below and presented in table 12 overleaf.

Female PRAG and dyadic adjustment and sexual functioning

From table 17 one can see that female PRAG did *not* account for a significant proportion of the variance in female dyadic or sexual functioning (i.e. R^2 change was not significant). However, the background variables and social support entered into block one did account for a significant amount of the variance in female dyadic adjustment (16.4%) and female sexual functioning (16.6%).

Several variables in block one had significant independent relationships with female dyadic adjustment (i.e. number of miscarriages and social support) and female sexual functioning (i.e. female age and social support).

Table 12: Summary of hierarchical regression analysis for PRAG together with social support and background variables in relation to dyadic adjustment and sexual functioning in females and males.

	Female Dyadic Adjustment		***Female Sexual Functioning***		***Male Dyadic Adjustment***		***Male Sexual Functioning***	
Regression statistics	**R^2**	**β**	**R^2**	**β**	**R^2**	**β**	**R^2**	**β**
BLOCK ONE	.164**		.166**		.092		.035	
Age•		-.176		.274*		-.057		-.010
Miscarriages		-.291**		.019		-.085		-.048
Child/No Child		-.022		-.052		.086		-.125
Social Support•		-.302**		.339**		-.271*		.113
BLOCK TWO	.000		.007		.363		.008	
PRAG		.011		.099		-.128		.105

Note * Correlation is significant at $p<0.05$ (2-tailed)
** Correlation is significant at $p<0.01$ (2-tailed)
• Refers to female scores for female emotional distress and male scores for male emotional distress.

Male PRAG and dyadic adjustment and sexual functioning

Similarly, male PRAG did *not* account for a significant proportion of the variance in dyadic and sexual functioning (i.e. R^2, change was not significant). Only one of the variables in block one of the analysis had a unique significant negative relationship with male dyadic adjustment, and that was social support.

3.3.3 The relationship between PRAG and emotional distress

The third step in this stage of the analysis was to look at the whole model outlined in figure 4, in order to look at whether PRAG (i.e. *relative* investment in becoming a parent compared to other life roles/goals), as hypothesised, is associated with anxiety and depression in women and men. A further aim was to look at whether the previously reported relationships of coping, and dyadic and sexual functioning, with emotional distress, were independent of one another. This was done by controlling for the coping, dyadic and sexual functioning variables, along with background variables (i.e. number of miscarriages, having children or not and age) and social support, whilst entering the PRAG variable into block two of the hierarchical regression analysis. The results are presented and discussed below.

As can be seen from the summary of the regression results in table 13, PRAG did *not* account for a significant amount of the variance of female or male anxiety and depression (i.e. R^2 change was not significant), and did *not* independently correlate with levels of anxiety or depression (I.e. β was not significant). Furthermore, additional regression analysis looking at the direct relationship between PRAG and anxiety and depression (i.e. without the coping and dyadic/sexual functioning variables) in women and men was also *not* significant. Thus PRAG (i.e. *relative* investment in becoming a parent compared to other life roles/goals) did *not* predict anxiety or depression in either women or men as had been hypothesised.

However, from table 13 one can see that the remaining variables entered in block one of the analysis accounted for a statistically significant amount of the variance in female anxiety (R^2 = 0.322, $p<0.01$) and depression (R^2 = 0.260, $p<0.05$), and male anxiety (R^2 =0.306, $p<0.05$) and depression (R^2 =0.318, $p<0.01$).

Only two variables in block one had independent statistically significant relationships with anxiety and depression. The main variable that was independently significantly negatively associated with both male and female levels of anxiety and male depression was dyadic adjustment. This indicates that higher levels of dyadic adjustment were associated with lower levels of anxiety and depression for men and lower anxiety for women, independently of type of coping used. Dyadic adjustment and female depression were *not* independently significantly associated, although this relationship did approach significance, suggesting the possibility that this might be significant given a larger sample size. Nevertheless, this figure needs to be treated with caution.

The other variable with a statistically significant relationship was female emotion-focused coping with female anxiety, indicating that higher levels of anxiety were associated with higher levels of emotion-focused coping, independently of dyadic adjustment.

Table 13: Summary of hierarchical regression analysis for PRAG, together with mediating variables (dyadic and sexual functioning and coping), social support and background variables in relation to anxiety and depression.

	Female Anxiety		***Female Depression***		***Male Anxiety***		***Male Depression***	
Regression statistics	**R^2**	**β**	**R^2**	**β**	**R^2**	**β**	**R^2**	**β**
BLOCK ONE	.322**		.260*		.306*		.318**	
Age•		-.201		-.163		.027		.042
Miscarriages		-.062		-.150		-.118		-.138
Child/No Child		.056		.019		.013		-.080
Social Support•		.016		.216		-.051		.114
Dyadic Adjustment•		-.330*		-.275[3]		-.390**		-.471**
Sexual Functioning•		.032		.048		.110		-.032
Coping: •								
Problem-focus		.049		.046		-.192		-.107
Emotion-focus		.302**		-.058		.131		-.013
Avoidance		.190		.180		.087		.055
BLOCK TWO	.001		.006		.015		.000	
PRAG •		.036		-.093		.144		.009

Note * Correlation is significant at p<0.05 (2-tailed)
** Correlation is significant at p<0.01 (2-tailed)
• Refers to female scores for female emotional distress and male scores for male emotional distress.

[3] This figure approached significance.

3.3.4 Interactions between social support and PRAG, coping and dyadic variables.

In order to examine the hypothesis that social support may play an important moderating role in amplifying or attenuating the effects of goal investment, coping, and dyadic and sexual functioning, in relation to emotional distress, interactions were computed for social support and each of the four key variables. A total of four hierarchical linear regression analyses were carried out (two for female variables and two for male variables). In each of these the main effects were entered in the first block, and the interactions in the second. The significance of the interactions was thus determined by the significance of change in R^2 between the two blocks. In none of these four these regressions was a significant amount of the variance in the dependent variable (i.e. anxiety or depression) accounted for by specific interactions (i.e. R^2 was not significant).

3.3.5 Summary of Stage II findings

Contrary to predictions, the relative investment in the role of 'becoming a parent' relative to other life roles/goals was *not* associated with emotional distress. Furthermore, it was *not* associated with coping, dyadic or sexual functioning. Thus, the conditions set out by Baron and Kenny (1986) for mediator variables were not met, in that there was no significant relationship between PRAG and emotional distress. Thus mediation by the coping, dyadic adjustment, and sexual functioning variables was not evident.

As reported in section two of the results, dyadic adjustment[4] and avoidance coping were related independently to emotional distress for both sexes, and emotion-focused coping was independently related to female anxiety. However, in this section of the analysis it was found that after controlling for dyadic adjustment, the only type of coping that continued to be independently associated with emotional distress was female emotion-focused coping in relation to female anxiety. This suggests that the relationship of avoidance coping to emotional distress may have overlapped in some way with the relationship of dyadic adjustment to emotional distress. Dyadic adjustment continued to be a associated with emotional distress, independently of coping, with the exception of female depression with which it was no longer significantly associated. However, the direction of these effects cannot be deduced from the current study findings, as the design was not an experimental one.

Finally, the interactions between social support and the other independent variables (PRAG, DAS, GRISS, and COPE) were not significant. Thus the conditions for moderator variables, set out by Baron and Kenny (1986), were not met.

[4] It should be noted that, as previously discussed, the relationship between dyadic adjustment and female depression only approached significance.

3.4 Stage III of the analysis

Up until this point the impact of all the variables has been looked at separately for women and men, with limited consideration of the links between them. In this final section, the possible connections between both partners will be explored in one specific process – that of discrepancy between partners in terms of their PRAG (i.e. *relative* investment in the role/goal of 'becoming a parent'). This relationship between PRAG discrepancy and emotional distress will be examined using hierarchical regression analysis.

3.4.1 PRAG discrepancy in relation to emotional distress

As in stage two of the analysis, the coping and dyadic variables, background variables and social support were controlled for, and PRAG discrepancy was entered into block two of the regression. PRAG discrepancy did *not* account for a significant amount of the variance of female or male anxiety and depression, and did *not* independently correlate with levels of anxiety or depression. Furthermore, an additional regression analysis looking at the direct relationship between PRAG and anxiety and depression (i.e. without the other variables) was also *not* significant.

3.4.2 Summary of Stage III findings.

Contrary to the study prediction, the discrepancy between partners' relative investment in the domain of 'becoming a parent' was not associated with the emotional distress of men or women.

3.5 Additional Issues Highlighted by Participants.

A number of relevant issues were raised by participants on the sheet at the end of their questionnaire packs. A brief summary of the main points that were raised are presented in table 14. From table 14, one can see that comments ranged from issues relating to hospital care, emotional support and life in general, to more personal and inter-personal issues relating to the individual, couple and parenting. Some of these issues will be considered further in the discussion chapter in relation to the research findings, as well as implications for future research.

Table 14: Additional issues highlighted by participants

Issue	*Number of participants who raised this issue*	
	Female	*Male*
HOSPITAL CARE		
• Hospital care influences distress	1	1
• Waiting list/time to see specialist influences distress	3	1
• Male partners in unmarried couples not given the same rights as in married couples	-	1
EMOTIONAL SUPPORT		
• Lack of professional support / understanding in dealing with the emotional impact	4	-
• Alternative therapy or religion as helpful	3	1
• Difficulty turning to family/friends for support	5	2
IMPACT ON INDIVUAL		
• Increased sense of vulnerability	1	-
• Deep sadness for babies lost	2	-
• Negative body image & self-esteem	5	-
IMPACT ON COUPLE		
• Miscarriage negatively affecting the couple	1	-
• Miscarriage positively affecting the couple	2	1
• Miscarriage affecting sexual relationship	2	-
• Putting on a 'brave face' for your partner	1	1
• Not feeling the physical loss that female does makes it harder to support her.	1	2
ALREADY BEING A PARENT		
• Already having a child helps to some extent	3	-
• Child asking parent for a sibling adds to distress	1	-
LIFE IN GENERAL		
• Miscarriage impacts on life goals	2	2
• Other life stresses are harder	1	1

4. Discussion

4.1 Overview

The study's main hypotheses regarding relative investment in the domain of becoming a parent, as conceptualised by the social-cognitive model (Champion & Power, 1995), were not borne out. However, the findings do support both cognitive/behavioural (i.e. coping) and social (i.e. dyadic adjustment) factors as relevant factors in understanding emotional distress in men and women following recurrent miscarriage.

The current chapter will begin with an overview of the descriptive findings regarding the dependent variable – anxiety and depression. This will be followed by a review of the three study hypotheses. Limitations of the study will be examined and implications for clinical work and future research will be discussed.

4.2.1 Anxiety & Depression

Male and female anxiety and depression levels were found to be significantly different. The current study found that 37.7 % of the women and 12% of the men in the current sample scored in the clinically significant range for anxiety on the HADS (i.e. scored over 11). This is comparable with the 39.9% rate of female anxiety previously found within the same recurrent miscarriage clinic (Magee & Tata, personal communication). Only 3.8% of women and 2.7% of men in the current sample scored in the clinically significant range for depression on the HADS. The female rate of depression is less than previously found within the

same clinic. Using the HADS, significant levels of depression (i.e. scores over 11) were previously found in 6.8% of women (Magee & Tata, personal communication), whilst rates of 7.4% of women have been reported to be severely depressed using the BDI-II (Craig et al, 2002). Of note, contrary to the current findings, epidemiological evidence suggests that, in general, there are gender differences in depression, with approximately twice as many women as men experiencing depression (Abramson et al, 2002). This suggests that the current sample of women were experiencing fewer depressive symptoms than is typical within the specific clinic and the population in general. Possible reasons for this and implications for the study findings will be discussed later in this chapter.

4.2.2 Study Questions 1 & 2.

Is increased amount of investment put into the role of becoming a parent, and a mismatch between partners of the amount of investment put into the role of becoming a parent, *relative* to other available domains in life, associated with high levels of anxiety and depression?

Contrary to the study prediction, being *relatively* highly invested in the role of becoming a parent, *relative* to other available domains in life was not associated with high anxiety or depression, in either women or men. Not surprisingly, given this finding, the mismatch between partners in their *relative* investment in becoming a parent was also not associated with anxiety or depression.

Previous research in recurrent miscarriage has found that relative investment in the role of becoming a parent, compared to other domains, is associated with higher levels of emotional distress in women without children (Magee, 2000; Magee et al, 2003). One might initially believe that the failure to replicate this finding in the current study could be the result of including women who already have children. However, it is important to bear in mind several points. Firstly, a representative sample of recurrent miscarriage patients should include couples both with and without children, as a substantial proportion of women attending specialist clinics do have children already. Secondly, previous research has shown that there are no significant differences in terms of emotional distress between women with and without children (Craig et al, 2002; Klock et al, 1997). Thirdly, univariate correlations showed that only male relative investment in

becoming a parent was correlated with having a child already. As a result of this finding, post hoc analysis controlled for whether the couple had a child/children. This multivariate analysis showed that having a child or not was not related to any of the variables in women or men.

In their study, Magee and colleagues (2003) found that most of the women in their sample were highly invested in becoming parents, and scored the maximum on this domain of their lives. This was also found to be the case for women in the current study, with most of the variance in discrepancy in investment between partners being, accounted for by variance in male investment in becoming a parent. Mean relative investment in the role of becoming a parent (PRAG) was 0.25 for women in Magee's study (Magee & Tata, personal communication). This is fairly similar to the mean PRAG of 0.22 for men in the current sample, and women in the current sample were even more invested in this domain, with a mean PRAG of 0.38. Thus it would seem that for recurrent miscarriage patients there is a ceiling to female investment in the domain of becoming a parent with limited variation between participants. Furthermore male PRAG is also very high. Thus there is limited scope for variance on this domain within this sample of couples attending their initial appointment at the recurrent miscarriage clinic.

The timing of the current sampling – at the initial clinic appointment – is an important consideration given that couples at this early stage in the process of specialist medical investigations are likely to still hold 'hope' in finding a cause

and potential solution to their recurrent miscarriages. So although they are managing in the face of their previous losses, they are still holding on to the promise of 'light at the end of the tunnel' in terms of gaining a medical solution for their recurrent miscarriages. Thus, at this early stage, the dominant role of 'becoming a parent' has not yet been irretrievably lost. However, should the medical investigations either shed light on a complex and intractable medical cause (e.g. parental chromosomal defect) or not identify any specific medical cause, the 'light at the end of the tunnel' may fade for such couples. Thus the dominant role of 'becoming a parent' may be lost for either real (i.e. a specific intractable medical problem) or perceived (i.e. no degree of control over the possibility of further miscarriages) reasons. Therefore, the outcome of the specialist medical investigations may well alter the degree of adversity with which such couples are faced in their pursuit of becoming parents, and it is possible that such adversity may shed a different light on the role of PRAG in relation to emotional distress, than was found in the current study.

4.2.3 Study Question 2.

Is inadequate coping, dyadic and sexual problems associated with high levels of anxiety and depression, and do they mediate the relationship between investment in becoming a parent and depression/anxiety?

As reported in the previous section, relative investment in becoming a parent was not found to be associated with any of the main variables in the study (i.e. depression and anxiety; coping; dyadic adjustment; and sexual functioning). As

a result the conditions set out by Baron and Kenny (1986) for mediator variables were not met, in that there was no significant relationship between PRAG and emotional distress to be mediated in the first instance. However, specific types of coping and dyadic adjustment were found to be independently significantly associated with depression and anxiety, although direction of causation cannot be inferred from the current study findings. Sexual functioning was not found to be significantly associated with depression and anxiety.

In the following sub-sections the findings relating to coping, dyadic adjustment and sexual functioning will be discussed in separate sections, before considering the relationship between them.

4.2.2.1 Coping

Avoidance coping was found to be an inadequate method of coping for both men and women, since use of this type of coping was associated with high levels of anxiety and depression. High emotion-focused coping in women was also found to be an inadequate method of coping in relation to anxiety, and use of this type of coping was associated with high levels of female anxiety. However, high emotion-focused coping was not found to be significantly associated with high levels of female depression, or male anxiety and depression. Problem-focused coping was also not significantly associated with emotional distress in either women or men. The findings relating to the three types of coping will be considered in turn.

Avoidance Coping

The fact that increased avoidance coping was found to be related to higher levels of anxiety and depression in both sexes is consistent with previous research in the field of coping (e.g. Barker et al, 1990; Billings and Moos, 1981). This type of coping has been found to arise in response to uncontrollable stressors (Eckenrode, 1991), and the experience of recurrent miscarriage is a prime candidate for being appraised as an 'uncontrollable stressor.' Of relevance to this finding is the research from single miscarriage research (e.g. Turnaley et al, 1993) that has shown that having an explanation for the miscarriage is an important consideration in understanding psychological responses to the experience. More specifically, Turnaley and colleagues (1993) found that women in their sample typically wanted an explanation for their miscarriage in order to know whether it was their fault or due to a medical reason. However, in the case of recurrent miscarriage many of the patients attending the clinic are likely not to know why they have experienced repeated losses and are therefore likely to perceive the experience of recurrent pregnancy losses as an 'uncontrollable event.' Nevertheless, as can be seen from the low mean scores for use of avoidance coping this type of coping was not typically resorted to by most of the participants in the sample. However, female age was found to be negatively associated with avoidance coping, indicating that younger women used higher amounts of avoidance coping.

The observation that in general avoidance coping was not used by the majority of participants leads to the question of what facilitated the majority of

participants to resort to other coping strategies that were more adequate in dealing with their emotional distress. This question will be returned to in sub-section 4.2.2.4 where the relationship between coping and dyadic adjustment will be discussed.

Huchberger (2003) highlighted an interesting point about avoidance coping that has been observed, namely that avoidance coping may actually be a beneficial strategy in the beginning of a prolonged stressful situation, but that with time attention promoting strategies are more effective than avoidance. The implication of this is that avoidance coping may actually be an adequate coping strategy at a given point in time, but that it's ongoing use is likely to be associated with emotional distress.

Emotion-focused coping

Emotion-focused coping was not found to be associated with female depression, or male anxiety and depression. However, female emotion-focused coping was related to female anxiety and this is consistent with previous research in coping (Endler & Parker, 1990). This has shown that emotion-focused and avoidance coping are reported significantly more frequently by women than men. Interestingly, the current study found that the only significance difference between men and women in terms of coping strategies used, was in terms of emotion-focused coping that was reported more frequently by women. However, male age was found to be significantly associated with use of emotion-focused coping, indicating that older men used more emotion-focused coping.

The typical gender distinction in the use of emotion-focused coping has been attributed to the finding that, in general, women seek more help and reassurance and maintain greater proximity to friends than men do (Block, 1976). Interestingly, in the field of infertility it has been found that whilst women are more likely to seek support and emotional expression, men are more likely to use distancing and self-control in response to the experience (Pasch & Christensen, 2000). Endler and Parker (1990) suggest that the fact that women use more emotion coping than men do is consistent with the finding that women are more prone to experiencing anxiety. They suggest that emotion-focused coping "seems to involve self-preoccupation and emotional responses, reactions that may reduce stress" (p853) and that anxious individuals are more likely to report an increased use of this type of coping (Endler & Parker, 1990). This latter point is very important and warrants further discussion.

Women in the current sample reported significantly more use of emotion-focused coping than their male partners. Women's perceptions of their high use of emotion-focused coping could fall into two possible categories: that they perceive themselves as being successful in coping with their distress; or that they perceive themselves as not succeeding in coping with their distress. However, there is no way of identifying on the COPE questionnaire which of these two categories the women perceived themselves as being in. This distinction is important in terms of considering the clinical implications of the current study's findings and the best way in which to support women following

recurrent miscarriage. This issue will therefore be returned to later in the chapter when clinical implications are considered.

Problem-focused coping

Problem-focused coping was not found to be independently significantly associated with anxiety or depression. However, the use of problem focused coping was generally quite high within the current sample. This is unsurprising given that for a fair number of the couples it had been necessary for them to be quite pro-active in order to be referred to the specialist recurrent miscarriage clinic in the first place. In addition, attendance of the specialist recurrent miscarriage clinic had, for many participants entailed a significant journey from their homes, and included taking flights and train journeys from every corner of the United Kingdom. Furthermore, as reported at the beginning of this chapter, the rates of depression were very low in the current sample and were lower for women than has been previously found in the same clinic (Craig et al, 2002; Magee & Tata, personal communication). The likely reasons for this will be discussed later. However this finding suggests that in order to get to the clinic in the first place these participants had needed to be quite problem-focused, and furthermore the female participants who participated in the current study may have been a self-selected sample of women who were, for the vast majority, not depressed and were functioning adequately. As noted in the introduction, problem-focused coping is less related to depressive symptoms (Billings and Moos, 1984).

4.2.2.2 Dyadic Adjustment

Dyadic adjustment was found to have a significant independent relationship with female and male anxiety and depression, and accounted for a significant amount of the variance in emotional distress. The number of miscarriages that a woman had experienced was negatively associated with dyadic adjustment, indicating that those who had experienced a higher number of miscarriages reported lower dyadic adjustment. Female and male ratings of dyadic adjustment were, on average, comparable to previously reported rates for married couples (Spanier, 1976). However, poor dyadic adjustment was found in 10.3% of women and 12% of men. As there has not been any previous research in recurrent miscarriage in this area it is interesting to compare these rates of poor dyadic adjustment in the current sample with the rates reported in a recent study in the field of infertility. Peterson et al (2003) reported that although most couples in their study reported relatively high dyadic adjustment on the DAS, 7% of women and 6% of men were found to have poor dyadic adjustment. It is not clear what criteria Peterson et al (2003) utilised to arrive at these figures. However, it would appear that in the current recurrent miscarriage sample there were slightly higher rates of poor dyadic adjustment than those reported by Peterson et al (2003).

Berg and Wilson (1991) found that whilst infertile couples had above average levels of marital satisfaction during the first 2 years of infertility treatment, this dropped dramatically after the third year of treatment. The relevance of this finding to recurrent miscarriage is that the time period over which the couples

had experienced all of the miscarriages (i.e. starting from when the first miscarriage occurred to the time of sampling) was not a factor that was examined in the current study. It is conceivable that this may be a factor of relevance to dyadic adjustment following recurrent miscarriage. Furthermore, it is unclear what the longer term outcome might be for dyadic adjustment in couples who have experienced recurrent miscarriage as they proceed with medical investigations and future pregnancies.

There are further important parallels between recurrent miscarriage and the research on infertility. As in recurrent miscarriage, couples who suffer from infertility may retreat from broader social networks to avoid receiving unhelpful advice (Abbey et al, 1991) and to avoid spending time with others who have children. As a result it has been proposed (Abbey et al, 1991) that the quality of the couple's relationship may be particularly important for infertile couples as a protective factor. The findings from the current study, suggests that this may also be the case in recurrent miscarriage. However, unlike infertility, the experience of recurrent miscarriage will by definition have involved numerous pregnancy losses. The literature on single miscarriage suggests that communication difficulties may arise following a miscarriage as a result of each partner trying to cope with their own grief (Raphael-Leff, 1991). Indeed, some miscarriage resources suggest that "it is often difficult to meet each other's needs.. those closest to you are not necessarily the best people to help you" (Moulder, 1990, p 124). Whilst this may be true, research in couple support has highlighted the importance of the couple relationship in helping partners to

manage stressful situations. As Barker and Lemle (1987) point out "taking one's psychological troubles to a mental health professional is an unusual response" (p541) and as such informal helping by one's partner is extremely important in the resolution of psychological problems. Burke and Weir (1977) point out that the marital relationship may provide not only support, but also reassurance and personal validation that help the individual partner to gain confidence in managing situations that may arise. Lack of spousal support has been found to be a major reason for relationship dissatisfaction and breakdown (Baxter, 1986). Furthermore, as stated in the introduction, evidence suggests that an unsatisfactory relationship with a partner cannot necessarily be compensated for by other sources of support (Pistrang & Barker, 1995). Therefore simply increasing external sources of support for women following recurrent miscarriage may be insufficient. This issue will be returned to later in the chapter.

A further point of relevance is that in the field of infertility it has been found that the strain on the couple's relationship is one of the main reasons for withdrawing from treatment (Pasch & Christensen, 2000). In her qualitative study of couples who had experienced recurrent miscarriage, Anderson (1999) also drew attention to the fact that such strain may be a factor in withdrawing from medical professionals. This is an important consideration, because as previously discussed the current sample seems to be a fairly motivated and psychologically robust group of men and women who have made it all the way to the specialist clinic. The question is what happens to those couples who are experiencing

significant difficulties and who one can hypothesise fall by the way side as they come across different hurdles within the medical system (e.g. going to their GP for follow-up, getting referred to a specialist clinic, attending the specialist clinic appointment).

One final interesting point regarding dyadic adjustment is the research that has been carried out suggesting that better marital quality is associated with better immune function (Kennedy et al, 1990). The reason this is of interest is the recent finding that suggests that an underlying immunological mechanism may account for depression as a potential causal factor in subsequent miscarriage in women with a history of recurrent miscarriage (Sugiura-Ogasawara et al, 2002). However, this immunological mechanism remains speculative.

4.2.2.3 Sexual Functioning

A range of sexual 'problems' (i.e. scores of 6 and over) were identified on the GRISS. However as previously noted in the results chapter, sexual 'problems' identified on the GRISS are not intended to be interpreted as a diagnosis of a major dysfunction, but rather as an indication for the possible need for therapy. Furthermore, literature in the field of sexual functioning indicates that sexual difficulties are in fact quite common in the general population (e.g. Nazareth et al, 2003). In their assessment of the sexual functioning of people attending general practices in London, Nazareth and colleagues (Nazareth et al, 2003) also found that increasing age in women was related to sexual dysfunction, and this is consistent with the significant independent relationship that was found in

the current study between female age and female sexual dysfunction scores on the GRISS.

One particular sexual 'problem' that emerged in the current sample is the 'infrequency' of sexual intercourse that was reported by 12% of women and 28% of men. It is possible that these figures are confounded by the fact that patients referred to the recurrent miscarriage clinic are given advice not to conceive until after the medical investigations have been carried out. As a result, a number of participants indicated that this had actually influenced the frequency of sexual intercourse, primarily in the direction of less frequent sexual intercourse. For some the medical advice was described as a "welcome break" from the anxiety of getting pregnant and worrying about the outcome, for others this compounded the stress of the situation and was "soul destroying" in that each month they waited they missed a further opportunity to have a baby. Thus the timing of the current sampling does seem to have influenced responses, particularly on the domain of 'infrequency.' Nazareth and colleagues (2003) note that reduced sexual interest may be a normal response to stress, and as such it is an extremely common complaint. Furthermore, they note (Nazareth et al, 2003) that to date, it has not been conclusively shown that reduced sexual interest is an obstacle to having a satisfying sexual relationship.

Despite a range of sexual 'problems' being identified on the GRISS, only 1.3% of women and 5.3% of men indicated that they were actually dissatisfied with their sexual relationship. Furthermore, when all the GRISS subscales were

summarised in the two factor solution (Rust & Golombok, 1986a) only 2% of women and 11.1% of men fell into the category of 'significant dysfunction.' This difference was statistically significant. These low rates are consistent with literature in the field of sexual functioning that has found that married women and men typically have a low risk for sexual problems compared to their non-married counterparts (Laumann et al, 1999). As noted in the methods chapter, the vast majority of the current sample were married couples. The available evidence also suggests that emotional aspects of the couple's relationship are more important than sexual dysfunctions in determining sexual satisfaction for both men and women (McConaghy, 2004). This point is also relevant to the overall finding that sexual functioning was not significantly related to anxiety or depression in either women or men, whilst dyadic adjustment was.

Recent research in sexual health suggests that there is considerable variability in the relationship between mood and sexual functioning (Bancroft et al, 2003). The reason for this variability is still not well understood. However, in their study of heterosexual men, Bancroft and colleagues (2003) suggest that "sex when depressed can serve needs for intimacy and self-validation" in addition to pleasure, whilst "sex when anxious appears to be more simply related to the calming effect of sexual release" (p217). This suggests that the relationship between mood and sexual functioning is quite complex, and as such there is likely to be considerable variation in how the sexual relationship of couples is affected following the experience of recurrent miscarriage.

It is interesting to note that in the field of infertility most controlled studies of sexual functioning have found that infertile individuals are within the normal range of sexual satisfaction and functioning (Daniluk, 1988). Yet this finding is in stark contrast to the clinical impressions and anecdotal evidence in the field (Dunkel-Schetter & Lobel, 1991). In the current study, although the rate of sexual dissatisfaction and sexual dysfunction identified on the GRISS was small, additional comments made by participants at the back of their questionnaire suggest that the GRISS may not be a sensitive enough measure to pick up the type of sexual problems that may specifically arise as a result of recurrent miscarriage. To illustrate this point it is interesting to read what one female participant wrote on the sheet at the end of her questionnaire:

"my libido has deteriorated.... I rarely have sex unless I am actively trying to become pregnant. ... I have bad associations now... sex can lead to pregnancy which always leads to miscarriage....sex is clinical and unspontaneous"

Another woman spoke to the researcher about how confused she had felt regarding her sexual relationship with her husband in the weeks immediately after her miscarriages. However, this confusion and avoidance of sexual intercourse had diminished with time. What these individual examples suggest is that there are some couples for whom recurrent miscarriage may have a significant impact on the quality of their sexual relationship, and although for some this may diminish over time, for others the effect may be more long-lasting.

Explanations have been proposed for the apparent discrepancy between quantitative and clinical-anecdotal observations of sexual difficulties in infertile couples, and these points are pertinent to the current study in recurrent miscarriage. Explanations that have been put forward to explain the discrepancy include: the lack of sensitivity of global measure used in quantitative research; the desire on the respondents to appear in a positive light; and generalisation of the problems experienced by a small number of patients seeking mental health treatment to the infertility population in general (Dunkel-Shetter & Lobel, 1991). It has also been noted that the discrepancy may be due to the great variation between infertile couples with regards to how infertility affects them. As Pasch & Christensen (2000) point out, some infertile couples are brought closer together by the experience, whilst for some the experience can prise them apart. The same seems to be true in recurrent miscarriage.

4.2.2.4 Coping and dyadic adjustment

After controlling for dyadic adjustment, the only type of coping that continued to have an independent significant relationship was female emotion-focused coping in relation to female anxiety. Dyadic adjustment continued to have a significant relationship with emotional distress, independently of coping, with one notable exception. This exception was female depression, for which dyadic adjustment was no longer significant once coping was controlled for.

Clearly dyadic adjustment is a crucial consideration in understanding emotional distress following recurrent miscarriage. The current findings suggest that

avoidance coping overlaps in some way with the relationship that dyadic adjustment has with emotional distress. One way in which this may occur is that in those couples where a partner or both partners are using avoidance coping, communication may be limited. Poor communication may result in couples dealing with their emotions in isolation, and thereby gradually the couple may be cut off from one another and the dyadic relationship may suffer. However, it is important to note that it is not possible to infer from the current cross-sectional study whether emotional distress precedes dyadic difficulties, or whether the reverse is true.

4.2.4 Study Question 3

Does social support moderate the impact of investment, dyadic adjustment, sexual functioning and coping on depression and anxiety?

In the separate analyses of coping in relation to emotional distress, and dyadic/sexual functioning in relation to emotional distress, social support had a significant independent association only with female depression. Low levels of social support were associated with higher female depression, and this is consistent with the literature (Brown & Harris, 1978). However, when all the variables were controlled for (i.e. coping, dyadic and sexual functioning and PRAG) social support was not found to have a significant independent relationship to female depression. Furthermore, when the hypothesized moderating role of social support was examined in regression analyses of the interactions between social support and the other predictor variables in relation

to emotional distress, no significant relationship was found. Therefore social support was not found to have a moderating effect.

One possible explanation for this finding is that whilst other sources of support may be helpful, the dyadic relationship may be the most important type of social support for couples. In terms of the relationship between social support and female depression, it is not clear why this was no longer significant when all the variables were controlled for. Of note, on the social support questionnaire the vast majority of participants put down their partner as one of the people they get support from.

4.3. Clinical Implications

Dyadic adjustment was found to be significant associated with both male and female emotional distress. Whilst increasing external social support may be helpful, couple research suggests that this alone is insufficient (Pistrang & Barker, 1995). One suggestion in the marital literature is that actually drawing couple's attention to their potential value to their partner and encouraging them to support one another can be a helpful way of promoting well-being (Burke & Weir, 1977).

Of interest, a number of transition to parenthood studies have found that the best predictor of marital quality after having a baby is the quality of the couple's relationship prior to the baby's arrival (Cowan & Cowan, 2003). As such, babies do not bring couples together who were previously having significant problems,

nor do they drive those in compatible and satisfying relationships apart. Of further relevance, is the finding that marital difficulties are closely related to the wellbeing of the individual partners, particularly of new mothers (Cox et al, 1999). Taken together with the current study's findings this suggests that interventions for women, following recurrent miscarriage, need to at the very least consider inclusion of the woman's partner at some point during the sessions. As one female participant commented:

"there needs to be something between individual counselling and going to RELATE"

Of course this can be inherently difficult with a reluctant or busy partner. However it is common practice in child work to include fathers who may attend for only one appointment or on an intermittent basis. Furthermore in other specialties where there is an interface between child and adult mental health, (e.g. neonatal intensive care) fathers are often invited to attend individual appointments with their partners.

From the researcher's experience of doing clinical work with women who have experienced recurrent miscarriage it also seems particularly important for professionals in *primary care* to be aware of the need to think about the woman *and* the couple when considering psychological support. Alternatively, there may be avoidance and a lack of communication about personal feelings within couples which may result in them withdrawing from services. As Carter and

McGoldrick (1999) state, such unresolved emotional issues and developmental tasks are likely to re-emerge at future transition points (e.g. menopause – the end of childbearing) with significant repercussions for both the individual and the couple. Furthermore, it is likely that 'preparatory work' in primary care (e.g. seeing a practice counsellor) may be extremely important for distressed couples to enable them to subsequently access the specialist medical services where they may be referred. Lack of such preparatory work may result in the couples falling at the first hurdle and not even reaching the specialist clinic because of dyadic difficulties combined with the emotional responses to the losses they have experienced.

Couple work could take a range of approaches depending on the needs of the individual couple. Approaches including cognitive-behavioural (Dattilio and Bevilacqua, 2000) and interpersonal psychotherapy (Klerman & Weissman, 1993) may be appropriate. The latter approach is of particular interest to the experience of recurrent miscarriage in that the focus of therapy can take one of four different central issues (summarised in Champion, 2000):

1) grief – managing the aftermath of the loss;
2) interpersonal disputes
3) role transitions
4) interpersonal deficits (e.g. social isolation)

It is less clear what recommendations can be made regarding the current study's findings about coping given that, one cannot determine what the

individual woman's perceptions were of their high emotion-focused coping and whether or not this is helpful. Further exploration is needed regarding coping strategies used following recurrent miscarriage in order to understand whether emotion-focused coping should be encouraged and input given to enhance this approach, or conversely whether emotion-focused coping is a 'bad' thing and should be discouraged. It is likely that a mixed picture will emerge and that for some emotion-focused coping is helpful, whilst for others it is not.

4.4 Limitations of the study

4.4.1 Sample & Generalisability

As previously discussed, based on a number of factors it would appear that the current sample of couples may not be entirely representative of the typical range of recurrent miscarriage patients. Firstly, the particularly low rates of female depression are not consistent with previous rates reported in the same clinic (e.g. Craig et al 2002). One hypothesis for this occurrence is the possibility that the additional 'task' of getting the male partner involved in terms of completing the questionnaire pack may have required extra effort on the part of the woman, and this may have been difficult for more severely depressed women. Alternatively, it is possible that there were dyadic problems and therefore the questionnaire pack was a further reminder of these difficulties and therefore too painful to complete. It is also a possibility that the drop-out rate was resulted from the inclusion of the GRISS questionnaire in the study questionnaire pack,

which is an extremely personal questionnaire. As one participant commented, prior to participating in the study:

"we have been poked and prodded so much (i.e. medical examinations) *that we want to keep something private."*

This is a perfectly understandable feeling and others with the same view may have decided once they had left the clinic not to participate for this very reason. However, this apparent bias in the current sample does need to be borne in mind when viewing the results. It seems likely that those with significant relationship problems and/or more severe mood problems may not have participated in the study. These factors are likely to account for the large 'drop out' rate when participants took questionnaire pack home with them as opposed to completing them in clinic.

It had initially been hoped to recruit participants from a range of ethnic and religious backgrounds to get a more balanced representation of how the impact of recurrent miscarriage affects different groups. However, in the event participants who were recruited to the study were primarily white Caucasian couples of Christian religion who were employed. This is an important consideration as the limited contact that the researcher was able to have with couples from other ethnic backgrounds suggests that factors relating to more traditional female roles within the family, as well as the impact of the wider family network on the couple's experience of recurrent miscarriage, are issues that

may be of particular importance in such groups, more so than is the case with white Caucasian nuclear family systems. Craig and colleagues (2002) state that clinical experience within the recurrent miscarriage clinic indicates that in certain ethnic groups the social pressures experienced by women to conceived are greater than in others. Thus the current study's findings may not be generalisable to other ethnic groups.

4.4.2 Design

The cross-sectional nature of the study means that fluctuations over time could not be examined in the current study. It is possible that over time and with the conclusion and feedback from the medical investigations in the clinic, levels of emotional distress may change. It has been suggested that psychological distress following recurrent miscarriage may be transient (Craig et al, 2002) and this requires longitudinal research to address this hypothesis. In terms of dyadic functioning and coping, these are also likely to fluctuate over time and in response to different stressors. In particular, the dynamic nature of coping in response to a specific stressor is likely to result in a variety of coping strategies over time depending on the specific demands that are causing distress (Folkman et al, 1991). According to Folkman and Lazarus (1985) a typical response pattern is to use both emotion-focused and problem-focused coping during the course of a stressful encounter, with the proportion of problem-focused and emotion-focused coping varying according to the situation. The fact that the current study only looked at dyadic adjustment and coping at one specific time – the initial clinic appointment – only provides a snapshot of what is

in fact a dynamic and changing process. Furthermore, as previously mentioned, the issue of timing of the sampling is also relevant to testing the PRAG effect.

A further limitation of the study is the lack of a control group. This is a problem that has arisen with other psychological research in the field (Craig et al, 2002) in that it is not clear where to get appropriate controls from. Pregnant women have been utilised in the past in single miscarriage research, but Craig and colleagues (2002) point out that biological and psychological factors relating to the pregnant state may influence mood thereby making this group of women a poor choice as controls. Other research has utilised gynaecology outpatient populations as controls, but this group of women have also been shown to have high levels of psychological problems and are therefore not ideal control groups. Therefore, as Craig and colleagues (2002) point out, it is unclear which group of women would be appropriate to use as a control group.

A further important consideration is the possibility of type 1 error given the number of correlational tests carried out with respect to the background variables, in particular. Ideally it would have been better if specific hypotheses regarding the background variables had been made at the outset of the study, however it was not clear from the available literature what these predictions should be. On the other hand the findings do appear to fit well with relevant research in other fields (e.g. infertility, sexual health, couple support).

4.4.3 Measures

In this population the Roles and Goals Questionnaire (RAG) questionnaire has a 'ceiling effect' on the domain of becoming a parent for most women and this results in limited scope for exploration of variance. However, as previously noted, the question of timing of the sampling may be particularly pertinent in the case of the RAG questionnaire, which may yield somewhat different results if utilised once all the specific medical testing has been completed and the couples have received these results.

The Golombok-Rust Sexual Satisfaction questionnaire (GRISS) has a high 'floor effect and does not seem to be a sensitive enough measure to explore the particular areas of sexual concerns that may arise in some couples following recurrent miscarriage.

In the follow-up appointments with participants with significant levels of anxiety and/or depression several participants described themselves as having always been 'worriers' but that recurrent miscarriage had tipped the balance and made them even more anxious. This suggests that use of the Spielberger State-Trait Anxiety Inventory may be a more sensitive tool with which to screen recurrent miscarriage patients as opposed to using the HADS, as this would enable one to distinguish trait from state anxiety. This is also in line with recommendations made by Geller and colleagues (2004) after reviewing the literature on anxiety in single miscarriage.

As with any study that utilises self-report measures there are inherent problems namely those of social desirability and individuals choosing to take questionnaires home with them to complete. As a result of the very intimate questions in the questionnaire pack it seemed important to allow participants the choice to take the questionnaires home if they preferred. However, this may have increased the likelihood of partners conferring with one another as they completed the questionnaires or take much longer to complete the questionnaires.

4.5 Future Research

A more detailed picture is needed regarding the role of social support in helping people who have experienced recurrent miscarriage. The current study did not look at the difference between different supportive relationships on the SOS. Lam and Power and colleagues (1988) reported different perceptions about the helpfulness of different supportive relationships (e.g. partner, parents, siblings, and friends). This is an area that could be explored. Furthermore, research from single miscarriage research suggests that support from professionals is not always perceived as helpful (Conway, K, 1995) and this area could also be explored with the view to identifying specific areas that could be improved. In the current study a number of participants commented on this fact and one male noted:

"the hospital as a concept is so central to the miscarriage experience, it has a massive effect – for positive or negative."

An area that has not been looked at but which was highlighted by one participant is the effect that recurrent losses may have on other children (i.e. the siblings) in the family. This effect could be a direct one in that they hear about the loss, or it could be indirect in terms of parental distress and the impact this may have on the family's functioning. Leon (2001) suggests that in the case of single miscarriage this can be seen as an "invisible loss" for siblings, in that they usually do not see the baby, hear little about it, yet may have many questions and remain quite confused. Furthermore there may be confusion on the part of parents about what to tell their child and how to do so.

Longitudinal studies are also needed to assess fluctuations and variations over time in terms of, for example emotional distress, coping, dyadic functioning. Cross-sectional design can only provide a snapshot in time, and as such can only give one particular angle of a changing picture. Furthermore, the follow-up appointments with participants with significant levels of anxiety and/or depression indicated that for quite a few people recurrent miscarriage was but one life event among a number of other significant stressors (e.g. moving house; work problems; death of another family member). Therefore future studies could look at this aspect in more detail in order to get a clearer idea about the effect that other life events may have on individual experience of recurrent miscarriage.

Finally, more research is needed to understand the experience of recurrent miscarriage for couples from diverse ethnic groups, as this is likely to be a very different experience from that of white Caucasian couples.

References

Abbey, A., Andrews, F. M. & Halman, L. J. (1991). The importance of social relationships for infertile couples' wellbeing. In A. L. Stanton & C. Dunkel-Schetter (EDS), Infertility: Perspectives from Stress and Coping Research, pp 61-86. New York Plenum.

Abramson, L. Y., Alloy, L. B., Hankin, B. L., Haeffel, G. J., MacCoon, D. G. & Gibb, B. E. (2002). Cognitive vulnerability-stress models of depression in a self-regulatory and psychobiological context. In I. H. Gotlib & C. L. Hammen (Eds), Handbook of Depression, pp 268-294, The Guilford Press.

Anderson, S. (1999). The Psychological Effects of, Recurrent Miscarriage on Couples. MSc Dissertation. Pepperdine University, USA.

Aylard, P. R., Gooding, J. H., McKenna, P.J. & Snaith, R. P. (1987). Validation study of three anxiety and depression self-assessment scales. Journal of Psychosomatic Research, 31, 261-268.

Balen, A. H. & Jacobs, H. S. (2003). Infertility in Practice, Second Edition. Churchill Livingstone, Elsevier Science.

Bancroft, J., Janssen, E., Strong, D., Carnes, L., Vukadinovic, Z. & Long, J. S (2003). The relation between mood and sexuality in heterosexual men. Archives of Sexual Health, 32 (3), 217-230.

Barker, C. & Lemle, R. (1987). Informal helping partner and stranger dyads. Journal of Marriage and the Family, 49, 541-547.

Barker, C., Pistrang, N., Shapiro, D., & Shaw, I. (1990). Coping and help-seeking in the UK adult population. British Journal of Clinical Psychology, 29, 271-285.

Baron, R. M. & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: conceptual, strategic and statistical considerations. Journal of Personality and Social Psychology, 51, 1173-1182.

Baxter, L. A. (1986). Gender differences in heterosexual relationship rules embedded in break-up accounts. Journal of Social and Personal Relationships, 3, 289-306.

Beck, A. T., Ward, C. H., Mendelson, M., Mock, J. & Erlbaugh, J. (1961). An inventory for measuring depression. Archives of General Psychiatry, 4, 53-63.

Beck, A. T. (1964). Thinking and depression: 2. Theory and therapy. Archives of General Psychiatry, 10, 561-571.

Beck, A.T. (1967). Depression: Clinical, Experimental, and Theoretical aspects. New York: Harper & Row.

Beck, A. T. (1976). Cognitive Therapy and the Emotional Disorders. New York: International Universities Press.

Beck, A. T., Rush, A. J., Shaw, B. F. & Emery, G. (1979). Cognitive Therapy of Depression. New York: Guilford Press.

Beck, A. T. (1983). Cognitive therapy of depression: New perspectives. In P. J. Clayton & J. E. Barret (Eds), Treatment of Depression: Old Controversies and New Approaches. New York: Raven Press.

Berg, B. J. & Wilson, J. F. (1991). Psychological functioning across stages of treatment for infertility. Journal of Behavioural Medicine, 14, 11-26.

Bergant, A. M., Reinstadler, K., Moncayo, H. E., Solder, E., Heim, K., Ulmer, H., Hinterhuber, H. & Dapunt, O. (1997). Human Reproduction, 12 (5), 1106-1110.

Beutal, M. Willner, H, Deckardt, R., von Rad, M. & Weiner, H. (1996). Journal of Psychosomatic Research, 40, 245-253.

Billings, A. G. & Moos, R. H. (1981). The role of coping responses and social resources in attenuating the stress of life events. Journal of Behavioural Medicine, 4, 139-157.

Billings, A. G. & Moos, R. H. (1984). Coping, stress, and social resources among adults with unipolar depression. Journal of Personality and Social Psychology, 46, 887-891.

Block, J. H. (1976). Issues, problems, and pitfalls in assessing sex differences. A critical review of the psychology of sex differences. Merrill-Palmer Quarterly, 22, 283-308

Brown, G. W. & Harris, T. (1978). Social Origins of Depression. London: Free Press.

Brown, G. W., Bifulco, A. & Harris, T. (1987). Life events, vulnerability and onset of depression: Some refinements. British Journal of Psychiatry, 150, 30-42.

Burke, R. J. & Weir, T. (1977). Marital helping relationships: the moderators between stress and well-being. The Journal of Psychology, 95, 121-130

Carey, M. P., Spector, I. P., Lantinga, L. J. & Krauss, D. J. (1993). Reliability of the Dyadic Adjustment Scale. Psychological Assessment, 5 (2), 238-240.

Carter, B. & McGoldrick, M. (1999). Overview. In B. Carter & M. McGoldrick (Eds), The Expanded Family Life Cycle: Individual, Family, and Social Perspectives, Third Edition. Boston: Allyn & Bacon.

Carver, C. S., Scheier, M. F. & Weintraub, J. K. (1989). Assessing coping strategies: A theoretical based approach. Journal of Personality and Social Psychology, 56 (2), 267-283.

Carver, C. S., Pozo, C. P., Harris, S. D., Noriega, V., Sheier, M. F., Robinson, D. S., Ketcham, A. S., Moffat, F., L. & Clark, K. (1993). How coping mediated the effect of optimism on distress: A study of women with early stage breast cancer. Journal of Personality and Social Psychology, 65 (2), 375-390.

Cecil, R. & Leslie, J. C. (1993). Early miscarriage: Preliminary results from a study in Northern Ireland. Journal of Reproductive and Infant Psychology, 11, 89-95

Champion, L. A. & Power, M. J. (1995). Social and cognitive approaches to depression: Towards a new synthesis. British Journal of Clinical Psychology, 34, 485-503.

Champion, L. (2000). Depression. In L. Champion & M. Power (Eds), Adult Psychological Problems, pp29-53.

Clifford, K., Rai, R., Watson, H. & Regan, L. (1994). An informative protocol for the investigation of recurrent miscarriage: preliminary experience of 500 consecutive cases. Human Reproduction, 9 (7), 1328-1332.

Clifford, K., Rai, R., Regan, L. (1997). Future pregnancy outcome in unexplained recurrent first trimester miscarriage. Human Reproduction, 12 (2), 287-389.

Cohen, J. (1992). A power primer. Psychological Bulletin, 112, 155-159.

Conway, K. (1995). Miscarriage experience and the role of support systems: A pilot study. British Journal of Medical Psychology, 68, 259-267.

Costello, C. G. (1982). Social factors associated with depression: A retrospective community study. Psychological Medicine, 12, 329-339.

Cowan, P. A. (1991). Individual and family life transitions: A proposal for a new definition. In P. A. Cowan & E. M. Hetherington (Eds), Family Transitions (pp 3-30). Hillsdale, NJ: Erlbaum.

Cowan, P. A. & Cowan, P. A. (2000). When Partners Become Parents: The Big Life Change for Couples. Mahwah, NJ: Erlbaum.

Cowan, P. A. & Cowan, C. P. (2003). Normative family transitions, normal family processes and healthy child development. In F. Walsh (Ed.), Normal Family Processes: Growing Diversity and Complexity, Third Edition. The Guilford Press.

Cox, M. J., Paley, B., Payne, C. C. & Burchinal, M. (1999). The transition to parenthood: marital conflict and withdrawal and parent-infant interactions. In M. J. Cox & J. Brooks-Gunn (Eds), Conflict and Cohesion in Families: Causes and Consequences pp 87-104. Mahwah, NJ: Erlbaum.

Craig, M., Tata, P. & Regan, L. (2002). Psychiatric morbidity and recurrent miscarriage. Psychosomatics, Obstetrics and Gynaecology, 23, 157-164.

Craig, M., Tata, P., & Regan, L. (2004) (personal communication).

Daniluk, J. C. (1988). Infertility: Intrapersonal and interpersonal impact. Fertility and Sterility, 49, 982-990.

Dattilio, F. M. & Bevilacqua, L. (2000). Comparative Treatments for Relationship Dysfunction. Free Association Books: London

Department of Health (2000). National Service Framework for Coronary Heart Disease: Modern Standards and Service Models. HMSO, London.

DeLuca, M. A. & Leslie, P. W. (1996). Variation in risk of pregnancy loss. In R. Cecil (Ed.), The Anthropology of Pregnancy Loss, pp113-130. Oxford, Bergamon.

Dunkel-Schetter, C. & Lobel, M. (1991). Psychological reactions to infertility. In A. L. Stanton & C. Dunkel-Schetter (Eds.). Infertility: Perspectives from Stress and Coping Research (pp. 29-60). New York: Plenum.

Eckenrode, J. (1991). The Social Context of Coping. Plenum Press.

Endler, N. S. & Parker, J. D. A. (1990). Multidimensional assessment of coping: A critical evaluation. Journal of personality and individual differences, 58 (5), 844-854.

Fennell, M. (1989). Depression. In K. Hawton, P. M. Salkovskis, J. Kirk, & D. Clark, (Eds), Cognitive Behaviour Therapy for Psychiatric Problems: A Practical Guide, pp169-234.Oxford University Press.

Friedman, T. & Gath, D. (1989). The psychiatric consequences of spontaneous abortion. British Journal of Psychiatry, 155, 810-813.

Folkman, S., Chesney, M., McKusick, L., Ironson, G., Johnson, D. S. & Coates, T. J. (1991). Translating coping theory into an intervention. In J. Eckenrode (Ed.) The Social Context of Coping, pp239-260. Plenum Press.

Folkman, S. & Lazarus, R. S. (1985). If it changes it must be a process: Study of emotion and coping during three stages of a college examination. Journal of Personality and Social Psychology, 48, 150-170.

Garel, M., Blondel, B., Lelong, N., Papin, C., Bonenfaut, S. & Kaminski, M. (1993). Depressive disorders after a spontaneous abortion. American Journal of Obstetrics and Gynaecology, 168, 1005.

Geller, P. A., Kerns, D. & Klier, C. (2004). Anxiety following miscarriage and the subsequent pregnancy. A review of the literature and future directions. Journal of Psychosomatic Research, 56, 35-45.

Gilchrist, D. M., Livingstone, J. E., Hulbert, J. A. & Wilson, R. D. (1991). Recurrent spontaneous pregnancy loss. Investigation and reproductive follow-up. Journal of Reproductive Medicine, 36 (3), 184-188.

Gotlib, I. H. & Hammen, C. L. (1997). Psychological Aspects of Depression: Towards a Cognitive-Interpersonal Integration. John Wiley & Sons.

Hasking, P. A. & Oei, T. P. S. (2002). Confirmatory factor analysis of the COPE questionnaire on community drinkers and an alcohol dependent sample. Journal of Studies on Alcohol, 63 (5), 631-640.

Hassold, T, Jacobs, P., Kline, J., Stein, Z. & Warburton, D. (1980). Effect of maternal age on autosomal trisomies. Annuals of Human Genetics, 44, 29-36.

Herrmann, C. (1997). International experiences with the Hospital Anxiety and Depression Scale – A review of validation data and clinical results. Journal of Psychosomatic Research, 42 (1), 17-41.

Howell, D. C. (1987) Statistical Methods for Psychology. Second Edition. PWS-Kent Publishing Company, Boston.

Huchberger, M. (2001). Psychological Distress and Concerns of Women Following Recurrent Miscarriage. MSc dissertation, City University. London

Huchberger, M. (2003). The Psychological Management of Adverse Psychological Responses to Recurrent Miscarriage. Statement of Equivalence Dissertation. British Psychological Society.

Ingledew, D. K., Hardy, L., Copper, C. & Jemal, H. (1996). Health behaviours reported as coping strategies: A factor analytical study. British Journal of Health Psychology, 1, 263-281.

James. D, S. & Kristiansen, C. (1995). Women's reactions to miscarriage: The role of attributions, coping styles and knowledge. Journal of Applied Social Psychology, 25 (1), 59-76.

Katz, J. M. (1980). Discrepancy, arousal and labelling: Towards a psychosocial theory of emotion. Sociological Inquiry, 50, 147-156.

Kennedy, S., Kiecolt-Glaser, J. K. & Glaser, R. (1990). Social support, stress and the immune system. In B. R. Sarason, I. G. Sarason, & G. R. Pierce (Eds), Social Support: An Interactional View, p253-267. John Wiley & Sons.

Klerman, G. L. & Weissman, M. M. (1993). New Applications of Interpersonal Psychotherapy. Washington, DC: American Psychiatric Press,

Klier, C. M., Geller, P. A. Neugebauer, R. (2000). Minor depressive disorder in the context of miscarriage. Journal of Affective Disorders, 59, 13-21.

Klock, S. C., Chang, G., Hiley, A. & Hill, J. (1997). Psychological distress among women with recurrent spontaneous abortion. Psychosomatics, 38, 503-507.

Lam, D. H. & Power, M. J. (1991). A questionnaire designed to assess roles and goals: A preliminary study. British Journal of Medical Psychology, 64, 359-373.

Laumann, E. O., Paik, A. & Rosen, R. C. (1999). Sexual dysfunction in the United States. Journal of the American medical Association, 281 (6), 537-544.

Lazarus, R. S. & Folkman, S. (1984). Stress, Appraisal and Coping. New York:Springer.

Lee, C. & Slade, P. (1996). Miscarriage as a traumatic event: A review of the literature and new implications for intervention. Journal of Psychosomatic Research, 40 (3), 235-244.

Leon, I, G. (2001). Perinatal Loss. In N. Stotland and D. Stewart (Eds) Psychological Aspects of Women's Health Care. The Interface Between Psychiatry and Obstetrics and Gynaecology, Second Edition,pp141-173. American Psychiatric Press.

Li, T. C. (1998). Guidelines for practitioners. Recurrent miscarriage: principles of management. Human Reproduction, 13, 478-482.

Lyne, K. & Roger, D. (2000). A psychometric re-assessment of the COPE questionnaire. Personality and Individual Differences, 29 (2), 321-335.

Magee, P. L. (2000). An Exploration of the Psychological Distress and Well Being Amongst Women with Recurrent Miscarriage, with an Examination of the Potential Role of Future-Thinking and Role and Goal Investment. Clinical Psychology Dissertation, Royal Holloway, University of London.

Magee, P.L., Macleod, A.K., Tata, P. & Regan, L. (2003). Psychological distress in recurrent miscarriage: the role of prospective thinking and role and goal investment. Journal of Reproductive and Infant Psychology, 21 (1), 35-47.

Magee, P. L. & Tata, P., 2004 (personal communication)

McConaghy, N, (2004). Men's sexual satisfaction correlates with relationship factors rather than sexual dysfunctions. Archives of Sexual Behaviour, 33 (1), 1-3.

McGoldrick, M & Carter. B. (2003). The family life cycle. In F. Walsh (Ed.), Normal Family Process: Growing Diversity and Complexity, Third Edition, pp375-398. The Guilford Press.

McGreal, D., Evans, B. J. & Burrows, G. B. (1997). Gender differences in coping following loss of a child through miscarriage or stillbirth: a pilot study. Stress Medicine, 13, 159-165.

Monach, J. H. (1993). Childless: No Choice. The Experience of Involuntary Childlessness. Routledge.

Moulder, C. (1990). Miscarriage. Women's Experience and Needs. Routledge

Moulder, C. (1994). Towards a preliminary framework for understanding pregnancy loss. Journal of Reproductive and Infant Psychology, 12, 65-67.

Murphy, F. (1998). The experience of early miscarriage from a male perspective. Journal of Clinical Nursing, 7, 325-332.

Nazareth, I., Boynton, P. & King, M. (2003). Problems with sexual function in people attending London general practitioners: cross sectional study. British Medical Journal, 327, 423-6

Neugebauer, R., Kline, J., Shrout, P., J. Skodol, A., O'Connor, P., Geller, P. A., Stein, Z & Susser, M. (1997). Major depressive disorder in the 6 months after miscarriage. Journal of the American Medical Association, 277 (5), 383-388.

Nikcevic, A., Tunkel, S., Kuczmierczyk, A, Nicolaides, K. (1999). Investigation of the cause of miscarriage and its influence on women's psychological distress. British Journal of Obstetrics and Gynaecology, 106, 808-813.

Oatley, K. & Bolton, W. (1985). A social-cognitive theory of depression in reaction to life events. Psychological Review, 92 (3), 372-388.

Pasch, L. A. & Christensen, A. (2000). Couples facing fertility problems. In K. B. Scmaling & T. Goldman Sher (Eds), The Psychology of Couples and Illness: Theory, Research & Practice, 241-267. American Psychological Association, Washington DC.

Peterson, B. D., Newton, C. R. & Rosen, K. H. (2003). Examining congruence between partners' perceived infertility-related stress and its relationship to marital adjustment and depression in infertile couples. Family Process, 42 (1), 59-70.

Piaget, J. (1968). Six Psychological Studies (A. Tenzer, Trans.). New York: Random House.

Picciotto, A. (1999). Couple Support during the Transition to Parenthood: Varieties of Empathic Responding. Clinical Psychology Dissertation, University College London, University of London.

Pistrang, N. & Barker, C. (1995). The partner relationship in psychological response to breast cancer. Social Science and Medicine, 40 (6), 789-797.

Porter, J. & Power, M. J. (1994) Role perception and risk of depression (submitted for publication). In L. A. Champion & M. J. Power (1995), Social and cognitive approaches to depression: Towards a new synthesis, p491. British Journal of Clinical Psychology, 34, 485-503.

Power, M. J., Champion, L. A. & Aris, S. J. (1988). The development of a measure of social support: The Significant Others (SOS) Scale. British Journal of Clinical Psychology, 27, 349-358.

Prettyman, E. J., Cordle, C. J. & Cook, G. D. (1993). A three-month follow-up of psychological morbidity after early miscarriage. British Journal of Medical Psychology, 66, 363-372.

Puddifoot, J. E. & Johnson, M. P. (1999). Active grief, despair, and difficulty coping: some measured characteristics of male response following their partner's miscarriage. Journal of Reproductive and Infant Psychology, 17, 89-93.

Rai, R., Clifford, K. & Regan, L. (1996). The modern preventative treatment of recurrent miscarriage. British Journal of Obstetrics and Gynaecology, 103, 106-110.

Rai, R. S. & Regan, L. (1997). Antiphospholipid antibodies, infertility and recurrent miscarriage. Current Opinion in Obstetrics and Gynaecology, 9 (4), 279-282.

Rajan, L. & Oakley, A. (1993). No pills for heartache: the importance of social support for women who experience pregnancy loss. Journal of Reproductive and Infant Psychology, 11, 75-87.

Raphael-Leff, J. (1991). The Psychological Process of Childbearing. London: Chapman and Hall.

Regan. L. (2001). Miscarriage: What Every Woman Needs to Know. Orion.

Rock, J. & Zucker, H. (1983). The clinical management of repeated early pregnancy wastage. Fertility and Sterility, 39 (2), 123-138.

Ross, J. M. (1982). In search of fathering: a review. In S. H. Cath, A. R. Gurwitt, J. M. Ross (Eds), Father and Child, pp 21-32. Boston, MA, Little, Brown.

Roth, A. & Fonagy, P. (1996). What Works for Whom? A Critical Review of Psychotherapy Research. The Guilford Press.

Rowsell, E., Jongman, G., Kilby, M. & Kirchmeier, R. (2001). The psychological impact of recurrent miscarriage, and the role of counselling at a pre-pregnancy counselling clinic. Journal of Reproductive and Infant Psychology, 19 (1), 33-45.

Rust, J. & Golombok, S. (1986a). The Golombok-Rust Inventory of Sexual Satisfaction (GRISS). Windsor, England, NFER-Nelson.

Rust, J. & Golombok, S. (1986b). The GRISS: a psychometric instrument for the assessment of sexual dysfunction. Archives of Sexual Behaviour, 15 (2), 153-161.

Sarason, B. R. & Sarason, I. G. & Pierce, G. R. (1990), Social Support: An Interactional View. John Wiley & Sons

Simon, R. W. (1992). Parental role strain, salience of parental identity and gender differences in psychological distress. Journal of Health and Social Behaviour, 33, 25-35.

Slade, P. & Cecil, R. (1994). Understanding the experience and emotional consequences of miscarriage – editorial. Journal of Reproductive and Infant Psychology, 12, 1-3.

Slade, P. (1994) Predicting the psychological impact of miscarriage. Journal of Reproductive and Infant Psychology, 12, 5-16.

Spanier, G. B. (1976). Measuring dyadic adjustment: new scales for assessing the quality of marriage and similar dyads. Journal of Marriage and the Family, 38, 15-28.

Spielberger, C. D. (1983). Manual for the State-Trait Anxiety Inventory (Form V). Palo Alto: Consulting Psychologists Press.

St. Mary's Hospital Booklet. Psychological Impact of Recurrent Miscarriages. A Guide to Understanding and Coping (2003). Recurrent Miscarriage Clinic, St. Mary's Hospital, London.

Stirrat, G. M. (1990). Recurrent miscarriage I: definition and epidemiology. Lancet, 336, 673-675.

Stray-Pedersen, B. & Stray-Pedersen, S. (1984). Etiologic factors and subsequent reproductive performance in 195 couples with a prior history of

habitual abortion. American Journal of Obstetrics and Gynaecology, 148 (2), 140-146.

Suguira-Ogasawara, M., Furukawa, T. A., Nakano, Y., Hori, S., Aoki, K. & Kitamura, T. (2002). Depression as a potential causal factor in subsequent miscarriage in recurrent spontaneous aborters. Human Reproduction, 17 (10), 2580-2584.

Swanson, K, M. (2000). Predicting depressive symptoms after miscarriage: A path analysis based on the Lazarus approach. Journal of Women's Health and Gender Based Medicine, 9, 191-204.

Tabachnick, B. G. & Fidell, L. S. (1996). Using Multivariate Statistics. Third Edition. Harper Collins.

Thapar, A. K. & Thapar, A. (1992). Psychological sequelae of miscarriage: A controlled study using the General Health Questionnaire and the Hospital and Anxiety Scale. British Journal of General Practice, 42, 94-96.

Theut, S. K., Pedersen, F. A., Zaslow, M. J., Cain, R. L., Rabinovich, B. A. & Morihisa, J. M. (1989). Perinatal loss and bereavement. American Journal of Psychiatry, 145 (5), 635-639.

Thoits, P. A. (1986). Social support as coping assistance. Journal of Consulting and Clinical Psychology, 54, 416-423.

Turnaley, J. R., Slade, P. & Duncan, S. B. (1993). Cognitive processes in psychological adaptation to miscarriage: a preliminary report. Psychology and Health, 8, 369-382.

Viljoen, D. & Wolpert, M. (2002). Increasing return rates from postal outcome questionnaires: 10 pointers from the literature. Clinical Psychology, 19, November, 18-21.

Walker, T. & Davidson, K. (2001). A preliminary investigation of psychological distress following surgical management of early pregnancy loss detected by ultrasound scanning: a trauma perspective. Journal of Reproductive and Infant Psychology, 19, 7-16.

Walsh, F. (2003). Normal Family Processes: Growing Diversity and Complexity, Third Edition. The Guilford Press.

Weissman, A. N. & Beck, A. T. (1978). Development and validation of the Dysfunctional Attitudes Scale: a preliminary investigation. Paper presented at the annual meeting of the American Research Association.

Zigmond, A. S. & Snaith, R.P. (1983). The Hospital Anxiety and Depression Scale. Acta Psychiatrica Scandinavica, 67, 361-370

Appendix One: Ethical Approval

St Mary's NHS
NHS Trust
Local Research Ethics Committee, R&D Office
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Tel No: 020 7886 6514: Fax No: 020 7886 1529
Email: Ros.Cooke@st-marys.nhs.uk

May 22, 2002

Dr Philip Tata
Paterson Centre
St Marys NHS Trust

Dear Dr Tata

Investigation of the impact of recurrent miscarriage on the psychological, dyadic and sexual functioning of couples with an examination of the function of role and goal investment.
Dr Tata, C Fotopoulos, P Fearon, Psychiatry
ECNo: 02.27
R&D No 02/BJ/519E

On behalf of the members I am pleased to say that St Mary's Local Research Ethics Committee (LREC) discussed the above project at their meeting in June 2002. The following grid shows the documents reviewed.

Research documents approved	Original date	Decision date
Patient information sheet and consent form	23.5.02	22/05/2002
LREC form	10.5.02	22/05/2002
Roles & Goals Questionnaire	Undated	22/05/2002
Hospital Anxiety and Depression Scale	Undated	22/05/2002
Recurrent Miscarriage Rating	Undated	22/05/2002

The members of the Committee present agreed there is no objection on ethical grounds to the proposed study, I am therefore happy to give you the favourable opinion of the committee in accordance with the ICH Good Clinical Practice Guidelines.

This decision is given on the understanding that the research team will observe strict confidentiality over the medical and personal records of the participants. It is suggested that this be achieved by avoidance of the subject's name or initials in the communication data. In the case of hospital patients, using the hospital record number can do this; in general practice, the National Insurance number or a code agreed with the relevant GP.

Chairman's initials

Appendix Two: R & D Approval

RESEARCH & DEVELOPMENT

LONDON WEST MENTAL HEALTH R&D CONSORTIUM

18 September 2003

Dear Philip

Re: Investigation of the impact of recurrent miscarriage on the psychological, dyadic and sexual functioning of couples with an examination of the function of role and goal investment

I am pleased to confirm that the above project has received Trust R&D approval, and you may now commence your research.

May I take the opportunity to remind you that during the course of your research you will be expected to ensure the following:

- **Patient contact:** only trained or supervised researchers who hold a Trust/NHS contract (honorary or full) are allowed contact with Trust patients. If you do not hold a contract please contact the R&D Office as soon as possible.
- **Informed consent:** original signed consent forms must be kept on file. A copy of the consent form must also be placed in the patient's notes. Research projects are subject to random audit by a member of the R&D Office who will ask to see all original signed consent forms.
- **Data protection:** measures must be taken to ensure that patient data is kept confidential in accordance with the Data Protection Act.
- **Health & safety:** all local health & safety regulations where the research is being conducted must be adhered to.
- **Adverse events:** adverse events or suspected misconduct should be reported to the R&D Office and the Ethics Committee.
- **Project update:** you will be sent a project update form at regular intervals. Please complete the form and return it to the R&D Office.
- **Publications:** it is essential that you inform the R&D Office about any publications which result from your research.

I would like to wish you every success with your project, and if you need any further help please don't hesitate in contacting me.

Regards

Lynn Lewis
R&D Manager

Appendix Three: The Dyadic Adjustment Scale

DYADIC ADJUSTMENT SCALE

persons have disagreements in their relationships. Please indicate below the approximate extent of agreement greement between you and your partner for each item on the following list.

	Always Agree	Almost Always Agree	Occa-sionally Disagree	Fre-quently Disagree	Almost Always Disagree	Always Disagree
andling family finances	5	4	3	2	1	0
atters of recreation	5	4	3	2	1	0
eligious matters	5	4	3	2	1	0
emonstrations of affection	5	4	3	2	1	0
iends	5	4	3	2	1	0
x relations	5	4	3	2	1	0
nventionality (correct or oper behavior)	5	4	3	2	1	0
ilosophy of life	5	4	3	2	1	0
ays of dealing with parents in-laws	5	4	3	2	1	0
ms, goals, and things lieved important	5	4	3	2	1	0
nount of time spent together	5	4	3	2	1	0
aking major decisions	5	4	3	2	1	0
usehold tasks	5	4	3	2	1	0
isure time interests and ivities	5	4	3	2	1	0
reer decisions	5	4	3	2	1	0

	All the time	Most of the time	More often than not	Occa-sionally	Rarely	Never
w often do you discuss or have considered divorce, separation, terminating your relationship?	0	1	2	3	4	5
w often do you or your mate ve the house after a fight?	0	1	2	3	4	5
general, how often do you think t things between you and your tner are going well?	5	4	3	2	1	0
you confide in your mate?	5	4	3	2	1	0
you ever regret that you rried? (*or lived together*)	0	1	2	3	4	5
w often do you and your tner quarrel?	0	1	2	3	4	5
w often do you and your mate t on each other's nerves?"	0	1	2	3	4	5

	Every Day	Almost Every Day	Occa-sionally	Rarely	Never
Do you kiss your mate?	4	3	2	1	0
	All of them	Most of them	Some of them	Very few of them	None of them
Do you and your mate engage in outside interests together?	4	3	2	1	0

often would you say the following events occur between you and your mate?

	Never	Less than once a month	Once or twice a month	Once or twice a week	Once a day	More often
ave a stimulating exchange f ideas	0	1	2	3	4	5
augh together	0	1	2	3	4	5
almly discuss something	0	1	2	3	4	5
ork together on a project	0	1	2	3	4	5

are some things about which couples sometimes agree and sometime disagree. Indicate if either item below differences of opinions or were problems in your relationship during the past few weeks. (Check yes or no)

Yes	No	
0	1	Being too tired for sex.
0	1	Not showing love.

e dots on the following line represent different degrees of happiness in your relationship. The middle point, appy," represents the degree of happiness of most relationships. Please circle the dot which best describes the gree of happiness, all things considered, of your relationship.

0	1	2	3	4	5	6
Extremely Unhappy	Fairly Unhappy	A Little Unhappy	Happy	Very Happy	Extremely Happy	Perfect

hich of the following statements best describes how you feel about the future of your relationship?

5 I want desperately for my relationship to succeed, and *would go to almost any length* to see that it does.

4 I want very much for my relationship to succeed, and *will do all I can* to see that it does.

3 I want very much for my relationship to succeed, and *will do my fair share* to see that it does.

2 It would be nice if my relationship succeeded, but *I can't do much more than I am doing* now to help it succeed.

1 It would be nice if it succeeded, but I *refuse to do any more than I am doing* now to keep the relationship going.

0 My relationship can never succeed, and *there is no more that I can do* to keep the relationship going.

Appendix Four; Roles & Goals Questionnaire

Roles and Goals Questionnaire

This questionnaire maps into the roles and goals in five domains of a person's life.
The five domains are:

1. Present work (including part time or full time employment, voluntary work, full-time housewife and full-time study).
2. The most important interests and hobbies.
3. The most important personal relationships.
4. Health and independent living.
5. Becoming a parent.

The questions are then rated on a four point scale:
1 = very little, 2= moderate amount, 3 = quite a lot and 4 = a great deal.

For each domain the subject is asked to specify her current employment, the name of the hobby/interest, the individual whom the subject considers to be the most important relationship, and any reason for health issues.

Part A *Work*

Current Employment- including part time and full time work, full time housewife, academic study

Please state what this is_____

	Very Little	Moderate amount	Quite a lot	A great deal
1. How much does work make you feel good as a person ?	**1**	**2**	**3**	**4**
2. How much energy & effort do you put into work ?	**1**	**2**	**3**	**4**
3. How successful do you think you will be in this work ?	**1**	**2**	**3**	**4**
4. To what extent does being successful in other areas of your life depend on your being successful at work ?	**1**	**2**	**3**	**4**
5. To what extent do you think life would be meaningless or unhappy without work ?	**1**	**2**	**3**	**4**

Part B *Most important interests & hobbies*

Please state what this is_____

	Very Little	Moderate amount	Quite a lot	A great deal
1 How much does this make you feel good as a person ?	**1**	**2**	**3**	**4**
2 How much energy & effort do you put into this hobby ?	**1**	**2**	**3**	**4**
3 How successful do you think you will be in this hobby ?	**1**	**2**	**3**	**4**
4 To what extent does being successful in other areas of your life depend on your being successful at this ?	**1**	**2**	**3**	**4**
5 To what extent do you think life would be meaningless or unhappy without this ?	**1**	**2**	**3**	**4**

Part C *Most important personal relationship*

Please state what this is_____

	Very Little	Moderate amount	Quite a lot	A great deal
1 How much does this make you feel good as a person ?	**1**	**2**	**3**	**4**
2 How much energy & effort do you put into this relationship ?	**1**	**2**	**3**	**4**
3 How successful do you think you will be in this relationship ?	**1**	**2**	**3**	**4**
4 To what extent does being successful in other areas of your life depend on your being successful at this relationship?	**1**	**2**	**3**	**4**
5 To what extent do you think life would be meaningless or unhappy without this relationship?	**1**	**2**	**3**	**4**

Part D *Health*

	Very Little	Moderate amount	Quite a lot	A great deal
1 How much does this make you feel good as a person ?	**1**	**2**	**3**	**4**
2 How much energy & effort do you put into your health ?	**1**	**2**	**3**	**4**
3 How successful do you think you will be in keeping healthy ?	**1**	**2**	**3**	**4**
4 To what extent does being successful in other areas of your life depend on your being successful at this ?	**1**	**2**	**3**	**4**
5 To what extent do you think life would be meaningless or unhappy without health ?	**1**	**2**	**3**	**4**

Part E *Becoming a parent*

	Very Little	Moderate amount	Quite a lot	A great deal
1 How much would this make you feel good as a person ?	**1**	**2**	**3**	**4**
2 How much energy & effort do you put into your becoming a parent ?	**1**	**2**	**3**	**4**
3 How successful do you think you will be in becoming a parent ?	**1**	**2**	**3**	**4**
4 To what extent does being successful in other areas of your life depend on your being successful at this ?	**1**	**2**	**3**	**4**
5 To what extent do you think life would be meaningless or unhappy without children ?	**1**	**2**	**3**	**4**

Appendix Five: Mail Out Letter

RECURRENT MISCARRIAGE CLINIC
Samaritan Clinic
Winston Churchill Wing
Praed Street London W2 1NY
Telephone 020 7258 0285
Fax 020 7886 6479

Director	Professor Lesley Regan MD FRCOG	Research Fellow	Dr Maz Khan MRCOG
Consultant	Mr Raj Rai Bsc MD MRCOG	Counsellor	
Hon Consultant	Mr Jan Brosens MD MRCOG PhD	Co-ordinator	
Associate Specialist	Miss May Backos MRCOG	Office Manager	
Staff Grade Specialist	Miss Safaa El-Gaddal MRCOG	Assistant	

Dear _____,

As you are aware you will shortly be attending your first appointment at the Recurrent Miscarriage Clinic. I have therefore enclosed an information sheet regarding a research project that we are currently running at the clinic.

The information sheet provides an outline of what this research project is about and what it would involve on your part should you decide to participate. In sending you this information before your appointment I hope to give you the time to talk to your partner about the study and consider whether you are willing to take part.

Shortly before your appointment at the clinic I will try to contact you by phone. You will be able to ask me any questions you may have about the research project. You will *not* need to make a decision at this point regarding your participation in the research project. All we will want to know is whether I can come and talk to you about the research project when you attend your clinic appointment. If I am unable to contact you by phone I will approach you when you attend your clinic appointment to discuss the research project.

Yours sincerely,

Christina Fotopoulos
Trainee Clinical Psychologist

Appendix Six: Patient Information Sheet

ST'S MARY'S RECURRENT MISCARRIAGE CLINIC RESEARCH PROJECT

Would you consider helping us in a research project, which aims to improve our understanding of the experience of recurrent miscarriage as well as help to further develop the services for recurrent miscarriage patients and their partners?

Why have *you* been asked to take part?
Everyone who visits the recurrent Miscarriage Clinic who is waiting on an initial consultation will be asked to fill in some questionnaires and answer some questions. As the clinic can be very busy we thought you might prefer to have some initial information about this research project prior to your first clinic appointment. This will give you time to talk to your partner and consider your participation in the project.

What will you be asked to do?
The study involves seeing a researcher on one occasion only. If you decide to participate, you will be asked to fill in some questionnaires about yourself, your relationship with your partner and your goals for the future. Some of the questionnaires will contain questions of an intimate nature. The researcher who interviews you will tell you how to complete the questionnaires, and will stay with you while you answer the questions. The whole process should take about 30 minutes.

Who will have access to the information you give?
With your permission we will write to your general practitioner to let him or her know that you have been interviewed for the study. However, neither your doctor nor anyone else apart from the researchers will see your completed questionnaires. All the information collected during the interview will be treated as strictly confidential, and will be known only to the researchers.

Will your taking part in the study change any medical treatment you are having?
If you are currently receiving medical treatment from your general practitioner or from the hospital, your help in our research will not change this treatment.

What happens if you decide not to take part?
Because entry to the study is entirely voluntary, you should not take part in the study if you do not wish to do so. If you decide to take part, any treatment which you are currently receiving from your general practitioner or from the hospital will not be affected in any way by your decision. You may also withdraw at any time during the study, without giving a reason, or affecting further treatment.

What happens next?
Shortly before your appointment at the clinic we will try to contact you by phone. You will be able to ask us any questions you may have about the research project. You do not need to make a decision at this point regarding your participation in the research project. All we will want to know is whether we can come and talk to you about the research project when you attend your clinic appointment. If we are unable to contact you by phone we will approach you when you attend your clinic appointment to discuss the research project.

From whom can you get more information?
If you want more information about the study, please contact Christina Fotopoulos at the Department of Clinical Health Psychology, University College London on 0787 602 8854 or Philip Tata, Psychology Department, St. Mary's Hospital, on 0207 886 1649.

Appendix Seven: GP Information Letter

RECURRENT MISCARRIAGE CLINIC
Samaritan Clinic
Winston Churchill Wing
Praed Street London W2 1NY
Telephone 020 7258 0285
Fax 020 7886 6479

Director	Professor Lesley Regan MD FRCOG	Research Fellow	Dr Maz Khan MRCOG
Consultant	Mr Raj Rai Bsc MD MRCOG	Counsellor	Mrs Elinor James
Hon Consultant	Mr Jan Brosens MD MRCOG PhD	Co-ordinator	Miss Yvette Fenton
Associate Specialist	Miss May Backos MRCOG	Office Manager	Mrs Cath McLaren
Staff Grade Specialist	Miss Safaa El-Gaddal MRCOG	Assistant	

Date:

Dear

Re: Name:
D.o.B.:
Address:

I am writing to let you know that this patient of yours and her partner have offered to participate in our research project to improve our understanding of the experience of recurrent miscarriage for couples (see enclosed information sheet). She / They have signed our consent form and have completed the questionnaire packs.

Please contact me on 0207 886 1659 if you have any concerns.

Yours sincerely,

Christina Fotopoulos
Trainee Clinical Psychologist

ST'S MARY'S RECURRENT MISCARRIAGE CLINIC
RESEARCH PROJECT

Would you consider helping us in a research project, which aims to improve our understanding of the experience of recurrent miscarriage as well as help to further develop the services for recurrent miscarriage patients and their partners?

Why have *you* been asked to take part?
Everyone who visits the recurrent Miscarriage Clinic who is waiting on an initial consultation will be asked to fill in some questionnaires and answer some questions. As the clinic can be very busy we thought you might prefer to have some initial information about this research project prior to your first clinic appointment. This will give you time to talk to your partner and consider your participation in the project.

What will you be asked to do?
The study involves seeing a researcher on one occasion only. If you decide to participate, you will be asked to fill in some questionnaires about yourself, your relationship with your partner and your goals for the future. Some of the questionnaires will contain questions of an intimate nature. The researcher who interviews you will tell you how to complete the questionnaires, and will stay with you while you answer the questions. The whole process should take about 30 minutes.

Who will have access to the information you give?
With your permission we will write to your general practitioner to let him or her know that you have been interviewed for the study. However, neither your doctor nor anyone else apart from the researchers will see your completed questionnaires. All the information collected during the interview will be treated as strictly confidential, and will be known only to the researchers.

Will your taking part in the study change any medical treatment you are having?
If you are currently receiving medical treatment from your general practitioner or from the hospital, your help in our research will not change this treatment.

What happens if you decide not to take part?
Because entry to the study is entirely voluntary, you should not take part in the study if you do not wish to do so. If you decide to take part, any treatment which you are currently receiving from your general practitioner or from the hospital will not be affected in any way by your decision. You may also withdraw at any time during the study, without giving a reason, or affecting further treatment.

From whom can you get more information?
If you want more information about the study, please contact Christina Fotopoulos at the Department of Clinical Health Psychology, University College London on 0787 602 8854 or Philip Tata, Psychology Department, St. Mary's Hospital, on 0207 886 1649.

Appendix Eight: Patient Information and Consent Form

INFORMATION AND CONSENT FORM

Would you consider helping us in a research project, which aims to improve our understanding of the experience of recurrent miscarriage as well as help to further develop the services for recurrent miscarriage patients and their partners?

Why have *you* been asked to take part?
Everyone who visits the recurrent Miscarriage Clinic who currently does not have children and is waiting on an initial consultation will be asked to fill in some questionnaires and answer some questions.

What will you be asked to do?
The study may involve seeing a researcher on one occasion only. If you decide to participate, you will be asked to fill in some questionnaires about yourself, your relationship with your partner and your goals for the future. Some of the questionnaires will contain questions of an intimate nature. The researcher who interviews you will tell you how to complete the questionnaires, and will stay with you while you answer the questions. The whole process should take about 30 minutes.

Who will have access to the information you give?
With your permission we will write to your general practitioner to let him or her know that you have been interviewed for the study. However, neither your doctor not anyone else apart from the researchers will see your completed questionnaires. All the information collected during the interview will be treated as strictly confidential, and will be known only to the researchers.

Will your taking part in the study change any medical treatment you are having?
If you are currently receiving medical treatment from your general practitioner or from the hospital, your help in our research will not change this treatment.

What happens if you decide not to take part?
Because entry to the study is entirely voluntary, you should not take part in the study if you do not wish to do so. If you decide not to take part, any treatment which you are currently receiving from your general practitioner or from the hospital will not be affected in any way by your decision. You may also withdraw at any time during the study, without giving a reason, or affecting further treatment.

From whom can you get more information?
If you want more information about the study, please contact Christina Fotopoulos at the Department of Clinical Health Psychology, University College London on 07905 943 654 or Philip Tata, Psychology Department, St. Mary's Hospital, on 0207 886 1649.

It has been explained to me what my taking part in this research study will involve, and I have understood this explanation. I agree to take part in this study.

_____ _____

Signature Date

Appendix Nine: Consent for Feedback Form

Recurrent Miscarriage Clinic, St. Mary's Hospital
Research Feedback Form

Would you like brief written feedback from the questionnaires you have just completed (please circle)?

YES

NO

Due to the intimate nature of some of the questionnaires we would like you to indicate whether you would like the feedback to be:

A) Individual Feedback
(a letter with feedback from **only your** questionnaires)

B) Joint Feedback *
(a letter with feedback from **both you & your partner's** questionnaires)

*Please note that joint feedback will ONLY be provided when BOTH partners have indicated that this is their preferred mode of feedback.

Print your name:_____

Signature:_____

Date:_____