PSYCHOLOGICAL FUNCTIONING

IN COUPLES UNDERGOING

IN VITRO FERTILISATION (IVF) OR DONOR INSEMINATION (DI)

TREATMENT FOR INFERTILITY

by

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ABSTRACT

This study was designed to investigate the emotional, marital and sexual functioning of female infertility patients and their male partners, to examine factors influencing psychological functioning, and to assess ways that patients cope with their infertility.

Patients attending one of two London clinics for in vitro fertilisation (IVF) or donor insemination (DI) treatment were assessed prior to treatment and approximately 9 months later. At initial assessment, fifty-nine women were interviewed and completed self-report questionnaires assessing state and trait anxiety, depression, sex role, marital and sexual functioning and strategies used to cope with infertility. Thirty-four of their partners also completed questionnaires.

Prior to treatment, participants experienced high levels of anxiety, but not depression. They did not have significant levels of marital or sexual problems. High levels of avoidance coping were associated with higher levels of anxiety and depression, but coping strategies were not related to marital or sexual functioning. More female participants were classified as having feminine sex roles in comparison with the general population. High levels of masculinity were associated with lower anxiety but not depression for both men and women. Female IVF patients had higher trait anxiety than female DI patients, but there were no other differences in psychological functioning between the treatment groups. In terms of factors influencing emotional functioning, avoidance coping was a consistent predictor of anxiety and depression in both women and men.

The response to follow up was poor: only 46% of female participants completed assessments. For most participants, treatment was unsuccessful. There was a strong relationship between functioning at initial and follow up assessment for these patients.

Couples who undergo IVF and DI are a select group of patients: although anxious prior to treatment their emotional functioning is generally good. Reasons for these findings are discussed and proposals for interventions to reduce anxiety and enable appropriate coping strategies are made.

KEY TO ABBREVIATIONS

DI — Donor insemination or artificial insemination by donor (AID) (for a description of the procedure, see Appendix 1a).

IVF — In vitro fertilisation (for a description of the procedure, see Appendix 1b). Whilst IVF can be performed using donor gametes, the procedure referred to in this thesis is that using the gametes of the male and female partner.

CHAPTER ONE: INTRODUCTION

Early interest in psychological aspects of infertility centred on psychological factors as causal agents in unexplained infertility, as for example in Deutsch's (1945) typology of infertile women. This was a description of five types of psychogenically infertile women determined on the basis of clinical observation: the physically and psychologically infantile woman, the motherly woman whose husband is not ready to be a father, the woman with other interests, the masculine woman, and the emotionally disturbed woman. Empirical studies were not conducted to investigate the validity of this typology. It is characteristic of early views of infertility, in that it stresses psychogenic rather than physical factors in the aetiology of infertility, attributes causality of infertility to the woman, and blames her for it.

Early reports on the role of psychological factors in the aetiology of infertility tended to be speculative and restricted to case studies or anecdotal material (eg Benedek et al, 1953). In reviewing this area in 1986, Edelmann and Connolly concluded that there was little evidence to support the argument for aetiological psychological factors in infertility.

In contrast to early views, in the 1970's there came a gradual awareness that the experience of infertility itself might influence psychological well-being. Recommendations appeared in the medical literature for doctors to take account of the psychological component of infertility (Bresnick & Taymor, 1979) and to be aware of the possibility of effects on the marital and sexual relationship (eg Kaufman, 1969).

Although the view that fertility may be affected by psychological functioning has not been completely discarded, current concepts are less concerned with the psychopathology of infertile women and more concerned with the way in which the anxiety experienced by patients might affect their fertility (for a review, see Edelmann & Golombok, 1989). More recently, there has been a widening of interests in the area of psychological aspects of infertility to include consideration of assessment of couples for intervention or for selection for various techniques of medically aided conception (eg Freeman et al, 1985), the impact of these techniques on the individual (eg Callan & Hennessey, 1988), and the counselling needs of infertile couples (eg Edelmann & Connolly, 1987; Shaw et al, 1988).

Investigation of the psychological impact of infertility and its treatment is clearly important because of the

hypothesised relationship between anxiety and fertility. It is also important because information about the experiences and emotional functioning of infertile individuals and their partners can be used to ensure that patients are cared for in the most appropriate way. Given that infertility treatment deals with psychosocial needs, it would seem appropriate that care is organised to meet these needs. One of the difficulties associated with infertility treatment is that it is provided within a medical setting, and this is true even for treatments which are not strictly medical such as donor insemination. This means that psychosocial aspects of infertility do not always receive the attention they deserve. It has been argued that evaluation of outcome for patients should be in psychosocial terms, rather than success rate of treatment or "take home baby rate" (Johnston, 1984).

In recent years, the choices facing infertile couples have become more complicated. Rapid changes in medical techniques mean that most couples face a lengthy process of treatment which can be both physically and emotionally demanding, and the chances of success with many of the new reproductive techniques are still low.

Although reports suggest that infertile couples are distressed and may experience marital difficulties, there have been few studies which have examined this systematically. The current study aims to assess the

extent of such problems in a group of patients who are at the same stage of treatment. It also aims to investigate factors which may influence emotional functioning and marital adjustment and to assess the effectiveness of the coping strategies that patients use to deal with their infertility.

This chapter will review the literature dealing with the impact of infertility on emotional, marital and sexual functioning, and the factors which have been thought to affect individual response to infertility. This will provide a background to and rationale for the current research.

1.1 EMOTIONAL FUNCTIONING IN INFERTILITY PATIENTS

Infertility itself is regarded as stressful. Mahlstedt et al (1987) reported that 80% of their sample found infertility to be stressful or extremely stressful. Freeman et al's (1987) statistic - that 49% of their sample of infertile women described infertility as the most upsetting experience of their lives - is often quoted to make this point. Van Balen et al (1989) report that in a study of 94 couples with primary infertility, 20% of women and 5% of men rated childlessness as "the worst thing that ever happened to me".

Given the stressful nature of infertility, a number of studies have investigated the emotional functioning of men

and women who are infertile, or who are undergoing testing or treatment for infertility. Wright et al (1989) have summarised the results of controlled studies which address the hypothesis that infertility itself, or the diagnosis and treatment associated with it, can cause distress. They conclude that infertile patients are more psycho-socially distressed than control subjects, but that the research has no causal implications, given that none of the studies examined patients prior to their suspicion that they were infertile.

A number of studies have found evidence of distress amongst infertility patients. Bell (1981) reports on 10 couples presenting at an infertility clinic and 10 couples undergoing treatment and found that 9 complained of significant emotional disturbance. Infertility patients have been found to be more depressed and more anxious in comparison with controls. For example, Link & Darling (1986) found that amongst patients undergoing treatment for infertility, 39.5% of wives and 16.3% of husbands had scores indicating a clinically significant level of non-psychotic depression, and Bromham et al (1989) report that infertile men and women had higher hopelessness and lower life satisfaction than a fertile control group. Harrison et al (1984) found that women (but not their male partners) had higher state anxiety than controls, and Pesch et al (1989) found that infertile women tended to have higher state anxiety when compared with women without

fertility problems. Lalos et al (1986) found that 2/3 of their sample of women with tubal damage reported feelings of despair, depression during menstruation, irritability and grief.

Other studies, however, have found that infertile individuals do not differ significantly from controls. Paulson et al (1988) compared 150 primarily infertile women with 50 women with no history of infertility, and found no evidence of elevated anxiety or depression in the infertile group.

1.2 INDIVIDUAL DIFFERENCES IN RESPONSE

A number of factors may contribute to these apparently conflicting findings. One problem is the expectation of a uniform response to stress. Given that infertile people are individuals, it might be expected that each would find different aspects of infertility and its treatment stressful, and would respond in different ways (Berg & Wilson, 1989). Infertile individuals do not constitute a homogenous group; they will differ in terms of their attitudes and expectations about having children, the length of time they have known about their infertility, the length of time they undergo testing, their diagnosis, whether the problem lies in the male or female partner, their cultural background and many other characteristics. It cannot be assumed, therefore, that they will respond in a homogenous way.

Differences may also be due to the fact that measurements of distress are taken at different times - prior to testing, during testing, prior to diagnosis or during treatment. Studies which have included infertility clinic patients may include patients at all these different stages of treatment. It is likely that these different stages have differing implications for the individuals undergoing them. Research in other areas examining the relationship between psychological factors and illness has been concerned with "disease-relevant" intervals. Some studies with infertility patients have adopted this method. For example, Daniluk (1988) examined emotional functioning in 86 men and women with primary infertility at four time points: immediately after the initial medical visit, 4 weeks later during medical testing, within 1 week of diagnosis, and 6 weeks after diagnosis. She found differences in functioning by time, with the most significant levels of distress being experienced at the initial medical interview.

If it is accepted that infertility is stressful, there are a number of factors which need to be taken into account when examining emotional functioning. These are factors which influence response to life stress and include gender, characteristics of the stressor, social support, sex role and coping strategies. These are discussed in the following sections.

1.3 FACTORS INFLUENCING RESPONSE TO LIFE STRESS

1.3.1 Gender

Gender has been thought to be an important factor influencing emotional response to infertility. A number of studies have found higher levels of distress in women, in comparison with men. McGrade & Tolor (1981), in a retrospective study of successful and unsuccessful infertile couples, found that women in both groups reported more emotional distress than men. Van Balen (1989) found that more women than men reported feelings at the "worst" end of a scale measuring response to infertility. Link & Darling (1986) found that women were less satisfied with life than men. Women also appear to report more depression than men (Tartasky, 1985; Lalos et al, 1986; Daniluk, 1988). Bernstein et al (1985) found that women were more anxious than men, and Raval et al (1987) found that in couples attending an infertility clinic, women showed greater anxiety and depression than men.

Two authors suggest that this sex difference may be a result of all or most of the women under study being the partner with the problem resulting in infertility (Lalos et al, 1986; Daniluk, 1988). In a review, Wright et al (1989) report that results across a number of studies suggest that women experience more distress. However, as they point out, such differences may reflect pre-existing differences (ie prior to the knowledge of infertility).

A causal relationship cannot be assumed.

It is also possible that some results are due either to (1) women in "normal" populations scoring higher on these measures anyway; or (2) women being more prepared to admit to emotional distress than men; or a combination of these. In normal populations women score higher on the State-Trait Anxiety Inventory than men (Spielberger et al, 1970; Knight et al, 1983), thus little can be inferred from infertile women or women in infertile couples scoring higher than infertile men, or men in infertile couples. Comparison with norms for particular scales is necessary. Some research also gives weight to the second explanation: men tend to have higher lie scores than women (Lalos et al, 1985b; Harrison et al, 1984;) or lay "claim to an improbably high level of emotional stability" (Humphrey, 1975).

If women do experience greater distress than men, this may be because they bear greater responsibility than men for many aspects of fertility, and thus infertility. In comparison with men, women generally bear more responsibility for having and caring for children; are socialised to relate their self-esteem to their fertility; receive more social censure for infertility; take more responsibility for trying to solve fertility problems; and if they or their partner are infertile, spend more time under investigation and having treatment which is more

painful and distressing (Wright et al, 1989).

Thus, greater distress in women may be because they are women; because they are feminine; because their experience is more stressful; because they use different (and perhaps less effective) coping strategies; or a combination of these. Clearly it is not easy to disentangle these effects.

1.3.2 Medical characteristics

Other factors which may influence emotional functioning are the characteristics of the stressor, that is, the medical characteristics of infertility, including the length of time trying to conceive or length of infertility, the length of period of investigation, whether a diagnosis has been made and whether the problem resulting in infertility lies in the male or female partner.

In examining the influence of the duration of infertility, Platt et al (1973) and O'Moore et al (1983) suggest that as the duration of infertility increases, so does the resulting psychological distress. However, McEwan et al (1987) and Raval et al (1987) found no effect on emotional functioning, although Berg & Wilson (1989) found that distress was greatest if the duration of infertility was 3 or more years, and least in the second year. Raval et

al (1987) also found no effect of the length of the period of investigation, whilst Connolly et al (1987) found that with a greater duration of testing on men, they were more likely to report feelings of anger, guilt and diminished success; and women were more likely to report feeling guilty, less successful, less happy and less satisfied. These two studies differed however, in that Raval et al (1987) were examining the influence of duration of testing on current functioning in patients attending an infertility clinic, whereas Connolly et al (1987) were using retrospective reports of emotional functioning from a postal questionnaire sent to patients who had attended an infertility clinic. These differences may account for the discrepancy in results.

However, given that prior experience of the stressor is also thought to be beneficial it might be expected that patients who experienced a greater duration of infertility (or investigation) would be better equipped to deal with it. This is clearly in conflict with the suggestion that emotional distress might <u>increase</u> with increasing length of infertility. It is possible that duration of infertility operates in two different ways: the duration of infertility itself increasing distress, as childlessness appears increasingly inevitable, but the length of experience of infertility and its investigation and treatment enabling individuals to develop appropriate coping strategies to deal with the distress.

It has also been suggested that the diagnosis may have an influence on emotional functioning. This has been examined in terms of whether or not the individual has received a diagnosis, and also in terms of the meaning of specific diagnoses for the individual. Again, conflicting results have been found. Connolly et al (1987) found no difference between diagnosed and undiagnosed (ie idiopathic) infertile men and women in terms of emotional functioning, but McEwan et al (1987) found that undiagnosed women showed poorer adjustment. Most studies have not found differences when comparing the effects of differing diagnoses (eg McEwan et al, 1987; Brand, 1982; Shatford et al, 1988) although Pesch et al (1989) found that women with luteal phase insufficiency had higher trait anxiety than women with anovulatory disturbances or organic infertility: this may be a causal factor rather than a outcome.

Diagnosis not only has implications for the individual but also for the partner. Bell (1981) suggested that the fertile partner may have more problems than the infertile partner. It has been found that when the infertile partner is male, there are increased feelings of guilt, isolation and depression in men, and feelings of guilt and lack of success in their partners (Connolly et al, 1987). This may be due to the more untreatable nature of male infertility; it is worth noting that Owens & Read (1984)

found that the lack of treatment for men was of great concern to infertility patients: when the cause was female, nearly 2/3 of their respondents felt that treatment had been satisfactory, in comparison with only 1/3 when the cause was male.

1.3.3 Social support

It has been suggested that social support has a stress-buffering effect. It may serve as a stress buffer by influencing the interpretation of stressors, knowledge of coping strategies, and self-concept. This effect is dependent on the extent to which individuals rely on available support. It is perceived rather than received social support which is important (Cohen & Wills, 1985), and the quality of social support rather than the quantity which has the greater impact (McFarlane et al, 1984).

With infertility patients, it has been found that social support from the partner is associated with reduced emotional distress, but that social support outside the family is not beneficial (McEwan et al, 1987). Infertility patients may be reluctant to discuss their problems with people other than their partner, or outside the family. Menning (1980) suggests that many infertile couples perceive infertility as a private matter. This may be particularly so with patients undergoing donor insemination, who may be reluctant to tell anyone about

treatment; but a fair proportion of infertility patients do not tell others that they have a problem, or that they are undergoing testing or treatment. Singer & Wells (1984) report that 81% of IVF patients told their parents that they were on the program, 61% told all family members and 77% told close friends, but only 23% told all friends. In a study of donor insemination couples, only 21% reported having discussed their treatment with a parent (Ledward et al, 1979). This may be a result of a perception that infertility is private, and a wish to protect themselves from having to discuss the problem with others; in cases of male infertility, it may be to protect the male partner. Women in infertile couples feel that female infertility is less threatening to femininity than male infertility is to masculinity (Miall, 1985). Patients may feel that others cannot understand how they feel, or will make inappropriate or negative remarks (Callan & Hennessey, 1988). Whatever the motivation, the result may be reduced access to social support. In infertile couples, this may lead to greater dependence on the partner (Woollett, 1985). This may be sufficient, as it has been suggested that one relationship is sufficient to act as a buffer (Cohen & Wills, 1985), and McEwan et al's (1987) results tend to confirm this.

1.3.4 Coping strategies

Another important factor in understanding the influence of infertility on emotional functioning is the use of coping strategies. Coping refers to any efforts to manage demands that exceed an individual's resources. Coping can be assessed either as a trait or style, or in relation to a particular episode (Cohen, 1987). Coping style refers to the tendency of an individual to use a particular type of coping independent of the type of stressor, whereas episodic coping refers to the strategies that individuals use in coping with a given situation or event. However, coping style does not appear to be predictive of the use of coping strategies to deal with a particular event (eg Cohen & Lazarus, 1973). The model of individuals using a particular type of coping at any stage or with any aspect of any stressful event does not appear to be sufficiently complex to account for the amount of individual, stressor and time related variation in the use of coping strategies.

Although several methods of classification of coping strategies have been proposed, it has recently been suggested that there is a consistency in the literature in terms of two broad concepts: approach or attentional coping and avoidance coping (Suls & Fletcher, 1985; Roth & Cohen, 1986). Both types of strategy include behavioural, cognitive and emotional activities, but differ in that approach strategies are those that focus

attention on the source of stress, whereas avoidance strategies divert attention away from the source of stress.

Whilst the influence of coping strategies needs to be considered in terms of the characteristics of the stressor, there are some consistent findings in the literature. Research suggests that both types of strategy can be beneficial in terms of reducing anxiety (eg Meyerowitz, 1983), but under different circumstances. Avoidance strategies have been found to be effective in dealing with short-term stressors or when outcome measures are immediate or short-term, whereas approach strategies have been found to be more effective in dealing with long-term stressors or when the outcome measures are long-term (Mullen & Suls, 1982). This may be because avoidance strategies, in directing attention away from the stressor, provide immediate relief, whereas approach strategies, such as information seeking, provide individuals with information which facilitates long term adaptation (ie overall adjustment). Recent research with patients experiencing a similar stressor (benign pain) either in the long or short term (ie chronic or recent-onset) has provided support for this "time by strategy" hypothesis (Holmes & Stevenson, 1990). Thus avoidance may be useful as an initial coping strategy when emotional resources are limited. In terms of the characteristics of infertility, it may be seen as a long-term stressor, but with short

term stresses for those that undergo medical investigations and treatment.

There is also evidence to suggest that avoidance coping is more effective if the situation is uncontrollable, whereas approach coping is more effective where there is the potential for control (Roth & Cohen, 1986). The potential for control over infertility may depend on the appraisal of the individual; however, presenting for treatment may be one indication of the individual's attempts to gain control.

Avoidance strategies may be beneficial because they allow for the gradual recognition of threat, whilst reducing anxiety. Thus:

> "Partial, tentative or minimal use of avoidance can lead to increased hope and courage, particularly over a long period of time" (Roth & Cohen, 1986).

Thus, the main benefit of avoidance coping may be to facilitate approach coping.

Holohan & Moos (1985) suggest that when faced with life stress, most individuals use high levels of approach coping, together with some avoidance coping, and that the relative amount of this additional avoidance coping

distinguishes between "healthy" and "unhealthy" persons. They suggest that avoidance coping plays a negative role in its own right, rather than by taking time away from other positive coping strategies.

Research on coping and stress has been beset with problems of measurement and definition (eg see Cohen, 1987). Research with infertility patients is no exception to this. For example, Van Balen et al (1989) discuss coping strategies with reference to infertility, but only in terms of possible active behavioural solutions to infertility. Thus, they define four coping strategies: medical, alternative (eg adoption/AID), other life goals and no strategy.

There has been little systematic study of the coping strategies used by infertile people, or of the relationship between emotional distress and coping with infertility. Two studies have examined coping strategies in infertility patients, but only to examine the use of different coping strategies by different diagnostic groups (Shatford et al, 1988; Pesch et al, 1989). Callan & Hennessey (1989a) have recently reviewed qualitative and quantitative studies on how couples report dealing with infertility and infertility treatment, and have demonstrated that a wide range of coping strategies are used, such as information and social support seeking, problem solving, distraction and emotional discharge.

Clearly, if infertility is regarded as a stressful event, it is important to examine the coping strategies of infertile individuals, and the relationship between coping and emotional distress. Cognitive models of coping assume that coping skills can be taught (Lazarus & Folkman, 1984), thus an understanding of the relationship between coping, infertility and emotional distress may have important implications for intervention.

1.3.6 Sex role

Another factor which is relevant to the emotional functioning of infertility patients is sex role. Sex role refers to the characteristics and behaviours that are typical of men and women (Singleton, 1986).

There are two main ways in which sex role is relevant to infertility. First, it is relevant because an individual's infertility may have implications for the development of their sex role. It has been suggested that whilst sex-appropriate behaviour in late adulthood is to a great extent defined by parents, peers and social and occupational constraints, it is particularly reinforced by parenthood, given that it may be an effective coping strategy to deal with the demands of parenting (Nash & Feldman, 1981). Socially sanctioned sex typing is thus most strongly in evidence in the parenting years: fathers

are masculine and instrumental while mothers are feminine, communal and expressive (Taylor, 1986).

It is difficult to judge the extent of the effect of becoming a parent on the development of sex role however, as the relationship is unlikely to be a simple one. It has been suggested that sex roles influence adolescent expectations for future marriage and children (Bernard, 1976), and support for this suggestion came from a study by Wrigley & Stokes (1977) which found the predicted correlation between sex role ideology and expected number of children. A study by Vogel et al (1975) also indicated that women with less stereotypic sex role conceptions wish to have fewer children. Unfortunately however, studies of sex role development largely exclude those thought to be atypical in development - which includes those who are childless. Given that the experience of parenting is thought to increase sex-appropriate behaviours, it might be expected that infertile people without experience of parenting may be less likely to develop a strongly sex-typed role. However, it is also possible that strong identification with the feminine/masculine sex role may be a factor influential in leading infertile individuals to treatment.

Infertility may also have important implications for the maintenance of an individual's sex role, because of our society's view of the relationship between femininity and

the maternal role, and masculinity and fertility. Early research dealing with psychogenic infertility was concerned with the idea that infertility was caused by the woman's rejection of the feminine sex role (eg Rheingold, p318 in Farrer-Meschan (1971)), although the possibility that infertility might be a result of male rejection of masculinity was never raised. Since then, many authors have speculated on the implications of infertility for a woman's feelings of femininity and a man's feelings of masculinity: for example, Kaufman (1969) states: "it is a severe threat to a husband's masculinity to be told that his sperm are deficient". David & Avidan (1974, 1976) found that 80% of their sample of infertile men felt guilty because they "could not give proof of their manhood and act as real fathers". Most women felt guilty because they did not share their husband's failure, and part of this guilt was due to pride in their femininity.

Morse & van Hall (1987) speculate that whilst the traditional feminine sex role appears to be devalued in Western society, reproduction still remains important. It has been suggested that pronatalism transcends the divisions of sex, social class, age, religion and ethnicity (eg Veevers, 1980). In infertile women, conflicts may arise, especially under pressure from partners and the community. Those who have a limited or no other role development in their lives apart from wife and potential parent may be at risk for emotional distress

when that role remains unfulfilled through the failure of treatment.

Despite such speculations, there has been little research on the relationship between infertility and sex role. Interestingly, in conflict with the view that sex role is to a great extent established through the experience of parenting, in comparing two groups of infertile women (explained and unexplained) and groups of voluntarily childless women and mothers on a measure of sex role (the BSRI: Bem, 1974), Callan & Hennessey (1989b) found that whilst there were no differences in scores on the masculinity scale, on the femininity scale both organically and functionally infertile women scored higher than mothers or voluntarily childless couples. This is in line with Allison's (1979) finding that infertile women saw themselves (and their ideal woman) as significantly more traditional than a control group of married women. Similarly, Morse & Dennerstein (1985) found that the mean scores for both their groups of infertile women (functional and idiopathic) were above the norm, "indicating strong identification with the feminine role". However, Gerson (1980), in a multivariate exploration of motivations for parenthood in 184 unmarried, childless, female college undergraduates found that traditional female sex role identification was one variable accounting for expressed desire for children, but there was no

significant correlation between femininity scores and judged necessity of child-rearing to a female identity.

It may be the case that infertile women with a feminine identity will experience greater distress than those of other sex role types. Van Balen et al (1989) found a significant positive correlation between femininity (as measured by a Dutch scale comparable with the BSRI) and depression, hostility, anxiety and general health in women and men with primary infertility. For women they also found a positive correlation between femininity and self image, and guilt/blame. They found no such relationships with masculinity. However, Hirsch & Hirsch (1989) compared couples seeking medical treatment for infertility with couples not yet attempting to conceive on scores on the BSRI, and found that infertile women and men were higher on masculinity than controls. They found no differences in femininity. They suggest that raised masculinity in women may be due to dealing with infertility by emphasising non-traditional motherhood activities, and in men, an overcompensation for inability to conceive.

The second way in which sex role is relevant to infertility is that an individual's sex role may influence response to infertility, emotional functioning and marital adjustment. Sex role is important because of the hypothesised relationship between (a) sex role and

emotional adjustment when faced with stress (eg Roos & Cohen, 1987), and (b) sex role and marital adjustment (eg Murstein & Williams, 1985).

It has been suggested that whilst traditional sex roles may provide women and men with different types of personal resources for dealing with stress (Bakan, 1966), some of these resources may be more valuable than others. Roos & Cohen (1987), in a study examining the stress-buffering effects of sex role orientation in combination with perceived social support on measures of trait anxiety and depression, hypothesised that those high on masculinity would cope more effectively with recent life stress than those who score low on masculinity. In common with previous research, they found that psychological masculinity but not femininity was negatively related to the measures of psychological distress. They also found that sex typed subjects show less resilience to recent life stress; undifferentiated subjects scored the highest on the measures of psychological distress (anxiety and depression); low masculine subjects showed a strong positive relationship between negative events and trait anxiety. They suggest that masculinity buffers the effects of recent life stress, but note that "caution is warranted in inferring causal relations from the data".

Sex role may have implications for marital adjustment or satisfaction, given that masculine and feminine traits are

important for successful relationships (Baucom & Aiken, 1984). The relationship however, is far from clear, and has been further obscured by the use of different measures, and different methods of scoring these measures, making comparisons difficult. Baucom & Aiken (1984) suggested that both masculinity and femininity would be positively correlated with marital satisfaction. They found that masculinity (for men) and femininity (for women) were significantly correlated with self reported marital satisfaction, that amongst those with no marital problems there were more androgynous individuals than other types, and amongst those with marital problems there were less androgynous individuals than other types. They also found that for each sex both femininity and masculinity were significantly correlated with self-reported marital satisfaction. The magnitude of correlations between femininity and marital satisfaction were higher than correlations between masculinity and marital satisfaction. Burger & Jacobson (1979) found that spouses' femininity scores were positively correlated with their own self reported marital satisfaction, and Kalin & Lloyd (1985) found that femininity was significantly positively correlated with adjustment in both husbands and wives. In men, androgyny was positively correlated with marital adjustment. Masculinity was unrelated in both husbands and wives. These results suggest that feminine characteristics may be particularly important in the maintenance of the marital relationship.

A number of researchers have examined differences in marital adjustment according to the different sex roles of partners. For example, Antill (1983) found that both women and men reported the greatest adjustment when paired with a feminine partner and that, in general, spouses of feminine partners showed greater adjustment than spouses of undifferentiated partners. Antill concluded that "spousal femininity seemed to play the key factor in differentiating adjusted couples".

Ickes & Barnes (1978) conducted a study in which interaction and satisfaction was found to be highest in androgynous-androgynous pairs, and low in masculine(male)-feminine(female) pairs. They conclude that high levels of masculinity and femininity (or instrumentality and expressiveness) are important for interaction, whereas similarity in sex role type (or interactional style) results in satisfaction with the interaction. Whilst the relationships under study were children's "brief encounters" the results may have implications for married couples and those in long term relationships. These conclusions are to some extent confirmed by Murstein & Williams (1985) who found that androgynous-androgynous couples had better marital adjustment than stereotypic (masculine(male)-feminine(female)) couples, who in turn were higher than other (cross type, undifferentiated) couples, and that men's marital adjustment was best with

a feminine or androgynous spouse. Davidson & Sollie (1987) however, found that in general, both androgynous and sex typed individuals and their spouses were significantly higher in marital adjustment than the undifferentiated individuals and their spouses.

It is difficult to draw any definite conclusions from the research in this area, given that different measures of marital functioning or satisfaction have been used, and not only have different measures of sex role been used, but even where the same measure is used, categorisation of individuals to sex role types may be calculated in a different way. There is also the possibility that marital satisfaction may be dependent on other characteristics of the partners, given that individuals may have different views about what constitutes a satisfactory marriage. The research does suggest, however, that high femininity in at least one partner may contribute to marital adjustment.

There have been no studies examining the relationship between emotional functioning or marital adjustment and sex role in infertile individuals.

It seems that both masculine and feminine characteristics may perform different functions for infertile people: masculinity buffering the effects of life stress, and femininity ensuring marital satisfaction. This would suggest that androgynous individuals, who have both high

femininity and high masculinity, would be best equipped to deal with infertility.

In summary, there are a number of factors which have been thought to influence emotional functioning in infertile individuals and their partners. These include the aetiology of infertility, the sex and sex role of the individual, and the available social support and coping strategies. There are also a number of factors which need to be taken account of, or controlled for, in a study examining the influence of infertility on emotional functioning: the stage of investigation or treatment, the diagnosis, and medical factors such as the length of infertility. Although these factors have been examined individually in many studies, few have taken account of most or all of them. McEwan et al (1987) recognised that there were no adequate empirical studies of infertility as a life event. They took sociodemographic characteristics, medical factors and cognitive appraisal into account in their study of adjustment to infertility amongst infertility clinic attenders. They found elevated levels of emotional disturbance, with women showing greater distress than men. Younger women were more disturbed, but the length of time trying to conceive and the cause of infertility were unrelated to distress. They found that undiagnosed women showed poorer adjustment and that women who felt responsible for their infertility (even if they were not) were more distressed. They also found that

social support was beneficial to a certain extent, in that women with a confiding relationship with their spouse showed better adjustment, but there was no benefit in a confiding relationship outside the family.

The next section considers functioning within the marital relationship, and the way in which this might be affected by infertility.

1.4 THE MARITAL AND SEXUAL RELATIONSHIP

The majority of individuals who experience infertility experience it as part of a couple. Irrespective of individual motivations for parenthood, this fact suggests that infertility and infertility testing and treatment will affect the marital and sexual relationship.

1.4.1 Infertility and the marital relationship: issues

Partners may have to negotiate about whether or not to have children, whether or not to have tests and whether or not to have treatment. Such negotiations may be made more difficult under certain circumstances, for example where one partner is much more in favour of having children than the other; or one partner refuses to undergo tests (Pfeffer & Woollett, 1983). Refusal of the male partner may be becoming less common in our society, but in societies where the woman still tends to be blamed for

infertility, it may be more of a problem (eg see Jindal & Gupta, 1989). There is some evidence to suggest that women whose husbands are less involved in treatment are more distressed (Link & Darling, 1986).

Clearly, apart from any direct effect, if infertility affects individual emotional functioning, it may also have implications for the marital relationship. Further, because of the nature of infertility, partners may be more than usually dependent on one another for emotional support. If one partner is emotionally distressed, this may prevent her/him from being able to provide effective support the other; partners may reach different emotional stages at different times (Shapiro, 1982) and use different coping strategies. Van Keep & Schmidt-Elmendorff (1975a, 1975b) found that levels of marital happiness varied at different times for each partner, so that women were least happy immediately prior to approaching the doctor, whereas men were least happy whilst waiting for the diagnosis.

Although in about 10% of infertile couples both partners have a problem which contributes to their infertility, in most cases the cause will be attributable to <u>either</u> the male or the female partner. This provides an opportunity for one partner to blame the other, who may then feel guilty. There have been suggestions that the implications are worse, both in terms of individual emotional distress,

and effects on the marital relationship, when the problem lies in the male partner. Humphrey (1986) suggests that this may be because the implications for couple's fertility are worse (ie male infertility is more likely to be untreatable) and because the female partner may feel that she could have a child by almost any other man than him. Mahlstedt (1985) also suggests that the man may feel that others doubt his masculinity. Support for this has been provided by Connolly et al (1987), who found that greater marital difficulties were reported by couples when the problem lay in the male partner, and suggest that this may be because of the close association (in our society) between fertility and virility, and that a diagnosis of infertility in the man may result in a loss of self-esteem. Other authors have found no differences in effect on the marital relationship (eg Daniluk, 1988). Kedem et al (1990), in a study of the effects of suspected infertility on men, found a higher incidence of sexual dysfunction among men whose wives also had medical problems than among those who were the sole cause. In a similar way, infertility in the female partner may be associated with feelings of loss of femininity, and a lack of children may result in loss of a central role (ie mother) for a woman. It is thought that this has fewer implications for emotional and marital functioning; why this should be so is unclear. Connolly et al (1987) suggest that it may be because of the changing role of women in our society. However, research on perceptions of

infertile individuals suggests that women without children are still viewed in a negative light (Miall, 1986).

Another implication of infertility for the marital relationship is the fear of abandonment by the fertile partner, or the fear that the fertile partner will remain in the relationship resentfully. Infertile partners may offer divorce to their fertile partners (eg Burns, 1987); fertile partners may be tempted into extra-marital relationships. The prevalence of such offers or temptations is unknown, as is the extent to which individuals take up these options; but the former is probably much more prevalent than the latter. Van Keep & Schmidt-Elmendorff (1975a) found that involuntarily childless couples were more disapproving of affairs than those with children; more ready to consider divorce if their partner was unfaithful; and 83% of their childless sample said they had always been faithful, in comparison with 61% of the couples with children. This is in line with the notion of the infertile couple as partner-centred.

Health professionals have expressed a great deal of concern about the effect of infertility on relationships, which has led some authors to recommend that professionals skilled in marriage counselling should be part of the infertility team (Farrer-Meschan, 1971).

Marital problems resulting from infertility may also have implications for the onset of sexual problems, and vice versa. Disappointment with and lack of trust of a sexual partner can affect the sexual relationship (Reading & Kerin, 1989). However, marital distress and sexual dysfunction may operate independently of one another (Hartman, 1980a; 1980b); couples may manage to preserve their marital relationship in the presence of an unsatisfactory sexual relationship. Perhaps this is especially true where the sexual problems can be attributed to infertility, and may be viewed by the couple as an inevitable short-term concomitant of infertility.

1.4.2 Infertility and the sexual relationship: issues

Infertility may affect the sexual relationship for a number of reasons: the sexual act becomes public, prescribed, a means to an end; testing and treatment may require a change in roles, affect sexual behaviour and feelings about sexuality, affect the individual's view of themselves, and may remain with the individual after infertility has been overcome.

Individuals or couples who approach the medical profession for help allow the most private of acts to come under public scrutiny. Their sexual behaviour becomes the property of others, and they can expect it to be discussed, their sexual organs examined, demands made upon

them to perform sexual acts at times set by the doctor or according to the woman's menstrual cycle, and assessments of their sexual behaviour or performance made. Infertility patients have described this to be like having others in bed with them: the doctor, their parents, the social worker (Menning, 1977) or "three in their bed, a 'ménage à trois': a man, a woman, and a basal thermometer" (Berk & Shapiro, 1984). One result of this perceived assessment of their performance may be that infertile couples will have difficulty in being honest with the doctor about their sexual behaviour, if they feel that it does not come up to expectations (Saltzer, 1986). Preoccupation with performance may also lead to a situation where the infertile couple detach themselves from sexual activity and adopt a spectator role which then interferes with sexual arousal (Masters & Johnson, 1970). Not only are infertile individuals subject to the close scrutiny of the medical profession, but they may also be offered advice on sexual performance from friends, and even offers of demonstrations of how to do it "properly". Infertile individuals report that others usually assume that there is a psychological cause for their infertility (in particular, that the woman needs to relax) or that there is a sexual cause (in particular, that the man is sexually inadequate) (Miall, 1985).

Another way in which infertility is likely to affect the sexual relationship is that sex may become prescribed.

Early reports in the medical literature dealing with the effect of infertility on couples were often concerned with bringing to the attention of clinicians the possible effects that such "treatment" might have on relationships. Kaufman (1969) for example, speculates about these possible effects, cautions doctors to be aware of them, and not to exacerbate the problems by prescription of sex. His main concern is the extent to which doctors interfere in a couples's sexual relationship, by advising them on timing, or abstinence, or special methods of treatment, and he recommends consideration of whether some of these techniques are really necessary. Elstein (1975) suggests that infertile couples may have problems of sexual functioning which can present in three ways: infertility causing sexual problems; psychosexual problems disguised as infertility; and incidental findings of psychosexual disturbances in cases of infertility. He suggests that specific sexual problems may be a result of particular aspects of infertility and its treatment: as examples of this, he suggests that performing to order leads to a loss of libido, that inhibition of orgasm may occur in women, possibly as a result of feelings of worthlessness, or because of the partner's loss of sensitivity; and that men may suffer from impotence because of increasing demand. Woollett (1985) found that men's anxieties about sex were exacerbated by the need for sexual performance at the right time and Battaglia et al (1983) found that women's desire for sex was reduced when gynaecologist had

prescribed sex for procreation. Hurwitz (1989) also found that although frequency of intercourse increased over the fertile phase of the menstrual cycle (as encouraged by the clinic), 50% of women and 30% of men reported increased sexual dysfunction (usually loss of libido) during this phase in comparison with the infertile phase. Whilst medical professionals can hardly be unaware that infertility has implications for the marital and sexual relationship of the couple, there is little doubt that marital counselling is not a priority for clinicians, and the extent to which recommendations to be aware of effects on relationships have been taken up is unknown.

The attention which is drawn to sex as a means to procreation may result in attention being drawn away from any other reasons for having sex, with the result that the couple only ever have sex at "the right time", and perform as a duty rather than a pleasure. The responsibility for this must fall to a certain extent on the medical profession, which for years has given advice (often conflicting) about the best time (and the best way) to do it (Pulse, 1990). When sex is performed as a means to an end, sexual intercourse may become goal orientated, resulting in a lack of appropriate stimulation for the female partner, and a reduction in sexual satisfaction for both partners (Reading & Kerin, 1989).

The sexual relationship may also be affected because the

instructions of medical professionals require partners to adopt sexual roles different from those to which they are accustomed. For various reasons, most medical attention is still directed at the female partner; she tends to initiate or make the first visit to the doctor (Edelmann et al, 1988), and she tends to bring the news home - whether news about test results (for example, Lalos et al (1985a) found that only 50% of men were personally informed of the result of their semen analysis) or news about the timing or technique of sexual intercourse (eg Pfeffer & Woollett, 1983). Thus, women may be required to initiate sex when "this is the night". This may result in increased frequency of sexual intercourse, but less satisfaction with the act (Debrovner & Shubin-Stein, 1976).

The tests which couples undergo in order to determine diagnosis of infertility may indirectly affect their feelings about sexuality and their body, as well as directly affect their sexual behaviour. Several studies have examined the relationship between testing and sexual functioning. In particular, the post-coital test (PCT) has been found to influence sexual functioning, with women rating sexual encounters for the purposes of the post-coital test as less arousing than at other times. De Vries et al (1984) found that there was a positive correlation between the woman's feelings of closeness to her partner and the post-coital test score; also that

there was decreased foreplay and orgasm when the purpose of sex was for the post-coital test. Drake & Grunert (1979) also describe a syndrome of "this is the night" in which men developed erection problems on the night of the post-coital test. The found that four factors contributed to this: the pressure of undergoing the test, the change in the purpose of sex, the stress of third party testing, and self-doubt of adequate future performance. Lalos et al (1985) report that the taking of the basal body temperature (BBT) causes sexual problems, and suggest that "BBT should be used with caution and only when absolutely necessary". One of the problems with the BBT is that in theory it is simple and easy to do, but in practice it may be a constant reminder of infertility, and a constant inconvenience when continued over years (Winston, 1986). More generally, Morse & Dennerstein (1985) found that 71% of women waiting for IVF treatment reported that infertility investigations had changed their sexual enjoyment for the worse. The anxiety associated with undergoing testing and treatment may also interfere with sexual performance. The diagnosis which may result from testing also has implications for the sexual relationship. For example, Berger (1980a, 1980b) found that ten out of 16 men given a diagnosis of severe oligospermia or azoospermia reported a period of impotence following the diagnosis. Rosenfeld & Mitchell (1979) also suggest that couples with normal sexual function before diagnosis of infertility may develop decreased coital frequency,

orgasmic dysfunction, mid-cycle male impotence and even anovulation.

Tests, and the subsequent diagnosis, may also affect how the individual feels about their self, their body and their sexuality. Woollett's (1985) interviews with couples revealed that they saw infertility not only as reproductive failure, but as sexual failure. Undergoing physical examinations and testing may range from being mildly uncomfortable to extremely painful, it may be mildly embarrassing or humiliating; it is certainly a reminder of the failure of the body, and the scars from undergoing surgery may result in a change in body image, and also act as a constant reminder of the failure of the body.

Couples undergoing testing and treatment for infertility may have lost faith in their ability to reproduce. This may result in a loss of faith in their sexuality, and a subsequent (or consequent) loss of faith in their desirability, femininity or masculinity. As Kaufman (1969) comments:

> "Infertility cannot be treated like any other illness, since it deals with the essence of maleness and femaleness".

Berk & Shapiro (1984) suggest that some individuals behave

in an inappropriately seductive way, have extra-marital affairs or become promiscuous in attempts to reduce their feelings of sexual inadequacy. Such behaviour may be a result of infertility itself, of specific tests (eg failure to perform for the PCT) or results (eg being told that sperm is deficient).

It has been suggested that doctors and even partners, ignore or avoid sexual problems when they become apparent in an individual (Burns, 1987). For doctors, this may be because of embarrassment, lack of skill or lack of awareness. Thus although infertility may be treated successfully, the sexual problems may never be overcome. Couples may anticipate "recovery" from sexual problems after achieving a pregnancy, or the delivery of a child, but their new sexual behaviours, perhaps practised over years, may not be so easily unlearnt. Thus, speculatively, sexual problems may continue after infertility has gone away, they may serve as a reminder of that infertility, and this may have implications for what Burns (1987) describes as the "sexual health of the family".

1.4.3 The marital and sexual relationship: methodology and research

Although reports suggest that both infertility and infertility testing and treatment have implications for

the marital and sexual relationship, studies which have attempted to examine this more systematically have produced conflicting results. This may in part be due to the differing methods and measures that have been used.

Studies which have obtained retrospective reports from couples on their marital and sexual relationship have found that couples do report difficulties at particular stages of the infertility testing & treatment process. Raval et al (1987) investigated the impact of infertility on emotional well-being on the marital and sexual relationship amongst patients attending an infertility clinic for investigations. Whilst more than half of the women in their sample of 47 couples reported having experienced some marital problems after the recognition of infertility, and almost two thirds reported sexual difficulties, they also reported a significant reduction in such problems after clinic attendance. Dennerstein & Morse (1985) found that 71% of women waiting for IVF reported that infertility investigations had resulted in a deterioration of their sexual enjoyment. Van Keep & Schmidt-Elmendorff (1975a, 1975b) interviewed 75 childless couples and compared them with 75 couples with children. They plotted reported marital happiness in various phases of the couples' relationships, and found that in infertile couples, women reported least happiness during the phase immediately before the problem is brought to the attention of the doctor, whilst in men it occurred whilst waiting

for the diagnosis. They suggest that childless marriages are not necessarily less happy than those of couples with children, but different: those with children tended to be family-orientated, and those without to be partner-oriented. They reported finding better communication in infertile couples. This suggests similarities between involuntary and voluntary childless couples: comparison of marital adjustment of voluntarily childless couples and parents suggests that the marital relationships of the childless have higher cohesion and consensus than parents, but that parents are more satisfied with their relationship (Callan, 1984). Whilst infertility may provide opportunities for disagreement, parenting may do so too. Retrospective reports are however problematic, in that reports may be affected by memory and by the current functioning of the reporter.

Other studies have used postal questionnaires, for example Hirsch & Hirsch (1989) compared couples seeking medical treatment for infertility with couples not yet attempting to conceive. They found that infertile men and women reported significantly less sexual satisfaction than the control group, but that there were no differences in contentment and marital satisfaction. One of the great problems with the use of postal questionnaires is the response rate: they had a 63% response rate from the infertile individuals and a 42% response rate from the control group. Such a response rate raises questions

about the representativeness of the sample, and consequent generalisability. Another problem with self-report questionnaires is that individuals may wait until they feel "well" before completing them, or they may only be completed by those who feel well when they receive them. Link & Darling (1986) investigated the marital and sexual relationships of couples undergoing treatment for infertility, using a self-report clinical assessment package sent by post, and found that a small percentage of couples (4.7% of wives and 9.3% of husbands) had a clinically significant degree of discord in their marital relationship; slightly higher numbers were found to have difficulties in their sexual relationships (16.3% of women and 11.6% of men). These numbers are probably no larger than would be expected in a normal population (Golombok et al, 1984). It is again difficult to assess the representativeness of Link & Darling's sample, given that some were obtained by advertisement and others by obtaining patients from clinics where doctors agreed to participate (only 6 out of 50 doctors agreed).

Studies examining the impact of particular tests have tended to find that these do influence the sexual relationship (eg De Vries et al, 1984; Lalos et al, 1985). Daniluk (1988) however conducted a longitudinal study of infertile couples to examine whether changes occurred in marital relationships and sexual satisfaction over the period of infertility testing. They administered

questionnaires to both partners immediately after the initial medical visit, 4 weeks later during medical testing, within 1 week of diagnosis, and at 6 weeks after diagnosis. There were no differences in marital adjustment or sexual satisfaction over time, but there was an increase in couples' perceived levels of trust, intimacy, and communication within their relationship. The author suggests that action (ie going to the clinic, doing something about it) may have a positive influence on relationships. This accords with Raval et al's (1987) finding that couples reported a reduction in problems after clinic attendance. Daniluk (1988) also draws attention to another problem with research in this area, that is, that studies may fail to differentiate between sexual functioning and sexual satisfaction. Individuals may suffer from sexual dysfunction, but at the same time be satisfied with their sexual relationship. Couples may expect infertility to be disruptive of the sexual/marital relationship; they may believe that sexual problems are inevitable (Burns 1987). Their expectations may therefore be lower, which may account for why some studies have found sexual dysfunction in infertile couples, and other have found them to be sexually satisfied (eg Battaglia et al, 1983).

Another problem with studies in this area is that the couples under study are at different phases of testing and treatment: subjects included are those attending

infertility clinics for testing and/or treatment, so the influence of undergoing particular tests and treatment, or receiving diagnoses, is not controlled for.

Studies which have assessed current problems in the marital and sexual relationship have tended to find few problems. Although Raval et al's (1987) subjects reported past difficulties in their relationship, standardised self-report questionnaires showed little evidence that couples were currently experiencing marital or sexual problems. Berg & Wilson (1989) found that most of the 104 couples they assessed had satisfactory relationships; 28% of men and 25% of women were in the "maladjusted" range of the measure they used (the Marital Adjustment Test: Locke & Wallace, 1957). Kedem et al (1990) also found no differences in sexual functioning between men "suspecting" infertility and controls, when current functioning was assessed. Keye & Deneris (1983) compared infertile women with controls and found no differences in desire or frequency of coitus, frequency of orgasmic response with coitus, the number engaging in autoerotic activity, orgasmic dysfunction, inhibited sexual desire or sexual dissatisfaction between the two groups. However, again, they only had a moderate response rate (56% of infertile women agreed to take part & 61% of controls). One finding, which has implications for retrospective reports of infertility on the sexual and marital relationship, was that infertile women frequently blamed their sexual

dissatisfaction on their infertility. This suggests that either (1) although infertile subjects do not have greater numbers of sexual problems than controls, their problems are due to infertility; or (2) that infertile subjects have similar numbers of sexual problems to controls, and perhaps for similar reasons, but tend to misattribute these problems to their infertility (Keye, 1984).

Research conducted by Van Zyl (1987), who questioned 514 couples attending an infertility clinic about their sexual history, draws attention to another problem with research in this area, which is that of definition. There are large variations in sexual behaviour in the general population. The extent to which these variations are seen as dysfunctional depends not only on objective assessment (eg frequency of sexual intercourse) but also on the individual's or couple's subjective assessment (eg is each partner satisfied with the frequency of sexual intercourse) (Rust & Golombok, 1986b). Definition of, for example impaired sexual interest may differ from one study to another, so that the number of men and women with impaired sexual interest (defined as coitus once a week or less) in Van Zyl's study is much larger (68.7% of men and 25.6% of women) than that of other studies (eg Dubin & Amelar, 1972).

There are a number of reasons then for the variations in reports of effects on infertility on the marital and

sexual relationship. One final reason mentioned by Link & Darling (1986) and Wright et al (1989) is that some individuals may be experiencing marital or sexual problems prior to any contact with the medical profession. We cannot assume at present a causal relationship between infertility and marital or sexual problems. Clearly, the problems associated with obtaining a sample of subjects prior to the knowledge of their infertility in order obtain baseline measures on marital and sexual functioning and to follow them through the process of testing and treatment, are enormous. However, insight into the extent to which such problems are associated with infertility will be constrained until such a study is carried out.

1.5 PSYCHOLOGICAL FUNCTIONING IN PATIENTS UNDERGOING IN VITRO FERTILISATION AND DONOR INSEMINATION

Patients embarking upon in vitro fertilisation (IVF) and donor insemination (DI) treatment[1] are in a similar situation in many ways. Both will have undergone a period of testing, of waiting for treatment, and the treatment that they are about to have may be regarded as a "last resort" - if it does not work, then it is very unlikely that they will be able to have a child which is biologically related to them.

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[1] The methods used in IVF and DI treatment vary somewhat from clinic to clinic, but the basic procedures are described in Appendices 1a and 1b.

There are also a number of differences between the two procedures. First, IVF is a complex medical procedure, whereas DI is not, although it is usually carried out in a medical environment. Whilst IVF is usually seen as a treatment for or a way of by-passing infertility, DI has been regarded by some investigators to have more in common with adoption, given the use of donated gametes (eg McWhinnie, 1986). Whilst this difference may be one perceived in the light of the social construction of families in our society, and this view of DI has been challenged (eg Haimes, 1988), given that it may be the view of professionals with whom the infertility patient deals, it requires consideration.

IVF has been widely acknowledged to be a stressful procedure (eg Seibel & Levin, 1987). This treatment invariably involves considerable time, energy and money, as well as physical and psychological stresses. DI is not acknowledged to be stressful in the same way as IVF; however, it may be associated with less obvious stresses. The fact that, unlike IVF, it is not a complex medical procedure, makes it less time-consuming and less expensive. However, as already discussed, it is clear that not all individuals or couples will find the same procedure stressful. The ethical and moral issues of DI, and the aura of secrecy, may make it different from IVF, but equally stressful for those undergoing it. It has been suggested that any resulting children may act as a

reminder to the man of his sterility (Clamar, 1980). Not only may these issues place stress on those undergoing treatment, but the secrecy surrounding DI may also affect individuals' access to social support more severely than with other types of infertility treatment. The secrecy associated with donor insemination is also associated to a lesser extent with all male infertility. Thus couples where the male partner is infertile may let family/friends assume that it is the woman's problem, and may cling to the concept of "our infertility". It has been suggested that this may prevent the man from coming to terms with his infertility (Berger, 1980b). This attitude may be colluded with unwittingly by the clinic, where infertility is now seen as a problem of the couple rather than the individual; whilst this may prevent blame being attributed and ensure appropriate investigation of both partners, it may have the disadvantages of preventing the infertile partner from coming to terms with her or his infertility and directing attention from the needs of the individual (Pfeffer & Quick, 1988).

A third difference between the procedures is that IVF has generally been used as a treatment in cases of female infertility, and DI in cases of male infertility. Although this is less so now, with IVF being used to treat unexplained infertility, it is still the case that in the majority of cases of IVF treatment (without donor gametes), the problem resulting in infertility lies with

the female, whereas with DI, the problem lies with the male. The success rates of the procedures also differ, with DI being much more successful than IVF in producing a live child (perhaps 50-60% versus 10-15%).

Despite these differences, in both cases, it is the woman who is "treated", whether or not she is the one who has the problem that results in infertility.

1.5.1 In vitro fertilisation

A number of issues have received attention from researchers into psychological aspects of IVF. Research has examined the question of whether individuals or couples should be assessed prior to undergoing IVF treatment, to exclude those deemed unsuitable, and the personalities of those undergoing IVF have been assessed for normality. Researchers have also been concerned with the counselling needs of IVF patients (eg Edelmann & Connolly, 1987; Shaw et al, 1988). Reviews of the psychological and psychosocial aspects of IVF have been provided by Edelmann (1987) and Dennerstein & Morse (1988).

Some studies assessing women or couples prior to IVF have found evidence of elevated anxiety. Chan et al (1989) found that women and men assessed prior to IVF had raised levels of state anxiety in comparison with norms. Dennerstein & Morse (1985) assessed women on an IVF

waiting list and their male partners and also found that anxiety scores were elevated in comparison with norms. Although they did not test this for significance, the scores that they report are the highest reported for IVF patients when compared with other studies using the same measure (ie Chan et al, 1989; Johnston et al, 1987; Shatford et al, 1988; Shaw et al, 1988).

However, Freeman et al (1985) found that anxiety was not raised in a sample of 200 couples prior to IVF treatment, and Hearn et al (1987) found no differences in anxiety or depression between IVF participants and the general population. Greenfeld & Haseltine (1986) also found low levels of anxiety in their study of IVF participants. Shatford et al (1988) also found no evidence of raised state or trait anxiety, or depression in their study of IVF candidates. Shaw et al (1988) found that men but not women had raised anxiety in comparison with norms, and that women were significantly more anxious than men. Women also had lower self-esteem and were less optimistic than their partners. Johnston et al (1987) found that women and their partners attending for IVF treatment had raised anxiety in comparison with norms, but were not significantly more anxious than a comparison group of women attending hospital at 38 weeks of pregnancy. Haseltine et al (1985) found trait and state anxiety scores to be at least one standard deviation <u>below</u> the mean scores for general medical and surgical patients.

Morse & Dennerstein (1985) found that the female partners had state and trait anxiety scores elevated well above the norms reported for Australasian samples. The difference presumably lies in the choice of comparison group, and raises the question of selection and appropriateness of comparison groups in view of the research questions.

As Edelmann (1987) points out, the value of pre IVF assessment lies in the baseline it provides for subsequent evaluation. Given the stressful nature of IVF treatment, researchers have expected to find raised anxiety in these patients. It has been suggested that IVF patients conceal their distress because of apprehension of being refused treatment (Greenfeld & Haseltine, 1986). The fact that some studies have found these patients to be anxious suggests either that some patients are prepared to demonstrate their anxiety (but perhaps not other elements of their distress) or that this is not the case. The extent of emotional distress found in IVF patients and their partners seems more likely to be a function of the time at which it is measured, and the method used for measuring it. Studies using postal questionnaires to measure distress in patients on a waiting list for IVF (at home) have generally found anxiety levels to be lower than those which have measured distress prior to undergoing the procedure in the clinic. Johnston et al's (1987) study which compares IVF couples with pregnant women attending a clinic also raises the possibility that the anxiety may

well be clinic related rather than treatment related.

As has been discussed earlier, studies finding higher anxiety in women in comparison with men have tended to attribute this to the greater impact of infertility on women (Chan et al, 1989; Shaw et al, 1988) either in terms of social pressures on women or responsibility of women for reproduction, rather than to the fact that women tend to have higher anxiety scores than men. Others have suggested that it may be a result of greater preparedness in women to report such feelings (eg Humphrey, 1975). Interestingly, the argument that infertility has a greater impact on women is similar to the argument invoked for greater distress being associated with male infertility, that is, that infertility has a greater impact on men. Researchers seem unable to decide who suffers the most; perhaps the explanation for this is that infertility affects the male and female partner in different ways.

There have been a number of studies of patients after IVF treatment, but these have mainly been concerned with responses to treatment and standardised measures of distress have not been used (eg Mahlstedt et al, 1987; Leiblum et al, 1987a; Baram et al, 1988).

Studies using standardised tests of marital and sexual functioning have usually found that the marriages of IVF participants to be stable and happy. Shaw et al (1988)

using the Marital Adjustment Test (MAT; Locke & Wallace, 1957) found that women and their partners on the waiting list for IVF scored significantly higher than cut-off for marital adjustment. Leiblum et al (1987a, 1987b) also used the MAT with couples pre and post IVF, and scores at both times indicated better than average marriages. However, they also found that the MAT was correlated with the Profile of Mood State scores (POMS; McNair et al, 1971): the higher the MAT score, the lower the reported feelings of anger and tension, the greater the feelings of vigour. Morse & Dennerstein (1985) examined a similar group using the Dyadic Adjustment Scale (Spanier, 1976), with similar results - marital adjustment scores were above norms, indicating good relationships.

Fagan et al (1986) examined sexual functioning in 45 married couples prior to undergoing IVF treatment. They assessed sexual functioning using the Derogatis Sexual Functioning Inventory (Derogatis & Melisaratos, 1979) and a clinical interview. A sexual dysfunction in one of the partners was diagnosed in 15.5% of the sample; this is no higher than would be expected in the general population.

Results of studies which have asked IVF patients for reports of the effects of infertility on their marital or sexual relationship vary widely. For example, Morse & Dennerstein (1985) found that although 93% of their sample reported no male performance problems, 74% reported that

infertility had changed their sexual enjoyment (71% for the worse and 3% for the better). Freeman et al (1985) reported that 46% of women and 32% of men reported that infertility had changed their sexual relationship: of those reporting a change, 2/3 reported that it became less pleasurable and 1/3 that it became more pleasurable. Sexual satisfaction however was high in this group, with 83% of women and 85% of men rating their satisfaction above the mid-point on a 9 point scale. It is interesting to compare these with Chan et al (1989), who found that only 17% of women and 11.6% of men reported that infertility had affected their marriage, and "very few" reported that it had affected their sexual relationship. The authors speculate that this may be a cultural effect, ie a reluctance among Chinese people to discuss sex.

Baram et al (1988) asked couples whether IVF itself had any effect on the marital and sexual relationship. Sixty-nine percent of women and 67.5% of men reported some effect on the marital relationship: 48% of women and 47.5% of men reporting a positive effect and 21% of women and 17% of men reported a negative effect. 58% of women and 67.5% of men reported no change in sexual functioning following IVF; similar proportions of women reported an increase in frequency/spontaneity/satisfaction as reported a decrease (34% each); the same was true for men (37.5% each).

Leiblum et al (1987b) found that prior to IVF, many couples reported that infertility difficulties had enhanced several aspects of their marriage. About half the men and women reported improved communication, sensitivity to partners's feelings, and sense of closeness as a result of their infertility. The greatest "worsening" was reported in the frequency of sex, with 14% of women and 14% of men reporting a decrease, and 7% of women and 4% of men reporting a decrease in sexual satisfaction. More reported an improvement in sex, with 22% of women and 11% of men reporting improved sexual satisfaction. Although there are differences in the percentages reporting positive and negative effects, these may be due to cultural differences (American, British, Australasian & Chinese samples) and differences in the questions that were asked. These studies clearly indicate that couples report positive as well as negative effects of infertility on their marital and sexual relationship; it is important to note that infertility is not perceived to be an entirely negative experience.

1.5.2 Donor insemination

Psychological aspects of donor insemination have received less attention in recent years. DI has become an established method of dealing with male infertility, and as such appears to promote less interest than the newer reproductive technologies. It is also possible that less

attention is directed towards it because it treats a male problem.

Original interest in donor insemination was concerned with examining the personalities and other characteristics of those willing to undergo it, particularly the female partners. In general, such reports were positive, with few holding such strong views as Gerstel (1963) who commented:

> "A decision to participate in artificial insemination in itself is indicative of emotional disturbance".

Similar views were also held about donors at this time. For example, the Feversham Report (1960) states:

> "It is an activity which might be expected to attract more than the usual proportion of psychopaths" (see Haimes, 1988).

Many authors argued for assessment and screening of couples prior to donor insemination (eg Watters & Sousa-Poza, 1966), although criteria for this assessment were less easy to decide upon (Stewart et al, 1982). The arguments for and against such assessment continue today.

A review of the literature on psychological aspects of

donor insemination in the early 1980's reflects the interests prior to that time (Waltzer, 1982). Many studies were concerned with the results of donor insemination, ie what happened to the families after a child was born. In general, favourable results in terms of marital and general happiness are reported (eg Cary, 1948; Levie, 1967), although Humphrey & Humphrey (1988 (p135)) question the evidence on which such claims are based, and indeed, studies tend to be anecdotal and unsystematic.

A recent review of the literature in this area demonstrates that there are few studies considering the emotional or marital adjustment of donor insemination patients (Edelmann, 1989). A number of studies report on the guilt feelings of men whose partners are undergoing donor insemination. David & Avidan (1976) interviewed 44 couples in which women were either about to undergo DI, pregnant after DI or delivered after DI, and found that 80% of husbands had guilt feelings, and that most women also felt guilty. They also found that couples reported an improvement in their marital relationship following the decision to undergo donor insemination. D'Andrea (1984) also comments on the male's feelings of guilt about his inability to father a child, and Czyba & Chevret (1979) found that guilt was a common feeling, but that it was resolved for the majority before requesting donor insemination.

Even fewer studies have been concerned with the emotional functioning of women undergoing donor insemination. Reading et al (1982) found that prior to insemination, women were concerned about the effect on their marriage but were not particularly anxious. Most women expressed positive attitudes towards donor insemination.

There is however, a paucity of research in this area, and the research that has been carried out has used only retrospective measures (eg Czyba & Chevret, 1979) or only dealt with those who have had successful treatment. There are no follow-up studies, using standardised, reliable and valid measures, of women (and their partners) undergoing donor insemination. It is interesting to note the comparative lack of interest in the psychological aspects of donor insemination, in comparison with IVF. As suggested earlier, this may be due to the more "established" nature of DI. It may also be because it is used to treat male infertility, because it is not a technology as such and therefore less interesting, because of the secrecy associated with the procedure and associated with this, the lack of media interest.

1.6 THE CURRENT STUDY

The current study was designed to investigate the psychological functioning of infertility patients. In particular, the aim was to assess the existence and extent of emotional, marital and sexual problems in a group of patients at the same stage of treatment for infertility, and to examine the factors influencing functioning and the ways in which patients cope with their infertility.

Although there have been many studies of the psychological functioning of infertility patients, most have been concerned with measuring only one aspect of functioning. One advantage of this study is that it assessed several aspects of both emotional functioning and marital adjustment, and was therefore able to examine inter-relationships. It also examined factors which are thought to influence emotional functioning, with the aim of identifying patients who are "at risk" for emotional or marital difficulties.

1.6.1 Assessment of extent of psychological problems

The main aim therefore, was to assess both individual emotional functioning, and functioning within the marital relationship. Previous research with IVF patients demonstrates considerable variation in emotional distress, which appears to a certain extent to be a function of the time, place and type of assessment (eg Johnston et al, 1987; Shatford et al, 1988). In addressing the question

of whether infertility patients experience distress, results of such studies have therefore been inconclusive. In order to overcome this problem, patients in the current study were assessed at the same time point (ie after testing and diagnosis had taken place) in the clinic prior to treatment using standardised measures. It was hypothesised that they would exhibit emotional distress, in the form of increased anxiety and depression.

A great deal of concern has been expressed about the possible effects of infertility on the marital and sexual relationship. Again, results from research in this area have been inconclusive, given that patients have not always been assessed at similar stages of the testing and treatment process. Findings from such studies may be confounded by the time of assessment in relation to the process of infertility testing and treatment. Evidence from studies which have assessed marital and sexual functioning in IVF patients suggests that this group have stable and happy relationships, although some patients experience difficulties (eg Leiblum et al, 1987b; Shaw et al, 1988). There has however been little systematic assessment of the marital adjustment of patients undergoing donor insemination and their partners. It was hypothesised that patients in this study would exhibit poor marital and sexual functioning.

1.6.2 Coping with infertility

The second main aim of this study was to examine the ways in which individuals cope with infertility, and the relationship between coping and psychological problems. Despite the concern expressed about the emotional functioning of such patients, there has been little research examining the coping strategies used by infertility patients, and no investigation of the relationship between coping and emotional functioning or the effectiveness of the strategies used by infertility patients. This is clearly an important area for research, given that it has implications for intervention. The wider literature on the use of coping strategies suggests that individuals who use higher levels of avoidance coping to deal with a long term stressor will exhibit greater levels of distress, but that approach coping strategies will be effective in the long term (eg Holohan & Moos, 1985). It was therefore hypothesised that the use of avoidance coping to deal with infertility would be associated with higher levels of psychological problems, and the use of approach coping would be associated with better functioning.

1.6.3 Sex role and infertility

A further aim was to examine the relationship between sex role and infertility. First, to examine whether patients differed from the general population in terms of the proportion of different sex role types. Given that the

experience of being a parent is thought to be important in the development of sex-appropriate behaviours and characteristics in adulthood, it is possible that fewer infertile individuals have traditional sex roles in comparison with the general population. However, this would presuppose that the general population sample includes a large proportion of parents. It is also possible that infertile individuals who have more traditional sex role types are more likely to attend a clinic for treatment. Second, the study aimed to examine the relationship between sex role and emotional, marital and sexual functioning. Although previous research has assessed the sex roles of infertility patients, the relationship between sex role and psychological functioning has not been examined systematically. Research in the area of stress suggests that masculinity performs a stress-buffering role (eg Roos & Cohen, 1987) and it was therefore hypothesised that anxiety and depression would be lower in infertility paients and their partners who had high masculinity scores. The relationship between sex role and marital functioning is less clear, but femininity appears to be associated with better adjustment (eg Kalin & Lloyd, 1985). It was therefore hypothesised that marital and sexual functioning would be better in participants who had high femininity scores.

1.6.4 Comparison of patients undergoing IVF and DI treatment

As discussed in Section 1.5, whilst patients receiving IVF and DI treatment and their partners may have different testing and treatment histories, they are in a similar situation in that the treatment they are receiving is a "last resort", and success or failure of treatment is likely to have a similar meaning for participants in both groups. These two groups were chosen for this study in order to ensure inclusion of subjects with differing aetiology for their infertility. Given that most IVF treatment is performed for female infertility, and most DI for male infertility, inclusion of these two groups allowed for comparison of functioning of patients where the female has the problem resulting in infertility, and those where the male has the problem. The impact of infertility may be greater when the problem lies with the male partner (eg Connolly et al, 1987), and thus it might be expected that DI patients would be distressed. However, given the fact that patients in this study were assessed prior to treatment and that IVF is generally regarded as a more stressful procedure than DI, it might be expected that IVF patients would be more distressed than DI patients at this stage. It was hypothesised that IVF patients and their partners would exhibit poorer psychological functioning than DI patients and their partners.

1.6.5 Predicting emotional functioning

A subsidiary aim was to examine the influence of mediating factors (as discussed in section 1.3) on emotional and marital functioning, and to determine the extent to which psychological functioning in infertility patients and their partners is predictable from demographic and other factors. This was expected to allow for the identification of individuals "at risk" for emotional or marital difficulties.

1.6.6 Couples

Although research has been directed at examination of the influence of infertility on the sexual and marital relationship, many studies have only included female subjects. A number of studies have included the male partners of female patients, and these have compared female and male responses (generally exploring sex differences in response to infertility), or examined both sexes. Few however have dealt with concordance, that is, the extent of agreement and similarity of responses between partners, although such research has been recommended (McEwan, 1987). Another aim of the study therefore was to examine the relationship between the functioning of each partner in couples undergoing treatment for infertility, the relationships between coping responses within couples and the relationship between sex role and functioning within couples. It seems unlikely that couples where partners are disparate in

their responses to infertility would reach the point of undergoing IVF or DI treatment. It was hypothesised that there would be concordance in reporting of emotional, marital and sexual functioning in couples.

1.6.7 Follow-up

There have been few follow-up studies of infertility patients. The lack of longitudinal studies in this area makes it difficult to assess whether any psychological problems exhibited by those undergoing treatment diminish after treatment ends. Such studies are important, as for many patients these treatments are unsuccessful; it is important to assess the outcome of such treatments not only in terms of medical or social outcome, but psychological outcome. The study aimed to follow patients up approximately 6 months after treatment, in order to examine both social and psychological consequences. It also aimed to assess whether psychological functioning at follow-up was predictable from medical, social and psychological characteristics.

CHAPTER TWO: METHODOLOGY

A variety of approaches have been used in attempting to understand the psychological concomitants of infertility; these are described by Callan & Hennessey (1989b). They include interview studies (eg Pfeffer & Woollett, 1983; Callan & Hennessey, 1988), clinicians' reports both of their patients and themselves (eg Kaufman, 1969; Mahlstedt, 1985; Seibel & Levin, 1987) and empirical studies.

Empirical studies are clearly of value in assessment of the existence and extent of psychological problems in infertile individuals and their partners. However, there are a number of methodological difficulties associated with such studies. One problem lies in ascertaining an appropriate group for comparison with infertile individuals. Studies in this area have generally adopted one of three approaches to this problem: (1) no control group; (2) control group; and (3) comparison with normative data. The choice of approach is dependent to a certain extent on the research questions.

Many studies fall into the first category. These are usually studies which compare patients across some independent variable such as diagnostic category (eg Shatford et al, 1988) or sex (eg McGrade & Tolor, 1981).

This is an inappropriate method for the current study, given that it is concerned with assessing the extent of problems in the group under study.

The main difficulty inherent in studies in the second category, and in particular in studies with patients undergoing IVF and DI, is obtaining a comparison group of control subjects that is appropriate. Infertility patients are in an almost unique situation. They are patients, but they are not ill. They seek a medical solution to a psychosocial problem (van Hall, 1987). It has even been suggested that the outcome for infertility patients should be measured using psychosocial criteria (Johnston, 1984). The most obvious group for comparison is perhaps pregnant women and their partners, another group which attends hospital whilst physically well. A few studies have used pregnant women as a control group (eg Reading et al, 1989). Whilst pregnant women may also appear comparable in that their hospital attendance is fertility related, the traditional representation of the situation of these groups - with pregnancy, joy, and with infertility, despair - separates them. IVF and DI patients are even further distanced from this group by their years of infertility and their history of fertility-related investigations. Thus the appropriateness of this group as a control is questionable. Most other studies using a control group have used fertile women (ie women who have already had children and have no history of

infertility) or voluntarily childless women (eg Callan, 1987); this is again problematic because they are not a clinic population.

The third method is to use standardised measures and compare the group under study with normative data for these measures. This has again been used in a number of studies (eg Johnston et al, 1987). This method is most appropriate in addressing the question of whether the group under study have raised levels of distress, that is, above what would normally be expected. Its limitation is that it does not provide answers to questions about the difference between the group under study and other clinic populations, or other clinic attenders with fertility-related problems.

Given that the main aim of the current study is to assess the existence and extent of emotional and marital problems, the third approach was adopted as being the most appropriate.

2.1 SAMPLING

Many studies in this area have obtained subjects from general infertility clinics. It has been suggested that emotional distress and the marital and sexual problems of infertile couples may be related to specific aspects of infertility treatment: particular tests, whether or not the patient has received a diagnosis, particular treatments. Inclusion of a group of general infertility patients may mean that the subjects under study vary in the stage of investigation, thus the impact of infertility may be influenced by or masked by other effects. The current study is therefore designed to overcome this problem, by selecting patients who have already undergone testing and obtained a diagnosis, and are at a specific stage of treatment.

Patients attending one of two London clinics for IVF or DI treatment were therefore included in the study. All patients had undergone investigations, had received a diagnosis, and were about to embark upon treatment.

These two patient groups were chosen in order to ensure inclusion of subjects with differing aetiology for their infertility. This allows for the examination of effects in couples where the male partner has the problem resulting in infertility, in comparison with those where the female has the problem, as well as a comparison of functioning in these particular patient groups.

Patients were eligible for inclusion in the study if they met the following criteria:

(i) attending an infertility clinic for in vitro fertilisation and embryo transfer or donor insemination;

(ii) sufficiently fluent in English to be interviewed and to complete self report questionnaires;

(iii) infertile in their current relationship, ie patients with a child from a previous marriage or relationship were eligible for inclusion, but not those with a child from the current relationship.

Over a period of 12 months, 59 women agreed to take part, representing a response rate of 80%. 34 of their partners also agreed to participate. The response rate is good for a study of this type; it has been noted elsewhere that IVF patients are willing participants in research prior to undergoing treatment (Leiblum et al, 1987a). No data were available on patients who decided not to participate, thus it is not possible to assess whether the study sample is representative of IVF and DI patients at the participating clinics or as patient groups. Although it remains possible that those with emotional, marital or sexual problems declined to participate, the high response rate reduces the likelihood of such bias. Other authors have found little difference between participants and non-

participants in terms of demographic and medical characteristics (eg Raval et al, 1987). Given that patients attending both clinics came from a wide geographical area, it seems likely that the main reason for non-participation was a practical one, that is, having already made travel arrangements for a particular time (as the majority of those who refused explained).

Of the 59 women in the sample, 31 were undergoing IVF and 28 were undergoing DI. Eighteen of the men were partners of women undergoing IVF and 16 had partners referred for DI[1].

2.2 MEASURES

2.2.1 Demographic data

Demographic data were collected from subjects prior to the interview. These included date of birth, occupation, partner's occupation, previous co-habitations and marriages and obstetric history (ie number of previous pregnancies, and outcome: miscarriage, termination, ectopic, stillborn, live birth, neonatal death).

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[1] Due to the wide geographical area from which patients came to the clinic, it was not practical to visit them at home; it was also impractical to assess them at their first clinic visit as treatment would be unlikely to start for some months subsequent to this which would create difficulties for the follow-up.

2.2.2 The Interview and Inventory

The complete interview is reproduced in Appendix 2a. It is a standardised semi-structured interview, designed to elicit information about the individual's experiences of infertility in a number of areas:

(i) Feelings about children

(ii) Feelings about infertility

(iii) Experiences of testing and treatment

(iv) Effects on relationships

(v) Feelings about childlessness

The interview was standardised in that it was designed to elicit specific information from each subject, and semi-structured in that the same questions in the same order were asked of each subject. However, participants occasionally raised the subject of a later question; in these circumstances the later question was still asked, and information from several parts of the interview was used to make the appropriate quantitative coding. Guidelines used for coding interview responses are given in Appendix 2b.

Men rarely attended the clinic with their partners, so it would not have been possible to interview them all. Men were therefore asked to complete an inventory based on the interview. This is reproduced in Appendix 3.

2.2.3 Self Report Measures

The self report questionnaires used are reproduced in Appendices 5a-f. Participants were asked to complete them in the order that they are given in the Appendices, ie assessment of coping, sex role, anxiety, depression, marital functioning and sexual functioning.[2] Several criteria were used in deciding on the most appropriate measures:

(1) Good reliability and validity

(2) Speed and ease of administration

(3) Standardisation

(4) Appropriateness for the sample.

All the measures used fulfil these criteria. All demonstrate good reliability and validity, and are quick and easy to administer. All the measures are appropriate for use with a British patient population and most have previously been used with infertility patients. Few subjects experienced problems in completing the questionnaires; occasionally participants asked for definition of some words on the Bem Sex Role Inventory (such as "unsystematic" and "analytical").

Coping strategies used to deal with infertility were assessed using the coping section of the Health and Daily Living Form (Billings & Moos, 1981; Moos et al, 1982). This is an assessment procedure that can be used as an

[2] Questionnaires were presented in this order after consideration of the possibility of order effects, and of the most appropriate presentation of questionnaires assessing marital and sexual functioning; thus the highly personal questionnaires were presented last.

interview or a questionnaire, and is designed for use with patient or community populations (see Appendix 5a). Respondents report the frequency of use of 32 different responses on 4 point scales ranging from 0 (no) to 3 (yes, fairly often), in this case with reference to their infertility. Responses can be categorised in two main ways: according to the method or focus of coping. Thus, scores are obtained for three methods of coping: active behavioural coping (sum of scores on 13 items; range 0 to 39), active cognitive coping (sum of scores on 11 items; range 0 to 33) and avoidance coping (sum of scores on 8 items; range 0 to 24); and 5 coping focuses: logical analysis (4 items; range 0 to 12), information seeking (7 items; range 0 to 21), problem solving (5 items; range 0 to 15), emotional discharge (6 items; range 0 to 18) and affective regulation (6 items; range 0 to 18). The internal consistencies (Cronbach's alpha) of the scales range from .51 to .74 for adults in the community and .41 to .76 for depressed patients (Moos et al, 1982).

Sex role was assessed with the widely-used Bem Sex Role Inventory (BSRI) (Bem, 1981). The original version consists of 20 stereotypically feminine characteristics, 20 stereotypically masculine characteristics, and 20 characteristics that serve as filler items (Bem, 1974). Respondents completed this version, but for scoring purposes, the short form was used. This comprises 10 items of each type, which are the first thirty items on

the questionnaire (see Appendix 5b). The short form is a refined version of the original, designed to maximise the internal consistency of the scales and the orthogonality between them. Respondents rate on a 7 point scale how well each of these characteristics describes her/himself, and the masculinity and femininity scores are calculated as the mean of a subject's ratings on the masculine/ feminine characteristics. The BSRI treats masculinity and femininity as two separate dimensions. It allows classification of the individual as androgynous (high on both femininity and masculinity), undifferentiated (low on both) or feminine or masculine (high on one dimension but low on the other). Subjects are classified using a median split; in view of the small sample size the raw scores of the normative sample were used for classification purposes. Internal consistency of the masculine and feminine scales are reported to be between .84 and .87, and test-retest reliabilities of between .76 and .91 are reported (Bem, 1981). Validity of the scale is demonstrated in studies that show that non-androgynous subjects are restricted in their range of behaviours (eg Bem & Lenney, 1976). The inventory has been widely used in research studies, including those with infertility patients (eg Dennerstein & Morse, 1985).

State and trait anxiety were assessed using the Spielberger State-Trait Anxiety Inventory (STAI) (Spielberger et al, 1970). This is a self-report

questionnaire, comprising two 20 item scales that evaluate how respondents "generally feel" (trait anxiety) and how they feel "right now" (state anxiety). Scores between 20 and 80 are obtained for each measure, with a high score indicating elevated anxiety. The trait anxiety scale measures anxiety-proneness, that is the tendency to perceive stressful situations as threatening & to respond to such situations with elevations of state anxiety. The state anxiety scale measures current feelings of apprehension, tension, nervousness and worry.

The State-Trait Anxiety Inventory has been used extensively as a research instrument, and in particular, to assess the level of state anxiety associated with stressful procedures. It has been used in many studies with infertility patients (eg Johnston et al, 1987). Test-retest reliability for the trait scale for college students is reported as .86 for males and .76 for females over a period of 20 days. Cronbach's alpha coefficients for the state and trait scales are .87 and .89 respectively. They are quick and easy to administer (see Appendix 5c).

Depression was assessed using the Beck Depression Inventory (BDI) (Beck et al, 1979), a 21 item self report questionnaire which assesses the severity of depression. The symptoms and attitudes assessed by the BDI are: (1) Mood; (2) Pessimism; (3) Sense of Failure; (4) Self-

dissatisfaction; (5) Guilt; (6) Punishment; (7) Self-dislike; (8) Self-accusations; (9) Suicidal Ideas; (10) Crying; (11) Irritability; (12) Social Withdrawal; (13) Indecisiveness; (14) Body Image Change; (15) Work Difficulty; (16) Insomnia; (17) Fatigability; (18) Loss of Appetite; (19) Weight Loss; (20) Somatic Preoccupation; and (21) Loss of Libido. It is scored by adding the respondent's ratings (from 0-3 for each item) of all the items, to give a score between 0 and 63, with higher scores indicating greater levels of depression. Overall scores can be classified as follows: normal or asymptomatic (0-9), mild-moderate depression (10-18), moderate-severe depression (19-29) or extremely severe depression (30-63) (Beck & Steer, 1987). The BDI was developed for use with psychiatrically diagnosed patients, but has been used for many years as a screening instrument for detecting depressive symptoms in normal populations and in research. It was originally designed as a clinician-administered inventory, but is extensively used as a self-report instrument, and has been used with infertility patients (eg Shatford et al, 1988). High scores in normal populations may not necessarily be indicative of depression, but represent high numbers of depressive symptoms, or problems in adjustment. Beck (1967) reports Kruskal-Wallis item-total correlations of .31 to .68 and a .93 corrected split-half reliability. Test-retest reliability of .75 has been reported with undergraduates (Miller & Seligman, 1973). The Inventory

is easy to administer and has the advantage of covering all of the major signs of depression (Beck et al, 1988) (see Appendix 5d).

Marital adjustment was measured using the Golombok-Rust Inventory of Marital State (GRIMS) (Rust et al, 1988), a 28 item questionnaire designed to assess the quality of the marital relationship (see Appendix 5e). Scores range from 0 to 84, with low scores indicating low dissatisfaction with the relationship. Raw scores can be transformed to a scale from 1 to 9, to give an indication of the existence and severity of problems in the relationship, as follows: undefined (1), very good (2), good (3), above average (4), average (5), poor (6), bad (7), severe problems (8), and very severe problems (9). It is recommended that scores of 1 (undefined) should be treated with caution, as respondents may be at a very early stage of the relationship, or lying. Split-half reliability is reported as .91 for men and .87 for women (Rust et al, 1988). Reliability and validity are good (Rust et al, 1986). It has several advantages over other measures of marital functioning: it is short and easy to administer; it is contemporary, unlike the Marital Adjustment Test (Locke & Wallace, 1957); and has been standardised on a British population unlike the widely-used Dyadic Adjustment Scale (Spanier, 1976).

Sexual adjustment was measured using the Golombok-Rust

Inventory of Sexual Satisfaction (GRISS) (Rust & Golombok, 1986a; 1986b), a companion questionnaire to the GRIMS (see Appendix 5f). There are separate forms for females and males. Each 28 item questionnaire provides an overall score for the quality of sexual functioning within the current relationship, with scores ranging from 0 to 96, and higher scores indicating greater sexual dysfunction. In addition, subscale scores are provided for non-communication, avoidance of sex, dissatisfaction with sex, non-sensuality, and infrequency. There are also subscales measuring specific dysfunctions: impotence and premature ejaculation on the male version, and anorgasmia and vaginismus on the female version. Scores on the main scale and subscales can be transformed to a pseudostanine scale (from 1 to 9), with a score of 5 and above indicating a problem. The female and male scales have split-half reliabilites of .94 and .87 respectively, and test-retest reliabilities of .65 and .76. Test-retest reliabilities of the subscales range from .47 to .84 (Rust & Golombok, 1986a). Both male and female scales discriminate between clinical and non-clinical groups (Rust & Golombok, 1985). The scales are simple to administer, and have been used in previous research with infertility patients (eg Raval et al, 1987).

2.3 METHOD

Studies that have used standardised measures for the assessment of psychological functioning of infertility patients vary in the method of administration. A number of studies have used postal questionnaires. However there are two main problems with this approach. The first is that response rates are often poor: reports of response rates in studies of this kind with IVF patients vary between 38% and 51% (eg Baram et al, 1988; Shaw et al, 1988; Mahlstedt et al, 1987; Leiblum et al, 1987a). This leads to the problem of possible unrepresentativeness of the sample, and this in turn restricts the generalisability of the results. The sample may potentially include individuals with extreme reactions: only those who are very distressed or only those are functioning well.

Personal contact between the researcher and the subject at the time of invitation to participate clearly has advantages. The potential participant can be made aware of the aims of the research, the credentials of the researcher, and the costs and benefits of participation; queries about the research can be answered. This ensures informed consent to participate, leaves the researcher free to choose the time of assessment, and generally results in a higher response rate. The issue of informed consent is clearly important in research with patients who may be under considerable stress as a result of the

procedures they are undergoing. In the current study, the researcher described the research to the patients and invited them to participate. Patients were also given a written information sheet about the study, which included a telephone number where the researcher could be contacted (See Appendix 4).

The second disadvantage of the use of postal questionnaires which compounds the problem of the first, is the uncertainty over when the questionnaire has been completed. Instead of the time of the assessment being chosen by the interviewer, it is, to a certain extent, chosen by the subject: subjects may delay completing it until they feel "well" enough to do so. In order to overcome this difficulty and to standardise conditions under which subjects are assessed, patients who participated in the current study were assessed at the clinic prior to undergoing treatment. Their partners completed questionnaires at home however, as they rarely attended the clinic.

In most studies in this area, patients have been seen or assessed on only one occasion; there have been few follow-up studies. The lack of longitudinal studies in this area makes it difficult to assess whether psychological problems exhibited by those undergoing treatment diminish after treatment ends. Whilst such studies have been recommended, one difficulty has been the reluctance of

patients to participate in follow-up studies (eg see Dennerstein & Morse, 1985). There have been few follow-up studies of patients undergoing IVF and DI. Such studies are important, as for many patients these treatments will be unsuccessful. This study aimed to contact patients again at 6 months after treatment, in order to examine both social and psychological outcome.

2.4 PROCEDURE

The clinic coordinator contacted the researcher when patients meeting the criteria for inclusion in the study were due to attend the clinic. These were patients who were attending on day two of their cycle for IVF treatment or for an ultrasound scan prior to donor insemination treatment. They were approached by the researcher and asked if they were interested in participating in the study. They were given a leaflet describing the research (see Appendix 4). They were told that the study was concerned with patients' experiences of infertility, and participation would involve being interviewed and completing some self-report questionnaires on more than one occasion. Patients were informed that they were under no obligation to take part, and that their decision would not affect their treatment in any way. It was stressed that any information they gave would be confidential, and that as some information requested would be personal they were under no obligation to answer particular questions if

they preferred not to.

The majority of women attended the clinic on their own. In those few cases where the male partner was present, the couple were told about the research together. Those willing to participate were normally interviewed at that time. If this was not possible, an appointment was made for them to see the researcher during that week. After the interview, participants completed the self-report questionnaires. Where the partner was not present, women were given a letter explaining the study to take to their partner and a pack of self report questionnaires for him to complete and return by post.

Women were interviewed in a private room. Due to the busy nature of the clinics in which the research was carried out, it was not always possible to conduct an interview without interruptions, but all attempts were made to ensure that these were kept to a minimum. If the woman's partner was attending, he completed his questionnaires in another room whilst she was interviewed. Interviews were audio tape recorded with the agreement of the woman (95% agreed) to allow the researcher to concentrate on the woman's responses, and to enable coding to take place after the interview if necessary.

Attempts were made to contact female participants again at approximately 6 months after the first interview; male

partners were not approached separately. The average time of follow up assessment was 9 months after initial assessment. Despite participants having agreed to be seen again when first approached, the response was very poor (46% agreed). Reasons for non-participation are given in Table 2.4.1. The poor response rate clearly raises questions about the representativeness of the follow-up sample, which will be addressed in Chapters 3 and 4.

Table 2.4.1 Response to invitation to participate in follow-up study: numbers of women (%)

	IVF	DI	Total
Failure to contact or failure to respond	12 (39)	8 (29)	20 (34)
Refused to continue	4 (13)	6 (21)	10 (17)
Moved away	2 (6)	0 (0)	2 (3)
Agreed	13 (42)	14 (50)	27 (46)
Total	31	28	59

CHAPTER THREE: RESULTS

The first section of this chapter reports on the interview and inventory data for women and men separately. The demographic and (where appropriate) obstetric characteristics of participants are described and data on the participants' experiences of infertility, as obtained from the interview (for females) or inventory (for males) are presented.

The second section examines the emotional, marital and sexual functioning of participants, in comparison with normative data for the measures used. Section three examines the way in which participants reported coping with their infertility, and the relationship between their coping strategies and their psychological functioning. The following section describes the sex role types of participants, and investigates the relationship between sex role and emotional, marital and sexual functioning. The fifth section compares the characteristics and emotional functioning of DI and IVF patients and their partners.

Section six examines the extent to which psychological functioning can be predicted in infertility patients, using multiple regression techniques. Section seven is

concerned with the concordance between couples' response to infertility. Finally, section eight deals with the response to follow-up, functioning at follow-up, and the extent to which functioning can be predicted from social and demographic characteristics, emotional functioning and coping prior to treatment.

3.1 CHARACTERISTICS OF PARTICIPANTS AND THEIR EXPERIENCE OF INFERTILITY

Demographic characteristics of participants are shown in Table 3.1.1. The sample consisted of 31 women undergoing IVF treatment and 18 of their male partners, and 28 women undergoing DI treatment, and 16 of their male partners. The length of participants' relationships with their current partner ranged from 3 to 20 years, with an average of about 10 years. Most participants were married (92%) and had no children living with them (85%).

Fifty-three percent of the sample were social class one or two and 30% had manual occupations.

The average age of participants was 34 years. Female IVF patients were significantly older than female DI patients ($p<0.05$). This may be a reflection of the fact that male infertility may be more quickly diagnosed and fewer treatments other than DI are available; there was however no difference in age between treatment groups for men.

Table 3.1.1: Demographic characteristics of participants

		IVF		DI	
		Females	Males	Females	Males
N		31	18	28	16
Duration of relationship in years	Mean (sd) range	10.13 (4.01) 5-20	10.11 (3.86) 5-19	10.18 (3.72) 3-18	9.81 (3.67) 3-17
Married (%)		90	95	93	94
Social class:	1	2	2	2	2
	2	13	7	12	8
	3NM	5	3	6	1
	3M	8	4	4	3
	4	2	1	1	1
	5	1	1	1	0
Age:	Mean (sd) Range	33.61 (4.22) 25-40	35.65 (7.79) 26-55	31.14 (4.93) 23-43	35.33 * (6.63) 25-47
Previous marriage (%)		36	17	7	13 #
Children living in the home (%)		26	22	4	6
Living biological children (%)		23	0	17	13
Adopted children (%)		7	0	0	0
Aetiology:					
Male problem		1	0	24	12
Male and female		3	3	4	4
Female problem		22	11	0	0
Unexplained		5	4	0	0

* Female subjects significantly different; $t(53)=2.06$ $p=0.044$

\# Female subjects significantly different; $\chi^2=5.03$, $p=0.025$

Female IVF patients were also more likely to have had a previous marriage ($p<0.05$).

In 71% of the 31 women undergoing IVF, the problem resulting in infertility lay only in the female partner; with the 28 patients undergoing DI, in 86% the problem lay only in the male partner.

Table 3.1.2 shows the obstetric history as reported by female participants. Twenty-two women (37%) had previously had a pregnancy. IVF patients were more likely than DI patients to have had a previous pregnancy ($p<0.01$). There was no significant difference in numbers having had a previous miscarriage, but none of the DI patients had had a termination of pregnancy, in comparison with 5 women in the IVF group.

Tables 3.1.3 to 3.1.9 show the numbers, frequencies, percentages, means and standard deviations (where appropriate) for the interview variables for female study participants.

Table 3.1.3 shows responses from the section of the interview dealing with attitudes to children. When asked about their attitudes to children prior to deciding to have them, the majority of participants (78%) reported having positive attitudes. Most women (71%) also reported

Table 3.1.2 Obstetric history of female participants: number with previous pregnancies, miscarriages and terminations[1]

	IVF n=31	AID n=28
Previous pregnancy	18	4 **
No previous pregnancy	13	24
Previous miscarriage	6	4
No previous miscarriage	25	24
Previous termination	5	0
No previous termination	26	28

** $P<0.01$ ($\chi^2=10.26$, $p=0.00\ 4$)

[1] Pregnancies, miscarriages and terminations from previous marriages or relationships and unrelated to DI/IVF treatment.

that they had expected that having children would be easy or straightforward. However, 15% of women reported that they had anticipated some difficulties.

When asked about their knowledge of reproduction, the majority had some knowledge. Few women reported above average knowledge (19%).

The majority of women made the decision to have children ten years ago or less (83%). A few had made the decision more than 15 years ago (4%). When asked about how much they wanted a child at that time, most women (88%) reported having been very keen. Twelve percent of women reported being ambivalent. None of the women reported being not very keen at that time. When asked about their partner's feelings about having children, 71% of women reported that their partner had been very keen, 17% ambivalent and 12% reported that he had not been keen.

Only 12% of women reported experiencing pressure from their relatives to have children, but a larger number (54%) reported that they received indirect pressure in the form of hints and comments from their families. A few women (5%) reported pressure from their families <u>not</u> to have children: these tended to be women whose families thought they were too old to consider having a family.

Table 3.1.3 Attitudes to children (females)[1]

VARIABLE & LABELS	FREQUENCY	%	N	MEAN	SD
ATTITUDE TO CHILDREN					
Negative	4	6.8	59	2.71	0.59
Neutral	9	15.3			
Positive	46	78.0			
EXPECTATIONS ABOUT HAVING CHILDREN					
Difficult	9	15.3	59	2.56	0.75
Uncertain	8	13.6			
Easy	42	71.2			
KNOWLEDGE OF REPRODUCTION					
Poor	16	28.1	57	1.91	0.69
Average	30	52.6			
Good	11	19.3			
MADE DECISION TO HAVE CHILDREN (YEARS AGO)					
1-5	24	41.4	58	7.09	3.60
6-10	24	41.4			
11-15	8	13.7			
16-20	2	3.5			
RESPONDENT KEEN TO HAVE CHILDREN					
Very keen	52	88.1	59	1.12	0.33
Ambivalent	7	11.9			
Not keen	0	0.0			
PARTNER KEEN TO HAVE CHILDREN					
Very keen	42	71.2	59	1.41	0.70
Ambivalent	10	16.9			
Not keen	7	11.9			
PRESSURE TO HAVE CHILDREN					
Strong pressure	7	12.1	58	2.26	0.74
Weak pressure	32	55.2			
No pressure	16	27.6			
Pressure against	1	5.2			

[1] For some variables there are missing data. Percentages refer to the percentage of those for whom data were available.

Table 3.1.4 shows variables which dealt with the process of becoming aware of a problem and seeking help for it from the medical profession. Whilst a quarter of women reported being aware that there might be a problem in becoming pregnant when they made the decision to start a family, most women (52%) reported becoming concerned that there might be a problem a year or less after making the decision. The majority of women (70%) reported feeling hopeful at this stage that the problem could be overcome, with only a small number feeling despondent (9%). Prior to going to the doctor, most women (68%) felt that they were the partner most likely to be responsible for the infertility. Some thought that both partners might be responsible (19%) but fewer thought that the problem lay with the man (14%). This suggests that the belief that infertility is a "woman's problem" is still maintained, but not necessarily in terms of blaming women, or seeing the woman as being at fault. The continuation of this myth may in part be due to the contraceptive pill - a number of women felt that it might be their problem because "the pill hadn't worn off yet". In line with this, women often took the initiative in seeking help from the medical profession: 45% reported going on their own initiative, 42% reported that it was a joint decision, and in only 13% of cases did women report that their partner had the idea to seek help. In doing so, most approached their family doctor (85%).

Table 3.1.4 Seeking help (females)

VARIABLE & LABELS	FREQUENCY	%	N
AWARENESS OF PROBLEM (MONTHS AFTER DECISION)			
0-6	14	26.1	54
7-12	14	26.1	
13-18	1	1.9	
19-24	6	11.1	
25-48	5	9.4	
Already aware	14	25.9	
FEELINGS ABOUT POSSIBLE OUTCOME			
Hopeful	40	70.2	57
Unsure	12	21.1	
Despondent	5	8.8	
WHOSE IDEA TO SEEK HELP			
Woman	24	45.3	53
Joint	22	41.5	
Man	7	13.2	
WHOM FIRST APPROACHED			
GP	49	84.5	
Other	9	15.5	

Table 3.1.5 shows the tests that women underwent and their associated feelings of distress. Most women reported having filled out temperature charts (80%) and having had blood tests (80%). Three quarters of the women reported having had ultrasound scans and laparoscopies. Less than a third (31%) reported having had a post-coital test. Sixty four percent of women reported having had a hysterosalpingogram, and this test was associated with the most severe distress, particularly when it had been performed without a general anaesthetic. In particular, women felt unprepared for this test, and for the pain that they experienced.

Table 3.1.6 gives frequencies for treatment that women had had in relation to their infertility. Surgery was perhaps inevitably associated with the greatest degree of distress. Also noteworthy is the fact that 87% of those who had been prescribed Danazol found this treatment distressing.

The following table shows the problems which contributed to participants' infertility. The most common problem was tubal blockage or damage, which was reported by nearly half of the patients.

Participants were asked about their satisfaction with the tests and treatment that they had received (Table 3.1.8).

Table 3.1.5 Distress associated with diagnostic tests (females)

TEST/TREATMENT & ASSOCIATED DISTRESS	FREQUENCY	%
TEMPERATURE CHART		
Severe distress	0	0.0
Mild distress	10	21.3
Tolerable	37	78.7
POSTCOITAL TEST		
Severe distress	1	5.6
Mild distress	7	38.9
Tolerable	10	55.6
BLOOD TESTS		
Severe distress	2	4.0
Mild distress	10	20.0
Tolerable	38	76.0
ULTRASOUND SCAN		
Severe distress	2	4.3
Mild distress	12	26.1
Tolerable	31	67.4
HYSTEROSALPINGOGRAM (GENERAL ANAESTHETIC)		
Severe distress	0	0.0
Mild distress	2	16.7
Tolerable	10	83.3
HYSTEROSALPINGOGRAM (NO GENERAL ANAESTHETIC)		
Severe distress	19	73.1
Mild distress	4	15.4
Tolerable	3	11.5
TUBAL INSUFFLATION		
Severe distress	0	0.0
Mild distress	2	66.7
Tolerable	1	33.3
LAPAROSCOPY (GENERAL ANAESTHETIC)		
Severe distress	5	12.5
Mild distress	17	42.5
Tolerable	18	45.0
LAPAROSCOPY (NO GENERAL ANAESTHETIC)		
Severe distress	2	50.0
Mild distress	1	25.0
Tolerable	1	25.0

Table 3.1.6 Distress associated with drugs and surgical procedures (females)

DRUG/PROCEDURE & ASSOCIATED DISTRESS	FREQUENCY	%
CLOMID		
Severe distress	1	3.4
Mild distress	5	17.2
Tolerable	23	79.3
PERGONAL		
Severe distress	1	7.7
Mild distress	1	7.7
Tolerable	11	84.6
DANAZOL		
Severe distress	2	25.0
Mild distress	5	62.5
Tolerable	3	12.5
TUBAL SURGERY		
Severe distress	2	22.2
Mild distress	5	55.6
Tolerable	2	22.2
OTHER SURGERY		
Severe distress	5	62.5
Mild distress	3	37.5
Tolerable	0	0.0

Table 3.1.7 Problems contributing to infertility (female) and aetiology

	FREQUENCY	%
PROBLEMS		
Tubal blockage/damage	27	45.8
Endometriosis	9	15.3
Ovulatory problems	2	3.4
Polycystic ovaries	4	6.8
Fibroid tumours	1	1.7
Unexplained	6	10.2
AETIOLOGY		
Male	25	42.4
Male and female	7	11.9
Female	22	37.3
Not known	5	8.5

Most women were satisfied (72%), and 17% reported being dissatisfied in some way. Dissatisfactions were usually associated with delays in obtaining appointments, tests or treatment, and with communication with doctors.

Participants were asked about the cause of their problem, and how they felt on receiving the diagnosis. Nearly half of the women reported that they still felt optimistic at this time about the chance of becoming pregnant (47%) although 26% were unsure and 26% reported feeling pessimistic about the possibility of successful treatment.

Most participants reported a combination of positive and negative effects on their marital and sexual relationship. A quarter of women reported that their infertility had had some negative effect on their relationship in the past and 36% reported that they currently experienced some marital problems. Thirty-nine percent also reported that their infertility had some beneficial effect on their relationship. None of the women reported that infertility had had a positive effect on their sexual relationship, but 46% reported some negative effects in the past, and 14% reported current negative effects on sexual functioning.

Table 3.1.8 Effects of infertility (females)

VARIABLE & LABELS	FREQUENCY	%	N	MEAN	SD
SATISFACTION WITH TESTS					
Satisfied	42	72.4	58	1.45	0.78
Neutral	6	10.3			
Dissatisfied	10	17.2			
REACTION TO DIAGNOSIS					
Optimistic	27	47.4	57	1.79	0.84
Unsure	15	26.3			
Pessimistic	15	26.3			
NEGATIVE EFFECT ON MARITAL RELATIONSHIP IN THE PAST					
No	44	74.6	59		
Yes	15	25.4			
NEGATIVE EFFECT ON MARITAL RELATIONSHIP NOW					
No	38	64.4	59		
Yes	21	35.6			
POSITIVE EFFECT ON MARITAL RELATIONSHIP IN THE PAST					
No	46	78.0	59		
Yes	13	22.0			
POSITIVE EFFECT ON MARITAL RELATIONSHIP NOW					
No	36	61.0	59		
Yes	23	39.0			
NEGATIVE EFFECT ON SEXUAL RELATIONSHIP IN THE PAST					
No	27	45.8	59		
Yes	32	54.2			
NEGATIVE EFFECT ON SEXUAL RELATIONSHIP NOW					
No	8	13.6	59		
Yes	51	86.4			
CHANGE IN DESIRE FOR CHILDREN					
Increased	34	57.6			
No change	18	31.0			
Decreased	6	10.3			
IMPORTANCE OF HAVING A CHILD NOW					
Extremely important	43	72.9			
Quite important	15	25.4			
Not very important	1	1.7			

Participants were asked whether their difficulties in conceiving a child had affected their original desire to have children. Most women (59%) felt that their desire for children had increased and only 10% of women felt that their desire for children had decreased.

Women were asked how important it was to them <u>now</u> to have children. Most (73%) reported that it was extremely important to them, perhaps the most important thing in their lives at that time. Only one woman felt that it was not particularly important to her.

Women were also asked if they talked to anyone about their infertility; their responses are presented in Table 3.1.9. Sixty-six percent of women reported that they had discussed their infertility with their family, and of these, 84% felt that their family had been helpful. Seventy-four percent had talked to their friends, and of these, 77% felt that their friends had been helpful. A large proportion of women also talked to the clinic staff (74%), and of these, 88% felt they were helpful. Data from this section of the interview were also coded to assess whether the woman had a confiding relationship, ie whether there was someone with whom she found it helpful to discuss her infertility other than her partner. More than half the women (56%) reported having such a relationship.

Table 3.1.9 Social support and effect on relationships (females)

VARIABLE & LABELS	FREQUENCY	%
INFERTILITY DISCUSSED WITH FAMILY		
Not discussed	20	34.5
Family unhelpful	6	10.3
Family helpful	32	55.2
INFERTILITY DISCUSSED WITH FRIENDS		
Not discussed	14	25.4
Friends unhelpful	10	16.9
Friends helpful	34	57.6
INFERTILITY DISCUSSED WITH CLINIC STAFF		
Not discussed	15	25.9
Clinic staff unhelpful	5	8.6
Clinic staff helpful	38	65.5
CONFIDING RELATIONSHIP (OTHER THAN WITH PARTNER)		
Yes	33	55.9
No	26	44.1
EFFECT ON RELATIONSHIP WITH FAMILY		
Very negative	2	3.6
Negative	21	36.2
No effect	32	55.2
Positive	4	6.9
EFFECT ON RELATIONSHIP WITH FRIENDS		
Very negative	1	3.6
Negative	21	36.2
None	32	55.2
Positive	4	6.9
EFFECT ON WORK		
Very negative	3	5.3
Negative	19	33.3
No effect	25	43.9
Positive	7	12.3
Never worked	3	5.3
EFFECT ON IDENTITY		
Very negative	11	19.3
Negative	28	49.0
No effect	18	31.6
Positive	0	0.0
ANTICIPATED EFFECT ON LIFE		
Severe negative	17	31.5
Moderate negative	22	40.7
Minor negative	13	24.1
Unable to answer	2	3.7

Participants also discussed the effects that infertility had had on their life. A quarter of the women reported some negative effect on infertility on their relationship with their family: either moderate (21%) or severe (4%). Two common difficulties were with relationships with siblings who were able to have children, and with relationships with parents-in-law. More than half of the women (64%) felt that infertility had had no effect on their relationship with their family and some also reported a positive effect on their relationships with their family (11%).

Over third of the women (36%) reported their infertility had negatively affected their relationships with their friends, with one woman reporting a severe negative effect. Fifty-five percent of women reported that their infertility had not affected their relationships with their friends. Seven percent of women felt that infertility had had a beneficial effect on their relationships with their friends, for example, in bringing friends closer together and enabling communication.

A third of the women reported that their infertility had negatively affected their work, with 5% reporting a very negative effect. One of the difficulties for women was in taking time off work for clinic attendance. This created problems if women did not wish to or were unable to discuss their infertility with their boss or colleagues.

There were problems even for those women who were able to say why they required time off work: they were not actually "sick" and so had to take time off for clinic attendance as holiday. This problem was made worse by the fact that women were unable to say in advance exactly when they would need to attend the clinic. Some women reported having taken up part-time work, or having given up work completely as a result of such difficulties. Five percent of women also reported a positive effect on their work: these women reported that they had advanced further in their career than they would have done had they had children when they first planned to.

Participants were also asked whether their infertility had had an effect on their identity as a woman. None of the women reported a positive effect; nearly half reported a negative effect (49%) and a fifth reported a very negative effect on their identity. Women reported a variety of negative effects such as feeling different from other women, feeling useless, inadequate or a failure, or seeing themselves as only half a woman or not a woman at all.

Participants were also asked about the possibility of their treatment being unsuccessful, and how this might affect their lives. Many women found this difficult to answer, and 4% were unable to answer the question at all, usually reporting that they could not consider the possibility that treatment would be unsuccessful, or that

they would continue to have treatment until it worked. Most women (72%) expected a moderately or severely negative effect on their lives in the event of treatment being unsuccessful. Thirty-six percent of women appeared to have made some preparation to deal with the possible failure of the current treatment cycle. These included having made a decision about the number of unsuccessful treatments they were prepared to undergo before "giving up", alternative plans such as adoption, or plans for a child-free life.

Male participants' attitudes to children are shown in Table 3.1.10. The majority of men (66%) reported having positive attitudes towards children prior to deciding to have them. Most men (72%) also reported that they had expected that having children would be easy, although nearly a fifth reported that they anticipated difficulties.

Few men (6%) admitted to having poor knowledge of reproduction, with most reporting average or good knowledge (47% each). This contrasts with the women's responses, where few women reported having a good knowledge of reproduction (19%). This difference may mainly be due to the different ways in which this information was obtained: women's knowledge was rated by the interviewer, whereas men were merely asked to state what they thought their level of knowledge was.

Table 3.1.10 Attitudes to children (males)

VARIABLE & LABELS	FREQUENCY	%	N	MEAN	SD
ATTITUDE TO CHILDREN					
Negative	7	21.9	32	2.44	0.84
Neutral	4	12.5			
Positive	21	65.6			
EXPECTATIONS ABOUT HAVING CHILDREN					
Difficult	6	18.8	32	2.53	0.80
Uncertain	3	9.4			
Easy	23	71.9			
KNOWLEDGE OF REPRODUCTION					
Poor	2	6.3	32	2.41	0.62
Average	15	46.9			
Good	15	46.9			
RESPONDENT KEEN TO HAVE CHILDREN					
Very keen	22	71.0	31	1.48	0.81
Ambivalent	3	9.7			
Not keen	6	19.4			
PARTNER KEEN TO HAVE CHILDREN					
Very keen	27	87.1	31	1.19	0.54
Ambivalent	2	6.5			
Not keen	2	6.5			
PRESSURE TO HAVE CHILDREN					
Strong	4	12.9	31	1.90	0.40
None	26	83.9			
Against	1	3.2			

Nearly three quarters of the men (71%) reported being very keen to have a child at the time of the decision. Ten percent of men reported being ambivalent and 17% of men did not want children. Given that all of the women wanted children at this time, this suggests that the woman's feelings carry the most weight in making the decision about when to start a family. Ninety percent of men reported that their partner had been very keen to have a child at this stage, 3% that their partner had been ambivalent, and 7% that she had not wanted to.

Only 9% of men reported feeling strong pressure from their relatives to have children, with one reporting pressure from family not to have children.

Table 3.1.11 shows the tests undergone by men. Nearly all men reported that they had had a semen analysis (94%) and nearly half had had blood tests (49%). One third of the men found some part of the testing process distressing. However, most men (75%) reported being satisfied with the tests and treatment that they had received. The proportion of men expressing dissatisfaction was similar to that of women (19%). In reporting on problems contributing to the couples' infertility, most men had low sperm counts (oligospermia) or no sperm (azoospermia) (47%).

Table 3.1.11 Tests, treatment and problems contributing to infertility (males)

VARIABLE	LABEL	FREQUENCY	%
SEMEN ANALYSIS	Yes	33	94.3
	No	2	5.7
VARICOCELE SCREENING	Yes	1	2.9
	No	34	97.1
BLOOD TESTS	Yes	17	48.6
	No	18	51.4
TESTICULAR BIOPSY	Yes	2	5.7
	No	33	94.3
OTHER SURGERY	Yes	5	13.9
	No	31	86.1
FOUND ANY TESTS DISTRESSING	Not at all	20	66.7
	Mildly	9	30.0
	Very	1	3.3
SATISFACTION WITH TESTS	Satisfied	24	75.0
	Neutral	2	6.3
	Dissatisfied	6	18.8
PROBLEMS CONTRIBUTING TO INFERTILITY			
Male tubal problems		4	6.8
Azoospermia		13	22.0
Oligospermia		15	25.4
Varicocele		2	3.4
Other male diagnosis		4	6.8

Table 3.1.12 shows the effects of infertility reported by male participants. Thirty six percent of men reported some negative effects of infertility on their marital relationship, and 77% reported some positive effect. Twenty seven percent of men also reported a negative effect on their sexual relationship.

Participants were asked whether their difficulties in conceiving a child had affected their original desire to have children. In contrast with the women, most of whom felt their desire for a child had increased, nearly half of the men (45%) felt that their desire for a child had stayed the same. Sixteen percent of men felt that their desire for children had decreased.

Participants also discussed the effects that infertility had had on their lives. Nearly three-quarters of the men (71%) felt that infertility had had no effect on their relationship with their family, and a fifth reported either a negative effect (16%) or very negative effect (3%). Few reported a positive effect on their relationships with their family (10%).

Again, most men (87%) reported no effect on their relationships with their friends, with the remainder reporting a negative effect.

Table 3.1.12 Effects of infertility (males)

VARIABLE & LABELS	FREQUENCY	%
NEGATIVE EFFECT ON MARITAL RELATIONSHIP		
No	20	64.5
Yes	11	35.5
POSITIVE EFFECT ON MARITAL RELATIONSHIP		
No	7	23.3
Yes	23	76.7
NEGATIVE EFFECT ON SEXUAL RELATIONSHIP		
No	22	73.3
Yes	8	26.7
CHANGE IN DESIRE FOR CHILDREN		
Increased	12	38.7
Same	14	45.2
Decreased	5	16.1
EFFECT ON RELATIONSHIP WITH FAMILY		
Very negative	1	3.2
Negative	5	16.1
None	22	71.0
Positive	3	9.7
EFFECT ON RELATIONSHIP WITH FRIENDS		
Very negative	0	0.0
Negative	4	12.9
None	27	87.1
Positive	0	0.0
EFFECT ON WORK		
Very negative	0	0.0
Negative	4	12.9
None	26	83.9
Positive	0	0.0
Not working	1	3.2
EFFECT ON IDENTITY		
Very negative	0	0.0
Negative	8	25.8
None	22	71.0
Positive	1	3.2
EFFECT ON LIFE		
Severe negative	8	25.8
Moderate negative	4	12.9
Minor negative	19	61.3

In discussing whether infertility had affected their work, most men reported that it had had no effect (84%). Thirteen percent of men reported a negative effect on their work, and one man had retired. More women reported effects on their work, which is to be expected in view of the fact that it is the women who have to attend the clinic for treatment.

Participants were also asked whether their infertility had had an effect on their identity. Most men (71%) again reported no effect, with 26% reporting a negative effect and only 3% reporting a positive effect.

Nearly two-thirds of the men anticipated a minor negative effect on their lives in the event of treatment being unsuccessful; this is in contrast with the reports of the women, nearly three-quarters of whom anticipated a moderately or severely negative effect on their lives.

3.2 THE EXTENT OF EMOTIONAL, MARITAL AND SEXUAL PROBLEMS

In order to assess the extent of emotional, marital and sexual problems in subjects, scores were compared with normative data for the measures used. For state and trait anxiety, scores were compared with recent published normative data for these scales (Knight et al, 1983) (see Table 3.2.1). Both men and women were significantly higher than norms on state anxiety ($t=4.386$; $p<0.01$ and

Table 3.2.1: Mean scores (standard deviations) on measures of anxiety (STAI) in comparison with normative data[2]

	Women		Men	
	Subjects	Norms	Subjects	Norms
	Mean (sd)	Mean (sd)	Mean (sd)	Mean (sd)
Trait anxiety	40.79 (9.83)	38.39 (10.18)	36.47 (9.24)	32.13 * (7.92)
State anxiety	42.22 (12.13)	34.47 ** (10.18)	35.81 (11.42)	29.31 ** (7.71)

* p<0.05 ** p<0.01

Table 3.2.2: Mean scores (standard deviations) and classification of scores on the measure of depression (BDI)

	Women	Men
Mean (sd)	8.16 (6.98)	6.16 (5.81)
Normal or asymptomatic (scores 0-9)	36	26
Mild to moderate (scores 10-18)	15	4
Moderate to severe (scores 19-29)	1	2

[2] Knight et al (1983)

t=3.526; p<0.01 respectively). Men also had significantly higher trait anxiety (t=2.53; p<0.05) but women's scores, although higher than the norm, were not significantly different (t=1.50; n.s.).

The mean score on the Beck Depression Inventory for women was 8.16 and for men was 6.16 (see Table 3.2.2). Participants did not exhibit high levels of depression: 16 women and 6 men were mildly to moderately depressed according to Beck's (1967) classification.

On the measure of marital functioning (GRIMS), 18 women and 5 men had a transformed score above cut-off (that is, a score of 6 or above) indicating the presence of marital problems (see Table 3.2.3). Mean scores on the GRIMS were compared with normative data for the scale (Rust et al, 1986) (see Table 3.2.5). There were no significant differences between scores for women in the two groups (t=0.999; n.s.), but scores for men in the infertility group were significantly lower than for the general population (t=2.173; p<0.05), suggesting better marital adjustment.

It is interesting to note that 16 of the women and 9 of the men had transformed scores of 1 on the GRIMS. The manual for this test indicates that caution should be exercised when interpreting such scores, as they may either suggest that subjects are lying or are at a very

Table 3.2.3: Classification of marital functioning scores (GRIMS)

	Women	Men
Number above cut-off	18	5
Number below cut-off	39	26
CLASSIFICATION		
Severe problems	4	1
Bad	5	1
Poor	9	3
Average	3	3
Above average	8	6
Good	2	3
Very good	10	5
Undefined/excellent	16	9

Table 3.2.4: Frequencies of transformed scores on the measure of sexual functioning (GRISS)

	Women	Men
Number above cut-off	3	9
Number below cut-off	50	20
CLASSIFICATION		
9	0	1
8	0	0
7	0	2
6	1	2
5	2	4
4	10	2
3	6	8
2	13	4
1	21	6

early stage of the relationship.

Given that the average length of relationship of participants was 10 years, the second explanation seems unlikely. To examine this further, those with a score of 1 were compared with the remainder of the group in terms of age, length of relationship, and aetiology of infertility. For both women and men, there were no significant differences between the groups in age (t=-0.15;ns and t=-0.00; ns respectively) or length of relationship (t=1.12;ns and t=0.09; ns respectively), or in aetiology (χ^2=4.93; ns and χ^2 =0.58; ns respectively). This finding may be due to the nature of the treatment that patients are undergoing: it is possible that only those with good relationships reach this stage. It is also possible that patients feel that they need to demonstrate that they are functioning well in order to obtain treatment.

On the measure of sexual functioning (GRISS), 3 women and 9 men scored above cut-off indicating that they were experiencing sexual difficulties (see Table 3.2.4). Comparisons between mean scores on the GRISS and norms (Golombok et al, 1984) showed no difference in overall GRISS scores between the groups for men or women (see Table 3.2.5).

Table 3.2.5: Mean scores (standard deviations) on measures of marital and sexual functioning in comparison with normative data[3]

	Women		Men	
	Subjects	Norms	Subjects	Norms
	Mean (sd)	Mean (sd)	Mean (sd)	Mean (sd)
GRIMS (raw)	25.09 (11.46)	27.21 (10.02)	22.87 (10.64)	28.37 * (9.03)
GRISS (raw)	23.75 (8.73)	25.67 (14.56)	21.28 (10.51)	22.50 (13.12)

* $p<0.05$

Table 3.2.6: Frequencies of sexual problems (scores ≥5) as measured by subscales of the GRISS in comparison with normative data[4]

	Women				Men			
	Subjects		Norms		Subjects		Norms	
	N	(%)	N	(%)	N	(%)	N	(%)
Infrequency	34	(64)	14	(47)	16	(55)	13	(46)
Non-communication	27	(51)	11	(37)	9	(31)	9	(32)
Dissatisfaction	3	(6)	4	(13)	4	(14)	7	(25)
Avoidance	18	(34)	10	(33)	3	(10)	15	(54)*
Non-sensuality	16	(30)	12	(40)	8	(28)	0	(0)
Vaginismus	13	(25)	7	(23)	-	-	-	-
Anorgasmia	4	(8)	9	(30)	-	-	-	-
Impotence	-	-	-	-	9	(31)	12	(43)
Premature ejaculation	-	-	-	-	9	(31)	9	(32)

* $p<0.05$

[3] Rust et al (1987); Golombok et al (1984).

[4] Rust et al (1986b)

Frequencies of specific sexual problems as measured by the subscales of the GRISS are shown in Table 3.2.6. Although frequency of intercourse is low, this does not appear to be associated with dissatisfaction with the sexual relationship. Data on specific sexual problems were compared with normative data (Golombok et al, 1984) using Chi-squared tests where numbers were sufficiently large. This revealed only one significant difference: significantly less avoidance of sex by men in the infertile group ($\chi^2=5.27$; $p<0.05$).

In order to examine whether those individuals who were emotionally distressed were also those experiencing problems in their marital and sexual relationships, Pearsons correlations were calculated between measures of emotional distress and measures of sexual and marital functioning. The correlation matrix is shown in Table 3.2.7.

For women, there were significant correlations between measures of anxiety and depression (all $p<0.001$). Trait anxiety and depression were also correlated with marital functioning (both $p<0.01$) and sexual functioning ($p<0.01$ and $p<0.05$ respectively), and the measures of marital and sexual functioning were also correlated with one another ($p<0.001$). For men, all measures were correlated; unlike women, state anxiety was correlated with marital and sexual functioning (both $p<0.05$).

Table 3.2.7 Pearson's correlations between measures of emotional, marital and sexual functioning

WOMEN	STAI State	STAI Trait	BDI	GRIMS
STAI-Trait	0.67***			
BDI	0.58***	0.75***		
GRIMS	0.19	0.38**	0.32**	
GRISS	0.16	0.36**	0.30*	0.56***
MEN				
STAI-Trait	0.73***			
BDI	0.63***	0.78***		
GRIMS	0.39*	0.52**	0.47**	
GRISS	0.34*	0.50**	0.38*	0.32*

* p<0.05 ** p<0.01 *** p<0.001

These results suggest that those individuals experiencing emotional distress were also experiencing marital and sexual problems.

3.3 COPING WITH INFERTILITY

Mean scores on measures of coping are shown in Table 3.3.1. With the exception of avoidance coping, scores for infertility patients are lower than for the general population (Moos et al, 1982). This may be due to the fact that (1) infertility subjects are all reporting about how they cope with the same event rather than referring to different events; and (2) the events which are referred to by the general population may be very different in quality from infertility. No statistical comparison has been made in view of the fact that infertility subjects are not reporting on the same event as the general popluation sample, and different profiles of coping are associated with different stressors (eg Vitaliano et al, 1990).

In order to examine the relationship between emotional functioning and coping, Pearsons correlations were calculated between measures of emotional, marital and sexual functioning and measures of coping. These are shown in Table 3.3.2.

Table 3.3.1: Mean scores (standard deviations) on method and focus of coping in comparison with normative data[5]

	Subjects (n=91) Mean (sd)	Norms (n=424) Mean (sd)
Method of coping		
Active cognitive	13.59 (4.72)	17.50 (5.55)
Active behavioural	17.15 (6.93)	19.49 (7.09)
Avoidance	4.57 (3.58)	3.55 (3.29)
Focus of coping		
Logical analysis	4.92 (2.56)	6.82 (2.87)
Information seeking	8.77 (4.32)	10.61 (4.58)
Problem solving	8.15 (4.82)	8.88 (3.38)
Affective regulation	7.02 (3.63)	8.40 (3.57)
Emotional discharge	3.21 (3.12)	3.39 (2.58)

[5] Moos et al (1982)

There were significant positive correlations between state anxiety and active behavioural coping ($p<0.05$), avoidance coping ($p<0.001$), affective regulation ($p<0.01$) and emotional discharge ($p<0.001$). Trait anxiety was also positively correlated with avoidance coping ($p<0.001$), affective regulation ($p<0.05$) and emotional discharge ($p<0.001$). Depression was correlated with avoidance coping ($p<0.001$) and emotional discharge ($p<0.001$). Thus, participants with high levels of distress were using higher levels of strategies which directed attention away from the stressor, and which were focused on dealing with the emotion that they were experiencing. Examples of the types of coping strategies used are shown in Figure 3.3.1.

The quality of the marital relationship was negatively correlated with active cognitive coping ($p<0.05$) and behavioural coping ($p<0.05$), suggesting a relationship between high approach coping and good marital functioning. There was a similar relationship with logical analysis ($p<0.05$) and problem solving ($p<0.05$). The quality of the sexual relationship was negatively correlated with problem solving ($p<0.01$).

Different coping methods or focuses therefore appear to be associated with emotional functioning and marital functioning.

Table 3.3.2 Pearson's correlations between measures of emotional functioning and measures of coping

COPING METHOD	MEASURE OF EMOTIONAL FUNCTIONING				
	STAI-S	STAI-T	BDI	GRIMS	GRISS
Active cognitive	0.13	0.07	0.58	-0.23 *	-0.12
Active behavioural	0.20 *	0.05	0.09	-0.23 *	-0.12
Avoidance	0.58 ***	0.54 ***	0.65 ***	0.11	-0.04
COPING FOCUS					
Logical analysis	0.08	-0.07	0.01	-0.25 *	-0.07
Information seeking	0.07	0.05	0.09	-0.17	0.02
Problem solving	0.02	-0.11	-0.03	-0.19 *	-0.27 **
Affective regulation	0.25 **	0.19 *	0.05	-0.08	-0.01
Emotional discharge	0.38 ***	0.35 ***	0.54 ***	-0.07	-0.19

* p<0.05 ** p<0.01 *** p<0.001

Figure 3.3.1 Examples of coping strategies

ACTIVE COGNITIVE COPING

- Tried to see the positive side of the situation
- Went over the situation in my mind to try to understand it

ACTIVE BEHAVIOURAL COPING

- Talked with friend about the problem
- Made a plan of action and followed it

AVOIDANCE COPING

- Avoided being with people in general
- Refused to believe that it had happened

LOGICAL ANALYSIS

- Tried to step back from the situation and be more objective
- Considered several alternatives for handling the problem

INFORMATION SEEKING

- Tried to find out more about the situation
- Sought help from persons or groups with similar experiences

PROBLEM SOLVING

- Tried not to act too hastily or follow my first hunch
- Took things a day at a time, one step at a time

AFFECTIVE REGULATION

- Got busy with other things to keep my mind off the problem
- Told myself things that helped me feel better

EMOTIONAL DISCHARGE

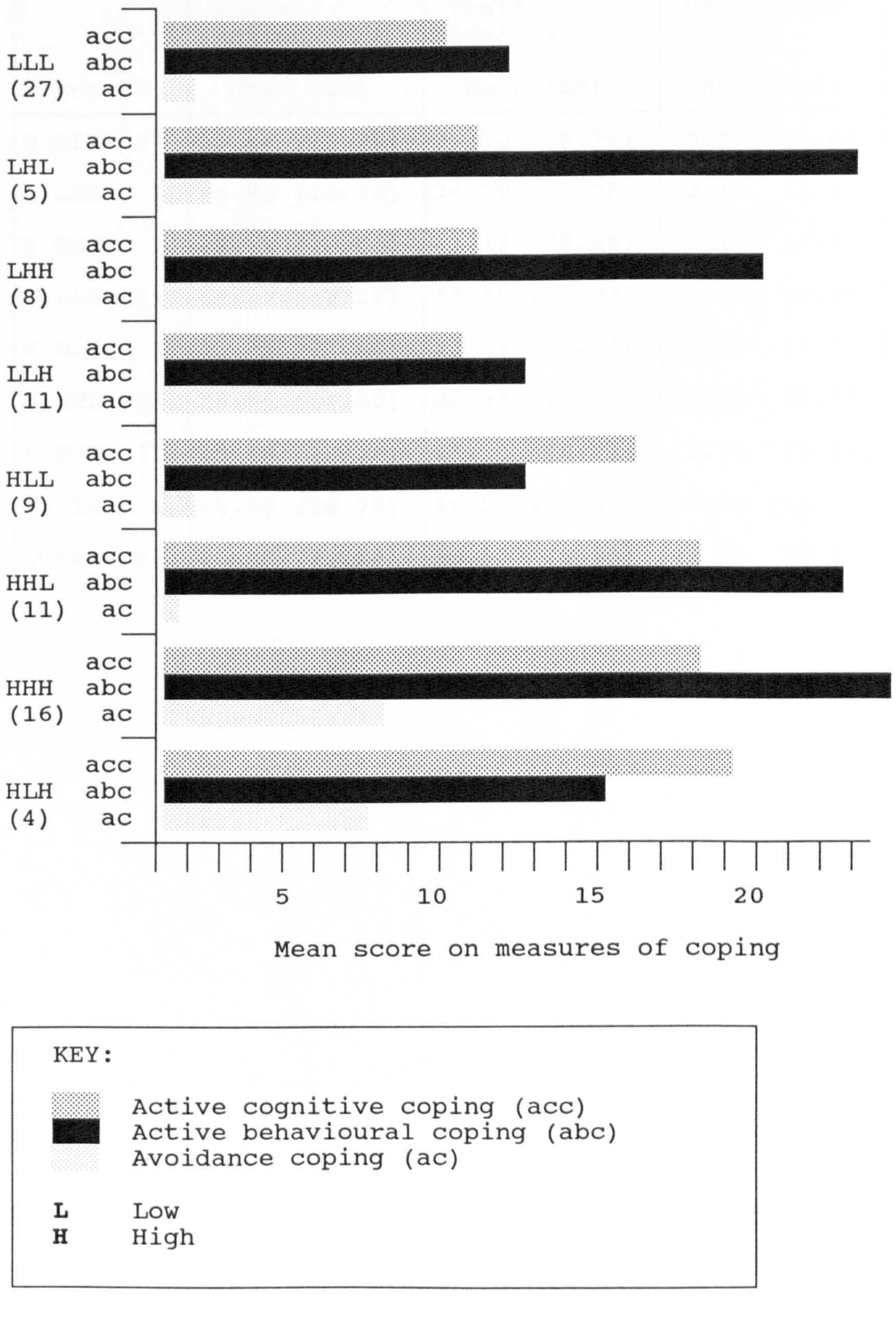
- Took it out on other people when I felt angry of depressed
- Tried to reduce tension by smoking more

In order to examine the hypothesis that approach coping strategies are positively related to adaptation and that avoidance coping plays a negative role, the median split method was used to divide patients into high/low on each method of coping (active cognitive, active behavioural or avoidance). These were calculated separately for men and women, in view of the fact that they differed in their use of coping strategies. Subjects were thus classified into 8 groups, according to whether they were high or low on each method of coping. Those with scores on the median were included in the low group. The numbers of subjects in each group and mean scores on each measure of coping are shown in Figure 3.3.2.

The mean scores on measures of emotional functioning by coping group are shown in Table 3.3.3. As can be seen from this table, the mean scores for each of the groups with high avoidance coping (groups 2, 3, 6 & 7) are higher than those for the groups with low avoidance coping; this is the case for state and trait anxiety, and for depression scores. However, the numbers are not sufficiently large to allow statistical analysis.

Scores on measures of the quality of the marital and sexual relationship by coping group are shown in Table 3.3.4. The pattern of differences evident for emotional functioning is not evident with marital and sexual functioning.

Figure 3.3.2: Mean scores on each measure of coping by coping profile



KEY:

Active cognitive coping (acc)
Active behavioural coping (abc)
Avoidance coping (ac)

L Low
H High

Table 3.3.3: Mean scores (standard deviations) on measures of emotional functioning by coping group

Group	N	State Anxiety Mean (sd)	Trait Anxiety Mean (sd)	Depression Mean (sd)
0 LLL	27	35.44 (11.25)	37.30 (9.76)	5.52 (4.61)
1 LHL	5	36.80 (18.36)	34.20 (6.98)	2.60 (2.07)
2 LHH	7	49.71 (12.05)	43.14 (8.36)	10.17 (7.19)
3 LLH	11	44.27 (12.27)	43.18 (11.97)	11.55 (8.35)
4 HLL	8	33.75 (7.80)	33.63 (4.47)	2.50 (2.33)
5 HHL	11	36.55 (10.60)	35.73 (7.70)	5.18 (5.36)
6 HHH	15	45.40 (8.10)	44.80 (8.72)	12.73 (6.54)
7 HLH	4	49.50 (16.78)	46.25 (12.09)	12.00 (11.02)
TOTAL	88	40.08 (12.24)	39.48 (9.77)	7.66 (6.83)

Table 3.3.4: Mean scores (standard deviations) on marital and sexual functioning by coping group

Group	N	Marital functioning Mean (sd)		Sexual functioning Mean (sd)	
0 LLL	27	4.19	(2.18)	2.67	(1.34)
1 LHL	5	2.60	(2.51)	1.75	(0.96)
2 LHH	6	4.33	(1.86)	3.67	(1.97)
3 LLH	10	4.20	(2.49)	3.22	(2.11)
4 HLL	8	2.25	(1.49)	2.71	(1.50)
5 HHL	11	3.27	(2.15)	2.64	(1.96)
6 HHH	15	3.20	(2.70)	2.87	(2.23)
7 HLH	4	2.25	(2.50)	1.75	(1.50)
TOTAL	86	3.55	(2.30)	2.75	(1.75)

Because of the low numbers of individuals in some groups, subjects were combined to provide two groups for the purpose of statistical analysis. In order to test the hypothesis that high levels of avoidance coping are associated with high distress, those groups with high avoidance coping (groups 2, 3, 6 & 7) were combined and those with low avoidance coping (groups 0, 1, 4 & 5) were combined. Thus there were 52 participants in the low avoidance group and 39 in the high avoidance group.

Scores for measures of emotional functioning, and the quality of the marital and sexual relationship by coping group are shown in Table 3.3.5. Subjects in the high avoidance group had significantly higher scores on state anxiety ($t=4.52; p<0.001$), on trait anxiety ($t=4.08; p<0.001$) and depression ($t=5.17; p<0.001$). There were no differences between the groups for quality of the marital or sexual relationship.

In order to examine whether emotional functioning was related to the use of cognitive or behavioural coping, men and women were divided into high and low distress groups separately for anxiety, depression, marital problems and sexual problems. As cut-off points for the anxiety scales were not available, the median split was used. The score of 10 was used as cut-off for the Beck Depression Inventory, that is, those with normal scores were compared with those with mild or moderate depression.

Table 3.3.5: Mean scores (standard deviations) on measures of emotional, marital and sexual functioning by avoidance coping group

Measure	Low avoidance (n=52) Mean (sd)	High avoidance (n=39) Mean (sd)	
State anxiety	35.55 (11.16)	46.32 (10.96)	***
Trait anxiety	36.08 (8.38)	44.16 (9.71)	***
Depression	4.69 (4.42)	11.86 (7.46)	***
Marital functioning	3.53 (2.19)	3.57 (2.49)	
Sexual functioning	2.59 (1.48)	2.97 (2.07)	

*** p<0.001

For the measures of marital and sexual functioning, the cut-off was the transformed score indicating poor or worse than average relationships. The mean scores on the three measures of coping for the high and low distress groups are shown in Table 3.3.6. There were no significant differences in scores on active cognitive or behavioural coping between those experiencing high and low anxiety, depression, marital problems or sexual problems. With one exception, mean scores on avoidance coping were higher for the high distress group than for the low distress group for anxiety and depression. Both women and men with high state anxiety had significantly higher scores on avoidance coping ($t=3.860$; $p<0.001$ and $t=2.761$; $p<0.01$ respectively) than those with low state anxiety, and women with high trait anxiety had significantly higher scores on avidance coping ($t=4.629$;$p<0.001$), but the difference was not significant for men ($t=0.822$;NS). Men and women with high (above normal) depression scores also had significantly higher avoidance scores ($t=4.64$;$p<0.01$ and $t=2.33$;$p<0.05$ respectively) than those with low, or normal, depression scores. For the GRIMS and the GRISS, no significant differences in avoidance coping were found between distressed and non-distressed men or women. There were no differences between the high and low distress groups on any of the measures for men or women for cognitive or behavioural approach coping.

Table 3.3.6: Mean coping scores (standard deviations) for high and low distress groups

	Females		Males	
TRAIT ANXIETY	Low	High	Low	High
Active cognitive coping	13.55 (4.53)	15.04 (4.80)	12.25 (5.60)	11.47 (3.31)
Active behavioural coping	18.17 (5.27)	18.04 (5.98)	14.56 (8.59)	14.13 (4.53)
Avoidance coping	3.41 * (2.72)	7.46 (3.72)	2.56 (3.03)	3.33 (2.06)
STATE ANXIETY				
Active cognitive coping	13.35 (4.29)	15.25 (4.95)	11.20 (4.95)	12.50 (4.27)
Active behavioural coping	17.24 (4.73)	19.00 (6.30)	12.33 (5.84)	16.25 (7.31)
Avoidance coping	3.69 ** (2.74)	7.18 (3.99)	1.73 ** (1.58)	4.06 (2.89)
DEPRESSION				
Active cognitive coping	14.20 (4.92)	14.43 (4.49)	11.80 (4.95)	12.17 (2.86)
Active behavioural coping	17.57 (5.23)	18.52 (5.92)	14.08 (7.26)	15.50 (4.93)
Avoidance coping	3.80 ** (2.89)	8.00 (3.85)	2.44 * (2.38)	5.00 (2.61)
MARITAL FUNCTIONING				
Active cognitive coping	14.31 (4.90)	14.22 (4.50)	12.52 (5.00)	10.80 (2.70)
Active behavioural coping	18.29 (5.20)	17.17 (6.00)	15.30 (8.20)	13.20 (5.90)
Avoidance coping	4.92 (3.70)	6.33 (4.00)	2.59 (2.40)	4.60 (2.70)
SEXUAL FUNCTIONING				
Active cognitive coping	14.49 (4.96)	13.67 (2.08)	11.37 (5.58)	12.25 (2.44)
Active behavioural coping	18.08 (5.55)	14.00 (5.57)	13.90 (8.21)	15.38 (4.93)
Avoidance coping	5.29 (3.50)	5.00 (2.65)	2.47 (2.82)	3.88 (2.53)

* $p<0.05$; ** $p<0.01$

These findings suggest that for infertility patients, there is no relationship between the use of approach coping to deal with the long-term stressor of infertility and levels of emotional functioning. Those individuals with high levels of distress were using similar levels of approach coping to those with low levels of distress but were also using higher levels of avoidance coping. Thus avoidance coping appeared to exert a negative role in its own right, rather than reducing the time or effort available for the use of approach strategies.

3.4 SEX ROLE

The relationship between sex role and infertility was examined in two main ways: to investigate whether infertility patients differ in the proportion classified to different sex role types; and to examine the relationship between sex role and emotional, marital and sexual functioning.

The Short Form of the Bem Sex Role Inventory (BSRI) was used to assess sex role (Bem, 1981). The median split method was used to classify participants into sex role types. Thus subjects with both femininity and masculinity scores above the median were classified as androgynous, those with femininity scores above the median and masculinity scores below the median were classified as feminine, those with femininity scores below the median

and masculinity scores above the median were classified as masculine and those with both scores below the median were unclassified. As the study sample was small, published medians for the short form of the BSRI were used in the calculation (Bem, 1981). Using this method, 44% of females were classified as feminine, 23% as androgynous, 12% as masculine and 20% as undifferentiated. 29% of males were classified as masculine, 13% as androgynous, 19% as feminine and 39% as undifferentiated. In order to examine whether participants differed from the general population in terms of sex role type, these percentages were compared with Bem's original sample. There was no significant difference for males (χ^2=2.67, df=3, p>0.05), but there was a significant difference for females, with more participants being classified as feminine in comparison with norms (χ^2=8.28, df=3, p<0.05).

Males and females scored similarly on all except two items of the short form BSRI: men scored higher on the "leadership" and "willing to take risks" items (t=3.09;p<0.01 and t=2.18;p<0.05 respectively).

It was predicted that good emotional functioning would be related to masculinity, and marital and sexual functioning to femininity. Pearson's correlations were calculated between these measures to examine their relationships (see table 3.4.1). As expected, there was a significant negative correlation between both state and trait anxiety

Table 3.4.1: Pearson's correlations between measures of emotional, marital and sexual functioning and femininity and masculinity

	Femininity	Masculinity
State anxiety	0.11	-0.25**
Trait anxiety	0.14	-0.25**
Depression	0.08	-0.09
Marital functioning	-0.11	-0.04
Sexual functioning	-0.11	0.04

** p<0.01

and masculinity ($p<0.01$). No significant relationships were found between sex role measures and depression or marital or sexual functioning.

Oneway analyses of variance were performed to examine whether distress differed according to sex role type. Mean scores on measures of emotional, marital and sexual functioning by sex role type are shown in Table 3.4.2.

Masculine women had lower scores on the measures of anxiety and depression than the other groups. This reached significance with state and trait anxiety: cross sex-typed (masculine) women having significantly lower state and trait anxiety than sex-typed (feminine) women ($p<0.05$). There were no differences between sex role types in terms of marital or sexual functioning.

For men, there were no differences between sex role types in terms of state anxiety or marital or sexual functioning. Men with undifferentiated sex role had higher scores on the measures of emotional functioning than the other types: undifferentiated men had significantly higher trait anxiety than all the other sex role types ($p<0.05$), and significantly higher depression scores than those with a feminine sex role type ($p<0.05$).

Table 3.4.2: Mean scores (standard deviations) on measures of emotional, marital and sexual functioning by sex role type

Females	A	F	M	U	
State anxiety	41.50 (11.58)	46.24 (13.71)	32.00 (8.21)	40.67 (7.11)	@
Trait anxiety	41.14 (11.56)	44.40 (9.32)	33.14 (6.52)	37.33 (7.09)	*
Depression	9.86 (8.47)	9.17 (8.15)	2.71 (2.75)	7.83 (4.11)	
Marital	3.43 (2.34)	3.71 (2.53)	4.71 (1.60)	3.33 (2.77)	
Sexual	2.38 (1.33)	2.35 (1.56)	2.60 (1.34)	1.92 (1.08)	
Males	**A**	**F**	**M**	**U**	
State anxiety	33.50 (14.66)	32.00 (7.82)	31.33 (7.30)	40.75 (13.18)	
Trait anxiety	30.25 (6.40)	33.00 (3.95)	31.67 (6.30)	42.92 (9.83)	#
Depression	5.75 (3.30)	2.33 (2.16)	4.11 (2.57)	9.67 (7.76)	+
Marital	1.75 (1.50)	2.67 (1.51)	2.89 (2.20)	4.25 (2.01)	
Sexual	3.25 (2.63)	2.67 (1.03)	3.22 (1.92)	4.30 (2.54)	

A: Androgynous
F: Feminine
M: Masculine
U: Undifferentiated

@ F=2.92;p<0.05 * F=3.42;p<0.05
# F=5.29;p<0.01 + F=3.19;p<0.05

3.5 COMPARISON OF PATIENTS UNDERGOING IVF AND DI TREATMENT

The inclusion of patients undergoing IVF and DI treatment allowed for comparison of patients with differing aetiology for their infertility. Demographic differences have already been reported in Section 3.1.

With data from the interview there was considerable agreement between interviewees responses and therefore statistical comparisons were not always possible, due to small numbers in some of the cells. There were some interesting differences between groups however. Similar proportions of women in the two treatment groups reported being keen or ambivalent about having children. However, nearly half of the men in the DI group were said by their partners to be ambivalent or not keen (43%) in comparison with 16% of men in the IVF group. This difference was significant ($\chi^2=3.90;p<0.05$).

Women undergoing DI were also more likely to report negative effects on their marital relationship in the past ($\chi^2=10.38;p<0.01$) and women undergoing IVF more likely to report a positive effect in the past ($\chi^2=8.63;p<0.01$). Women in the DI group were also less likely to report current difficulties in the relationship.

It is interesting to note that women in the different treatment groups did not differ in terms of who they had

discussed their infertility with, and similar numbers in each group had a confiding relationship.

Analyses of variance were performed to examine differences between these two groups. Table 3.5.1 shows mean scores on measures of distress by group and sex.

There were no significant main effects for group alone on any of the measures. Female IVF patients scored higher on all measures than the other groups, although these differences were not always significant. Females had significantly higher state anxiety ($F=5.94;p<0.05$) and trait anxiety ($F=4.28;p<0.05$) than males. There was a significant interaction effect for trait anxiety ($F=4.93;p<0.05$), with female IVF patients showing higher levels of trait anxiety than female DI patients.

There were no significant differences between the groups on the measure of depression or on the measure of the quality of the marital relationship.

Females had significantly lower scores on the measure of the quality of the sexual relationship than males ($F=9.56;p<0.01$), indicating better sexual functioning. The frequencies of sexual problems (that is, those scoring above cut-off for the subscales) by group are shown in Table 3.5.2.

Table 3.5.1 Mean scores (standard deviations) on measures of emotional, marital and sexual functioning by treatment group and sex

	IVF		DI	
	Females (n=31)	Males (n=18)	Females n=28)	Males (n=16)
State anxiety	44.77 (12 78)	36.44 (10.33)	39.50 10.96)	35.19 * (12.72)
Trait anxiety	43.57 (10.38)	34.75 (7.75)	37.82 (8.42)	38.19 * # (10.50)
Depression	9.69 (8.57)	5.38 (4.54)	6.79 (5.41)	6.94 (6.91)
Marital relationship	3.86 (2.25)	3.31 (1.99)	3.50 (2.62)	3.13 (2.17)
Sexual relationship	2.39 (1.53)	3.64 (1.95)	2.19 (1.21)	3.33 ** (2.32)

Females significantly higher than males
* p<0.05 ** p<0.01

Interaction effect
# p<0.05

Table 3.5.2: Frequencies (%) of sexual problems by treatment group and sex

	IVF		DI	
	Females N (%)	Males N (%)	Females N (%)	Males N (%)
Infrequency	15 (58)	9 (64)	19 (70)	7 (47)
Non-communication	14 (54)	3 (21)	13 (48)	6 (40)
Dissatisfaction	2 (8)	1 (7)	1 (4)	3 (20)
Avoidance	10 (39)	4 (29)	8 (30)	2 (13)
Non-sensuality	8 (31)	4 (29)	8 (30)	4 (27)
Vaginismus	8 (31)	- -	5 (19)	- -
Anorgasmia	4 (15)	- -	0 (0)	- -
Impotence	- -	6 (43)	- -	3 (20)
Premature ejaculation	- -	4 (29)	- -	5 (33)

Where numbers were sufficiently large, the treatment groups were compared using Chi-square for the presence of problems (for females: infrequency, non-communication, avoidance, non-sensuality, and the presence of specific sexual problems (vaginismus or anorgasmia); for males: infrequency and specific sexual problems (impotence and/or premature ejaculation)). There were no significant differences between the groups.

Table 3.5.3 shows mean scores on measures of method of coping by group and sex. The treatment groups did not differ in scores on active cognitive coping (F=0.02;ns), active behavioural coping (F=1.19;ns) or avoidance coping (F=1.01;ns). However, women scored consistently higher on these measures than men, and this reached significance on active cognitive coping (F=4.32;p<0.05) and avoidance coping (F=12.36; p=0.001), but not active behavioural coping (F=3.90; p=0.051). This is consistent with the findings of Billings & Moos (1981), who found that women scored higher on measures of coping method than men.

Mean scores on the measures of focus of coping are shown in Table 3.5.4. Scores on the measure of appraisal focused coping (logical analysis) showed no difference between groups or sexes. Scores on problem focused coping showed a group effect for information seeking (F=4.63;p<0.05), with the IVF group scoring higher than the DI group, and a sex effect for problem solving

Table 3.5.3: Mean scores (standard deviations) on method of coping by treatment group and sex

Coping method	IVF Females (n=31)	IVF Males (n=18)	DI Females (n=28)	DI Males (n=16)	
Active cognitive	14.20 (4.54)	12.35 (4.37)	14.54 (4.72)	12.13 (5.18)	*
Active behavioural	18.87 (5.20)	16.24 (10.35)	17.54 (5.78)	14.25 (6.72)	
Avoidance	6.27 (4.30)	2.53 (1.62)	4.68 (2.96)	3.38 (3.22)	***

Females significantly higher than males:

* p<0.05 *** p<0.001

Table 3.5.4: Mean scores (standard deviations) on focus of coping by treatment group and sex

Coping focus	IVF Females (n=31)	IVF Males (n=18)	DI Females (n=28)	DI Males (n=16)	
Logical analysis	4.70 (2.72)	4.71 (2.37)	5.46 (2.43)	4.63 (2.75)	
Information seeking	9.93 (4.86)	9.29 (5.00)	7.75 (3.82)	7.81 (2.71)	+
Problem solving	8.13 (4.49)	6.24 (3.78)	9.82 (5.24)	7.31 (5.06)	*
Affective regulation	8.50 (2.86)	5.94 (4.37)	7.07 (5.59)	5.31 (3.30)	**
Emotional discharge	4.73 (3.83)	0.94 (1.30)	3.36 (2.42)	2.50 (2.53)	*** #

IVF significantly higher than DI:
+ p<0.05

Females significantly higher than males:
* p<0.05 ** p<0.01 *** p<0.001

Interaction effect:
# p<0.05

(F=4.54;p<0.05), with females scoring higher than males. Scores on the measures of emotion focused coping showed no difference between groups, but a significant effect for sex for both affective regulation (F=8.19;p<0.01) and emotional discharge (F=14.55;p<0.001), with females scoring higher. There was also an interaction effect for emotional discharge (F=5.57;p<0.05), with IVF females scoring the highest.

Table 3.5.5 shows sex role types according to treatment group. The groups differed in terms of sex role type (χ^2 =12.57; p<0.01). A greater number of IVF patients were sex typed, whereas a greater number of donor insemination patients were undifferentiated.

Mean scores on femininity and masculinity by group and sex are shown in Table 3.5.6. Female IVF patients had significantly higher scores on femininity than female DI patients (F=4.30;p<0.05) which is in line with the view of female IVF patients as a traditionally feminine group. There was no significant difference between scores on masculinity, and there were no differences between scores for male participants.

Table 3.5.5 Frequencies of sex role type by treatment group

	IVF	DI
Androgynous	8	10
Sex typed	26	9
Cross sex typed	6	7
Undifferentiated	7	17

Table 3.5.6: Mean scores (standard deviations) on femininity and masculinity by treatment group and sex

	Females		Males	
	IVF	DI	IVF	DI
Femininity	5.91 (0.79) *	5.42 (0.87)	5.06 (0.92)	5.53 (0.86)
Masculinity	4.35 (1.02)	4.37 (0.85)	4.90 (0.94)	4.37 (1.08)

* F=4.30;p<0.05

3.6 PREDICTING PSYCHOLOGICAL FUNCTIONING

A further aim of this study was to examine the extent to which emotional functiong in IVF and DI patients was predictable from demographic and psychological variables. In order to do this, stepwise forward multiple regressions were performed. Regressions were performed for each measure of emotional functioning for each sex separately.

3.6.1 Women

The independent variables used in the regression analyses for women were selected on the basis of previous findings reported in the literature. The demographic variables chosen for inclusion were age and social class. A number of variables relating to the medical characteristics of infertility were also included. The treatment group (DI or IVF) and aetiology (female, male, female and male or unknown) of participants was included, as well as the length of their infertility and whether or not there was a child living with the family. Two psychological variables thought to influence emotional functioning were also included: sex role type (masculine, feminine, androgynous and undifferentiated) and coping strategy (active cognitive coping, active behavioural coping and avoidance coping). Two further variables derived from the interview were included: the importance of having a child at that time, and the presence of a confiding relationship with someone other than the woman's partner. The inclusion of 10 variables ensured a moderate case-to-

variable ratio. Nominal level variables were recoded using dummy coding where appropriate.

The results of the regression analysis are presented in Table 3.6.1. In the solution for state anxiety, 39% of the variance was accounted for. High state anxiety was associated with greater use of avoidance coping strategies, high importance of having a child and longer duration of infertility. However, the importance of having a child did not add significantly to the equation.

In the equation for trait anxiety, 42% of the variance was explained by avoidance coping, sex role, and active behavioural coping. High trait anxiety was associated with greater use of avoidance coping strategies, having a female or androgynous sex role and low use of behavioural coping strategies.

In the solution for depression, high depression was associated with having an androgynous sex role and greater use of avoidance coping strategies. Fifty-eight percent of the variance was accounted for.

Much less of the variance in marital functioning and sexual functioning was accounted for. Low scores on the GRIMS (ie a good marriage) were predicted by the problem being in both partners, and with lower social class (but only 13% of the variance was accounted for and neither

Table 3.6.1 Multiple regression analysis of measures of psychological functioning at initial assessment (females)

State anxiety

	R^2	F	sig F
Avoidance coping	0.29	22.53	0.0000
Importance of child	0.06	14.25	0.0000
Duration of infertility	0.04	11.20	0.0000
TOTAL	0.39		

Trait anxiety

	R^2	F	sig F
Avoidance coping	0.30	22.96	0.0000
Undifferentiated sex role	0.14	13.72	0.0000
Active behavioural coping	0.04	10.78	0.0000
Masculine sex role	0.04	9.40	0.0000
TOTAL	0.42		

Depression

	R^2	F	sig F
Avoidance coping	0.50	53.68	0.0000
Androgynous sex role	0.04	31.43	0.0000
Active behavioural coping	0.04	23.21	0.0000
TOTAL	0.58		

Marital functioning

	R^2	F	sig F
Male & female infertility	0.08	4.68	0.0350
Social class	0.05	3.93	0.0256
TOTAL	0.13		

Sexual functioning

	R^2	F	sig F
Social class	0.11	6.05	0.0174
TOTAL	0.11		

R^2 Separate square of multiple correlation of independent variables with dependent variable

F F value for change in R^2

sig F Significance of F

variable contributed significantly to the equation). With sexual functioning, the only predictor variable was social class, with higher scores on the GRISS (greater problems) being associated with lower social class. This accounted for 11% of the variance, and this was significant.

3.6.2 Men

The independent variables used in the regression analyses for men were: sex role type (masculine, feminine, androgynous and undifferentiated), coping strategy (active cognitive coping, active behavioural coping and avoidance coping), aetiology, treatment group, age, previous child(ren), social class and length of infertility.

Regressions were performed for each meausure of emotional functioning separately. The results are presented in Table 3.6.2. Sixty-three percent of the variance was accounted for in the solution for state anxiety. State anxiety was predicted by greater use of avoidance coping strategies, not having a child in the family, a non-masculine sex role type, and undergoing IVF treatment as opposed to DI treatment.

Forty-seven percent of the variance was accounted for in the solution for trait anxiety. High trait anxiety in men was predicted by having an undifferentiated sex role and high use of avoidance coping.

Table 3.6.2 Multiple regression analysis of measures of psychological functioning at initial assessment (males)

State anxiety	R^2	F	sig F
Avoidance coping	0.31	12.43	0.0015
Previous child	0.14	11.23	0.0003
Masculine sex role	0.07	9.41	0.0002
Treatment group	0.11	10.86	0.0000
TOTAL	0.63		

Trait anxiety	R^2	F	sig F
Undifferentiated sex role	0.30	12.08	0.0017
Avoidance coping	0.17	11.92	0.0002
TOTAL	0.47		

Depression	R^2	F	sig F
Undifferentiated sex role	0.23	8.18	0.0079
Avoidance coping	0.15	8.24	0.0016
TOTAL	0.38		

Marital functioning	R^2	F	sig F
Active cognitive coping	0.17	5.57	0.0258
Undifferentiated sex role	0.11	5.01	0.0144
TOTAL	0.28		

Sexual functioning	R^2	F	sig F
Age	0.13	3.89	0.0605
Avoidance coping	0.12	3.90	0.0341
TOTAL	0.25		

R^2 Separate square of multiple correlation of independent variables with dependent variable

F F value for change in R^2

sig F Significance of F

For depression, 38% of the variance was accounted for by 2 variables: undifferentiated sex role and high avoidance coping.

Only 28% of the variance was accounted for in the solution for marital functioning, and neither of the variables (greater use of active cognitive coping and having an undifferentiated sex role) contributed significantly to the equation. Similarly, only 25% of the variance was accounted for in the regression equation for sexual functioning, with age accounting for most of the variance, and greater use of avoidance coping strategies accounting for 12% of the variance.

That most of the variance in marital and sexual functioning was not predictable from these variables was perhaps not unexpected, given that participants do not exhibit significant levels of difficulty in these areas.

3.7 THE RELATIONSHIP BETWEEN FUNCTIONING IN PARTNERS

This section of the analysis includes only the couples who took part in the study (n=34), in order to examine the concordance between partners. The relationship between measures of emotional functioning, and the relationship between coping strategies of couples are considered.

Pearsons correlations were calculated to examine the relationship between emotional functioning within couples. There was no relationship between couples' scores on measures of depression or trait anxiety. However, there was a positive association between couples' scores on state anxiety ($r=0.404;p<0.05$). There was also a significant positive correlation between couples' scores on the measure of marital functioning ($r=0.548;p<0.01$), and the measure of sexual functioning ($r=0.653;p<0.001$).

Depression scores for women were positively correlated with state anxiety ($r=0.306;p<0.05$) and marital functioning in male partners ($r=0.319;p<0.05$). Male depression was similarly positively associated with female marital functioning ($r=0.317;p<0.05$); as was male trait anxiety ($r=0.361;p<0.05$) and male sexual functioning ($r=0.528;p<0.01$).

In order to examine the extent to which couples use similar coping strategies, Pearsons correlations were calculated between couples' measures of coping method and

focus.

In terms of coping method, there was a positive association between use of active behavioural coping by women and by men ($r=0.475; p<0.01$) and between their use of avoidance coping ($r=0.299; p<0.05$); but no correlation between the use of active cognitive coping by women and their partners.

In terms of the focus of coping, there was a correlation between male and female information seeking ($r=0.463; p<0.01$) and problem solving ($r=0.570; p<0.001$). There was no relationship between the use of logical analysis, affective regulation or emotional discharge.

Only 7 couples had similar profiles of coping. Thus it was not possible to examine the effects of use of similar coping strategy on psychological functioning in couples.

It was hypothesised that masculinity would be beneficial in terms of emotional functioning and that femininity would be beneficial in terms of marital adjustment. To examine the relationship between masculinity and emotional functioning, couples were divided into three groups: those where both members had a masculine sex role, those where one member was masculine and those where neither were masculine. Couple scores on measures of psychological functioning were obtained by summing

individual scores. The couples' scores of these three groups on measures of emotional functioning were then compared using analysis of variance. In view of the hypothesis, it was expected that lowest distress would be exhibited by those couples where both partners were masculine, and highest distress by those where neither partner was masculine.

Similarly, to examine the relationship between femininity and marital adjustment, couples were divided into similar groups according to feminine sex roles, and the groups compared on measures of marital and sexual functioning. Again, it was expected that fewer problems would be exhibited by those couples where both partners were feminine, and most where neither partner was feminine.

The results of these comparisons are shown in Table 3.7.1. For emotional functioning and masculinity, as predicted, scores were lowest on all three measures showing better functioning where both partners had a masculine sex role. Scores were highest, showing poorest functioning, where neither partner had a masculine sex role. However, these differences were only significant for trait anxiety.

Table 3.7.1 Mean scores on couple measures of functioning by sex role of partners

	No masculine partners	One masculine partner	Two masculine partners
State anxiety	81.78	73.69	67.83
Trait anxiety	81.89*	76.44	63.33*
Depression	15.22	13.81	11.50
	No feminine partners	**One feminine partner**	**Two feminine partners**
Marital functioning	48.17	50.27	35.50
Sexual functioning	41.80	46.77	39.20

* Significant difference between groups ($p<0.05$)

For marital adjustment and femininity, scores were lowest on both measures showing better functioning for couples where both partners had a feminine sex role. These were however not significantly different.

3.8 PSYCHOLOGICAL FUNCTIONING AT FOLLOW UP

Attempts were made to contact participants for follow-up at 6 months after treatment, but the average time of follow-up assessment was 9 months after treatment. Table 3.8.1 shows the response to the follow-up, and the treatment outcome for those who agreed to participate. Numbers of male partners who also participated at this time are shown in brackets. No data were available on the outcome of treatment for non-participating patients.

The response rate was very poor (46%) and this has a number of implications. Those who did not take part are likely to be those that were more distressed at the time of follow-up: those who gave a reason for wishing to withdraw from the study reported that they found it too distressing, or that they did not want further reminders of their infertility. Initial assessment measures were compared to ascertain whether there were any differences between those who participated at follow-up and those who did not.

Table 3.8.1: Response to follow-up and treatment outcome for female follow-up participants (male partners in brackets)

	IVF	DI	Total
Failure to respond	12	8	20
Refusal	4	6	10
Moved away	2	0	2
Agreed:	13 (10)	14 (12)	27 (22)
Treatment continuing[6]	8 (6)	11 (11)	19 (17)
Treatment stopped	2 (2)	0 (0)	2 (2)
Pregnant	3 (2)	2 (1)	5 (3)
Delivered	0 (0)	1 (0)	1 (0)
Total	31 (18)	28 (16)	59 (34)

[6] Not always the same as original treatment

There were no significant differences between the groups for women or men in terms of age, length of relationship, treatment group, which clinic they attended, marital status, previous marriage or whether they had children living with them. There were also no differences between the groups for women in terms of obstetric history (ie previous pregnancies, miscarriages and terminations) or whether they were currently employed. Analyses of variance also showed no difference between the groups in terms of emotional, marital or sexual functioning or use of coping strategies at the first assessment. Comparison between the groups therefore throws no light on the reasons for withdrawing from the study. It is quite possible that events or experiences in the intervening period or at the time of invitation to follow-up were influential in determining response.

A second implication of the response rate is that the results from the follow-up study can not be generalised to all IVF and DI patients.

Participants at follow up were divided into four groups according to their treatment outcome: (1) Not pregnant and treatment continuing (19 women and 17 of their partners); (2) Not pregnant and treatment discontinued (2 women and both their partners); (3) Pregnant (5 women and 3 of their partners); and (4) Delivered (1 woman). Mean scores on measures of emotional, marital and sexual

functioning for these four groups are shown in Table 3.8.2. Anxiety and depression appeared to have decreased for both women and men in the pregnant group (Group 3). Marital and sexual functioning however appear to have remained relatively stable over time for most subjects. This was not unexpected in view of the fact that relationships at first assessment appeared to be stable and happy in general. Follow-up was expected to allow comparison of functioning according to outcome of treatment, and to examine changes in distress after treatment ended. Unfortunately only one patient had given up treatment and the numbers in most groups were too small to permit statistical analysis.

Given the small numbers of patients in three of the outcome groups, comparison of functioning at initial assessment and follow up was performed using only group (1), that is, those who had not (or whose partners had not) become pregnant, and who were continuing to have treatment. Scores at the two time points were compared using paired t-tests (see Table 3.8.2). Females had significantly lower state anxiety scores at the time of follow-up ($t=2.43$, $p<0.05$), whereas the scores for males were significantly higher at follow-up ($t=2.21$, $p<0.05$). Females were also significantly less depressed at follow-up ($t=3.49$, $p<0.01$). The difference for males was in the opposite direction, but not significant.

Table 3.8.2: Mean scores (standard deviations) on measures of functioning by treatment outcome at follow-up (females and males separately)[7]

Group	State anxiety	depression	marital problems	sexual problems
FEMALES				
(1) Time 1	39.89 (10.97) *	7.53 (6.41) **	3.16 (2.19)	2.12 (1.27)
Time 2	34.63 (9.24)	5.00 (5.55)	3.11 (1.82)	2.00 (1.17)
(2) Time 1	52.00 (1.41)	19.00 (2.83)	4.00 (2.83)	3.00 (1.41)
Time 2	55.50 (2.12)	20.50 (12.02)	8.00 (1.41)	4.50 (0.71)
(3) Time 1	42.60 (19.27)	10.20 (10.08)	3.20 (2.17)	2.00 (1.00)
Time 2	36.20 (10.33)	5.20 (4.55)	2.20 (1.30)	2.20 (0.84)
(4) Time 1	52.00 (0.00)	25.00 (0.00)	8.00 (0.00)	3.00 (0.00)
Time 2	32.00 (0.00)	4.00 (0.00)	5.00 (0.00)	2.00 (0.00)
MALES				
(1) Time 1	35.00 (9.48) *	5.82 (5.70)	3.47 (2.18)	3.25 (2.21)
Time 2	38.18 (7.26)	7.00 (5.45)	3.35 (2.00)	3.44 (2.06)
(2) Time 1	26.00 (5.66)	6.00 (0.00)	3.00 (1.41)	5.00 (2.83)
Time 2	28.00 (4.24)	3.50 (0.71)	4.00 (0.00)	5.00 (2.83)
(3) Time 1	42.00 (20.66)	9.67 (9.87)	3.33 (3.21)	4.00 (1.73)
Time 2	30.67 (8.50)	2.33 (3.21)	2.67 (2.08)	3.33 (1.15)

* $p<0.05$ ** $p<0.01$

[7] Group (4) refers to one person and is given for information only.

When scores were compared separately for IVF and DI patients, the difference in anxiety scores for women was no longer significant, but the difference in state anxiety remained significant for DI males ($t=-4.36$, $p<0.01$), although not for IVF males. Differences in depression for females remained significant for donor insemination patients ($t=2.45$, $p<0.05$) and there was a tendency for IVF patients to be less depressed at follow-up ($t=2.36$, $p<0.06$).

A further aim of the study was to examine the relationship between psychological functioning at second assessment and demographic, medical and psychological variables at initial assessment. Pearsons correlations were calculated between measures of psychological functioning at the two time points for all subjects (see Table 3.8.3). In most cases, there were strong positive correlations between the measures. Correlations were also calculated between measures of coping at first assessment and emotional functioning at follow-up. For females there was a significant positive relationship between avoidance coping and anxiety ($r=0.553$;$p<0.01$) and depression ($r=0.660$;$p<0.0001$), so that high levels of avoidance coping at first assessment were associated with high levels of anxiety and depression at follow-up. For men, there was a significant positive relationship between avoidance coping and anxiety ($r=0.401$;$p<0.05$) but not depression.

Table 3.8.3: Pearson's correlations between measures of functioning at initial assessment and follow-up

	state anxiety	depression	marital problems	sexual problems
FEMALES (n=27)	0.59 p<0.01	0.70 p<0.0001	0.67 p<0.0001	0.62 p<0.0001
MALES (n=22)	0.58 p<0.01	0.51 p<0.01	0.45 p<0.05	0.65 p<0.01

Multiple regressions were performed for each measure of psychological functioning at the second assessment, separately for men and women, using the same set of variables as before (see section 3.6) together with the initial measure of functioning. In those cases where the initial measure of functioning was included in the regression equation, it was then removed to assess whether the remaining variables still made a significant contribution to the equation.

The results for women are shown in Table 3.8.4. For each solution, the variable accounting for most of the variance in functioning at follow up was that measure of functioning at initial assessment. For state anxiety, marital functioning and sexual functioning, when the initial measure was removed the equation was no longer significant. For depression, initial depression accounted for 48% of the variance. A further 22% was explained by three variables: higher levels of depression were associated with having a child in the family, feminine sex role and higher social class.

The results for the multiple regressions for men are shown in Table 3.8.5. For depression and anxiety, the measures at initial assessment accounted for most of the variance in the solution (26% and 33% respectively). The equations were no longer significant when this variable was removed. For sexual functioning, 42% of the variance was accounted

Table 3.8.4 Multiple regression analysis of measures of psychological functioning at follow-up (females)

State anxiety

	R^2	F	sig F
State anxiety	0.35	13.58	0.001
Treatment group	0.09	9.50	0.001
	0.44		
State anxiety removed:	0.14	4.07	0.055

Depression

	R^2	F	sig F
Depression	0.48	23.51	0.000
Child	0.11	17.39	0.000
Feminine sex role	0.07	14.74	0.000
Social class	0.04	13.26	0.000
	0.70		
Depression removed:	0.42	5.66	0.005

Marital functioning

	R^2	F	sig F
Marital functioning	0.45	20.67	0.000
Child	0.10	14.59	0.000
	0.55		
Marital functioning removed:	0.13	3.84	0.061

Sexual functioning

	R^2	F	sig F
Sexual functioning	0.38	14.24	0.001
Androgynous sex role	0.11	10.71	0.001
Child	0.11	10.60	0.000
Problem male	0.05	9.69	0.000
	0.65		
Sexual functioning removed:	0.30	3.05	0.051

R^2 Separate square of multiple correlation of independent variables with dependent variable
F F value for change in R^2
sig F Significance of F

for by initial assessment, and a further 11% by aetiology. This remained significant after the initial assessment measure was removed, suggesting that good sexual functioning in men at follow up was associated with both partners having a problem contributing to their infertility. This variable was the only one predictive of marital functioning, accounting for 26% of the variance in the solution, suggesting that marital functioning was also better for men when both partners had a problem that contributed to their infertility. It is interesting that this does not appear to be related to functioning at follow up in women.

Table 3.8.5 Multiple regression analysis of measures of psychological functioning at follow-up (males)

State anxiety

	R^2	F	sig F
State anxiety	0.33	9.37	0.006
Treatment failed	0.20	10.08	0.001
	0.53		
State anxiety removed:			
	0.08	1.71	0.206

Depression

	R^2	F	sig F
Depression	0.26	6.75	0.018
Treatment failed	0.18	6.94	0.006
	0.44		
Depression removed:			
	0.08	1.75	0.201

Marital functioning

	R^2	F	sig F
Problem m & f	0.26	6.52	0.019

Sexual functioning

	R^2	F	sig F
Sexual functioning	0.42	13.07	0.002
Problem m & f	0.11	9.68	0.002
	0.53		
Sexual functioning removed:			
	0.20	4.63	0.045

R^2 Separate square of multiple correlation of independent variables with dependent variable
F F value for change in R^2
sig F Significance of F

CHAPTER FOUR: DISCUSSION

4.1 SUMMARY OF FINDINGS

It was hypothesised that participants would exhibit emotional distress in the form of increased anxiety and depression. Women were found to have increased state anxiety, but not trait anxiety. For men, both state and trait anxiety were elevated in comparison with normative data. Levels of depression were not high. There were however no differences between participants and the general population in terms of overall marital and sexual functioning. There was only one difference in terms of specific sexual problems: male participants demonstrated significantly less avoidance of sex.

It was hypothesised that the use of avoidance coping to deal with the long term stressor of infertility would be associated with higher levels of psychological problems. This was supported by the finding that participants using high levels of avoidance coping had significantly higher levels of state and trait anxiety and depression than those using high levels of approach coping. There was no relationship between method of coping strategy and marital or sexual functioning. It was hypothesised that approach coping would be associated with better functioning, but it was not found to be strongly related to adjustment.

Male participants did not differ significantly from normative data in terms of sex role type. In comparison with normative data, more female participants were classified as feminine. It was hypothesised that high masculinity would be associated with better emotional functioning and that high femininity would be associated with better marital functioning. In line with this hypothesis, state and trait anxiety (but not depression) were found to be negatively correlated with masculinity. Women with a masculine sex role had lower state and trait anxiety than feminine women, but the difference was not significant for depression. Men with an undifferentiated sex role had higher trait anxiety and depression but the difference was not significant for state anxiety. There was no relationship between marital or sexual functioning and femininity.

It was hypothesised that IVF patients and their partners would demonstrate poorer emotional functioning than DI patients and their partners. However, there were no main effects of group for any of the measures, although female IVF patients showed higher levels of trait anxiety than female DI patients.

In terms of predicting emotional functioning, for both women and men, use of avoidance coping strategies was a consistent predictor of high levels of state and trait anxiety and depression.

It was hypothesised that there would be positive relationships between measures of emotional functioning in partners. This was the case for state anxiety and marital and sexual functioning, but not trait anxiety and depression. Depression in women was related to marital problems in men and vice versa; and male sexual problems were related to female marital problems.

At follow up, women who had not become pregnant and were continuing treatment were less anxious and depressed in comparison with the initial assessment. Their partners however were more anxious. For both women and men, for most measures of psychological functioning the best predictor of functioning at follow up was the score at initial assessment.

4.2 RESPONSE RATE

The initial response to this study was good: 80% of women approached agreed to take part and 58% of their partners agreed to complete questionnaires. The lower response rate for men was to be expected, given that it was not possible to approach them directly. Unfortunately no data were available on psychological characteristics of patients who declined to participate, so the representativeness of the sample could not be assessed. It is possible that those with emotional, marital or sexual problems declined, but the likelihood of such a

bias is reduced by the high response rate. The majority of those who declined to participate did so because of prior travel or work arrangements; many came from long distances to the clinic. Thus it is not likely that they would differ on psychological measures.

However, response at follow up was very poor: only 46% of female participants (and 81% of their partners) completed a second assessment. Comparisons were made between those who participated in follow up and those who did not in terms of demographic, medical and social characteristics and initial measures of psychological functioning and there were no significant differences between the groups. It is likely that events such as failure of treatment in the intervening period or around the time of invitation to follow up were influential in determining response. It is also possible that those who did not respond were more distressed than those who continued, as this was the reason given for withdrawing from the study by a number of participants. The poor response limits the extent to which it is possible to generalise from the results. This is unfortunate, given the dearth of follow up studies in this area. Other studies with infertility patients and particularly IVF patients have had similar problems in obtaining follow up data (eg 53%: Dennerstein & Morse, 1985). Leiblum et al (1987a) report a response rate of 34% after unsuccessful IVF treatment, and note that patients are cooperative in participating in research

prior to treatment but less so afterwards.

Demographic characteristics of patients who initially agreed to participate are comparable with those in other studies of IVF and DI patients, which suggests that the sample is likely to be representative of these patient groups. Most of the participants were married, which was to be expected, given clinic policies of only accepting couples who are perceived to be in a stable heterosexual relationship. Women having IVF were significantly more likely to have had a previous pregnancy and a previous marriage than DI patients, and 5 had had a termination of pregnancy in comparison with none of the DI patients. A reasonably high rate of second marriages is perhaps to be expected amongst this group, given that the main alternative to IVF other than childlessness is adoption and a previous divorce tends to render individuals ineligible for obtaining a child by adoption in this country.

Fifty-three percent of the sample were of social class one or two. This bias is probably typical of patients undergoing IVF and DI given the availability of such treatment in the UK: availability on the National Health Service is poor and most treatment is private and very expensive (Biggs, 1989). Other studies have reported this bias. For example, a study of women attending for DI found that half of their husbands had a non-manual

occupation (Snowden et al, 1983). As has been pointed out by Humphrey & Humphrey (1988), education and an ability to "work the system" may be as important as financial resources when trying to obtain treatment.

Participants in the study receiving IVF or DI treatment are unlikely to be representative of couples with infertility as a whole. They are to some extent a self-selecting sample, and the implications of this in terms of emotional functioning are discussed in later sections. A recent report on the epidemiology of infertility suggested that 31% of women experiencing infertility did not seek medical help. Furthermore, only 62% attended a hospital at some time for treatment, which suggests that hospital attenders may not be representative of the infertile population (Templeton et al, 1990).

Whilst the study sample is probably representative of patients who undergo IVF and DI treatment, and thus conclusions from this investigation may be generalisable to such patients, they should not be seen to apply to all infertile individuals or couples. It is also possible that bias may have been introduced by the inclusion of couples with children from previous relationships.

4.3 EMOTIONAL FUNCTIONING IN INFERTILITY PATIENTS

It was predicted that participants would have significantly higher levels of emotional distress than the general population. Both women and men had elevated state

anxiety in comparison with normative data. Men also had higher levels of trait anxiety although the difference for women was not significant. The level of anxiety as measured by the STAI is comparable with the high level found in studies of women and their male partners on a waiting list for IVF (Dennerstein & Morse, 1985) and women and men on their first visit to an IVF assessment clinic (Johnston et al, 1987), although a more moderate level of anxiety has been shown for women receiving DI (Reading et al, 1982). Female participants' state anxiety scores were also similar to those of general medical and surgical patients (Spielberger et al, 1970).

Levels of depression were not high and the percentage of men and women experiencing depression was considerably lower than that reported by Link & Darling (1986) for general infertility patients undergoing treatment. The results of this study correspond with the findings of Bromham et al (1988) for a group of patients at various stages of infertility investigation and treatment. Given that depression is more often associated with loss, perhaps it is more likely to occur after unsuccessful treatment. Baram et al (1988) found that 66% of women and 40% of men reported experiencing depression following IVF failure and the grief reaction after failed treatment has been commented on by others (eg Greenfeld et al, 1988). It appears that infertility patients embarking upon treatment are particularly optimistic about the likelihood

of becoming pregnant and having a baby (Johnston et al, 1987).

It was expected that there would be positive relationships between the emotional functioning of male and female partners. This was found to be so for state anxiety and marital and sexual functioning, but not trait anxiety or depression. Women with anxiety or marital or sexual problems had partners with similar difficulties. It is likely that couples influence one another in terms of current emotional functioning; trait anxiety is therefore less likely to be affected than state anxiety. The possibility of collusion of couples in completing questionnaires was reduced by the fact that the majority of women were administered their questionnaires in the clinic whilst most men completed them at home. Whilst depression between partners was not related, depression in women was associated with marital problems in men and depression in men was associated with marital problems in women. It is possible that when one member of a couple is depressed, the other partner becomes dissatisfied with the relationship. Alternatively, one partner may experience depression as a result of marital dissatisfaction expressed by the other.

There are number of possible reasons for the raised anxiety levels of participants. First, patients may be anxious because of the nature of the treatment they are to

undergo. The stressful nature of IVF and DI has already been discussed. This may be the patient's "last chance" for a pregnancy and child. Given these circumstances, elevated anxiety is to be expected. Second, patients may also be anxious because they are attending a clinic. Third, anxiety may be elevated as a result of the infertility itself. Most patients experience infertility as stressful (eg Mahlstedt et al, 1987; Freeman et al, 1987), and thus it is likely to be anxiety provoking. Anxiety may also be raised because patients are being assessed. A causal relationship between anxiety and clinic attendance or treatment cannot be assumed given that anxiety was not measured beforehand (Wright et al, 1989). It is possible that these patients are a particularly anxious group and coming for treatment may be one way of trying to deal with this anxiety, although the fact that women's trait anxiety was not significantly higher than would be expected suggests that this is not so. It is also possible that their anxiety contributes to their infertility, rather than being a result of it.

Several other studies have found anxiety to be elevated in infertility patients, and these are summarised by Wright et al (1989). If it is accepted that anxiety might be a result of infertility, this raises the question of which aspect of infertility is anxiety-provoking. The finding that men also had elevated anxiety suggests that anxiety may not simply be a result of clinic attendance, as

anxiety in men was in most cases measured at home. There remains the possibility that anxiety in men and women have different causes, or that the man is anxious about his partner's clinic attendance. The most likely explanation, however, would seem to be that it is the prospect of treatment, and not only the treatment itself but all that it implies, which results in raised anxiety. The fact that raised levels of anxiety have been found in women and their partners on the IVF waiting list (Dennerstein & Morse, 1985) suggests that clinic attendance is not the only factor involved. Further prospective studies which assess patients prior to the decision to undergo treatment are necessary to clarify the relationship.

4.4 FACTORS INFLUENCING RESPONSE TO INFERTILITY

It has been suggested that the negative impact of involuntary childlessness is in part related to the pronatalistic attitudes of Western society (Miall, 1985). In this investigation only 12% of women and 9% of men reported experiencing pressure from their relatives to have children. However, a larger number of women (54%) reported that they received hints and comments from their families, but not direct pressure. Other studies have reported higher levels of family pressure. For example, Chan et al (1989) found that in a sample of Chinese patients in Hong Kong, 26% of women and 20% of men reported family pressure. Jindal & Gupta (1989) also

report on the social pressure experienced by women in infertile couples in India, 32% of whom reported social problems as a result of their infertility, including taunting, physical abuse and threat of abandonment. These differences are probably due to cultural effects: the social pressure to have children is likely to be greater amongst Indian and Chinese families. The pressure experienced by women in Western society may be more subtle. As Pfeffer & Woollett (1983) comment, to the infertile woman the world can seem full of pregnant women and babies.

4.4.1 Gender

Female and male responses to questions about the experience of infertility are difficult to compare because of the different ways in which they were obtained. Whilst it would have been more appropriate to interview men as well as women, this was not possible as men rarely attended the clinic at the time of treatment. In these circumstances, gathering data using a self-report inventory and questionnaires seemed the best option, so that at least some data were obtained from male partners. Studies concerned with psychological factors in infertility - as with many studies dealing with psychological aspects of reproduction - have tended not to include men, although there are exceptions to this (eg McEwan et al, 1987; Connolly et al, 1987; Edelmann et al, 1987).

Infertility appeared to have profound effects for some women: a quarter of women reported negative effects on relationships with the family, a third reported negative effects on relationships with friends, a third reported negative effects on their work and nearly two-thirds reported negative effects on their identity. Fewer men reported such effects: one fifth reported negative effects on relationships with the family, one eighth on relationships with friends and work and one quarter reported negative effects on their identity.

There are a number of possible explanations for these differences between the sexes. As previously discussed, a number of studies have found higher levels of distress in women (eg McGrade & Tolor, 1981; van Balen et al, 1989; Brand, 1989). In some studies where this has been found it has been thought to be an effect of aetiology, given that the female partners in these studies were infertile (Lalos et al, 1986; Daniluk, 1988) but this does not appear to be the case in this investigation. It is possible that the differences reflect pre-existing differences between the women and men in their relationships with family and friends, their attitudes to their work and their feelings about their identity. It may be that problems in such relationships were erroneously attributed to infertility. This does seem unlikely, given that the interview and questionnaire asked

specifically about problems resulting from infertility.

Another possible explanation is that women experience more difficulties because they bear greater responsibility for fertility than men (Wright et al, 1989). This implies that women (rather than their partners) may be responsible for explaining their infertility to family, friends and work colleagues, and are more likely to be seen as responsible for infertility, which in turn affects their social relationships. The fact that women spend more time under investigation and treatment than men means that their work is more likely to be affected. Given that women are socialised to relate their self-esteem to their fertility, infertility may also carry greater implications for the identity of women than for the identity of men.

A further explanation is that there is no actual difference in the effects of infertility between women and men but there is a difference in reporting of effects. There are two possible reasons for this. First, it may be due to differences in the way in which the data were collected. Difficulties associated with the use of postal questionnaires have already been discussed. The lack of contact between the researcher and the male partners may have resulted in a greater reluctance to reveal their experiences. The constraints of a self-report questionnaire may have contributed to this, and interviewing may differentially affect recall. Second,

men in Western society may be more reluctant to disclose negative effects or distress, are less likely to discuss their infertility (Brand, 1989), and may have a greater need to present as emotionally stable (Humphrey, 1975). They may particularly feel that they have to be strong and supportive if their female partners are experiencing emotional distress (Pfeffer & Woollett, 1983).

4.4.2 Medical characteristics

Higher state anxiety was predicted by the importance the woman attributed to having a child, and the duration of infertility. This accords with the findings of Platt et al (1973) and O'Moore et al (1983). Medical factors (duration of infertility and aetiology) were not predictive of distress for men, and aetiology was not for women. This was somewhat surprising, in view of Connolly et al's (1987) findings that increased feelings of depression and guilt were associated with male infertility. It is possible that the difference is due to the stage at which assessment was done and the type of patients. Few men in this investigation were depressed at this stage.

Not having a child living in the family also contributed to state anxiety in men. This appears to conflict with the finding of Wright et al (1990) that infertile couples with children living in the home had lower levels of satisfaction and self-esteem. It also seems likely to be

a result of time of assessment, as successful outcome may have been more important to men without children immediately prior to treatment.

4.4.3 Social support

A high proportion of women reported having talked to family and friends about their infertility. However, this does not take into account what or how much they told their friends and family, or their partner's view about talking to others. A few women reported that they had needed someone to talk to and had told one friend of their infertility, in spite of their partner's preference for it not to be discussed with anyone.

The existence of a confiding relationship outside the marriage was unrelated to any of the measures of emotional functioning, which is in line with the findings of McEwan et al (1987). This tends to confirm the view that social support from one person (the partner) is sufficient (Cohen & Wills, 1985). Given that it is perceived social support that is considered to be valuable, the marital relationship may be perceived by women to be more helpful than relationships with others. Women may find it difficult to accept social support from people whom they feel cannot understand their situation (Miall, 1985) or who make negative remarks about their childlessness (Callan & Hennessey, 1988). Support may be easier to accept from other infertile women or medical staff (Callan

& Hennessey, 1988). Woollett (1985) comments on the greater dependence of infertile couples on the partner given isolation from their usual social supports. Thus although access to social support may be reduced, this does not appear to have any detrimental effects. This may only be true for these patient groups however, who may have been able to reach this stage of treatment because their partners are able to provide the support they need.

4.4.4 Coping strategies

Participants in this study used a wide range of strategies to cope with their infertility. This has previously been reported for other infertility patient groups (eg Callan & Hennessey, 1989a; Woollett, 1985). Vitaliano et al (1990) have argued that subjects may not reliably report all the coping strategies they use. Patients may be less likely to report the use of strategies which are negatively perceived (such as smoking or drinking to reduce distress). However, in this study, a number of participants did report use of such strategies. As with all such measures, there is the problem of differences in recall of coping strategies. This may be further affected by the current emotional state of the patient. A standardised measure of coping rather than free recall of coping strategies was used to limit this problem.

It was hypothesised that the use of avoidance coping to deal with the long term stressor of infertility would be

associated with higher levels of psychological problems, and this was supported by the finding that those who had higher levels of avoidance coping were more anxious and depressed. There were however, no differences in levels of behavioural or cognitive approach coping for those with high or low distress. As patients who exhibited low levels of distress did not demonstrate higher levels of approach coping (as would be suggested by the "time by strategy" hypothesis (Holmes & Stevenson, 1990)), it appears to be the case that for these patients avoidance coping plays a negative role. This is in agreement with Holohan & Moos (1985). However, low scores on active behavioural coping were found to be predictive of high trait anxiety for women.

Participants in this study were however, experiencing the short term stressor of treatment at the same time as the long term stressor of infertility. It is possible that the results are confounded by this short term stressor with which patients were also coping. Patients with low levels of distress may have been using effective strategies to cope with the short term stressor (treatment), which might account for the lack of difference in levels of approach coping used to deal with the long term stressor (infertility). Further research is needed to investigate the effectiveness of coping strategies used by infertility patients to deal with short term stressors such as medical investigations or

treatment. This is important, given the implications for intervention. Cognitive models of coping assume that coping strategies can be taught to patients (Lazarus & Folkman, 1984) and this might be the most appropriate method of reducing the anxiety associated with infertility tests and treatment.

The multiple regressions confirmed that for women, avoidance coping appeared to be the most influential factor in producing emotional distress. Low scores on active behavioural coping were also predictive of high trait anxiety, which accords with current theory on the effectiveness of approach coping strategies in dealing with long term stressors (eg Suls & Fletcher, 1985).

Greater use of avoidance coping strategies to deal with infertility was also an important predictor of distress in men, being predictive of both high state and trait anxiety, high levels of depression and poor sexual functioning.

High levels of avoidance coping at initial assessment were also correlated with anxiety and depression in women and anxiety in men at follow up. This does not necessarily imply a causal relationship as there was a strong relationship for all participants between measures of functioning at initial assessment and follow up. Avoidance coping was not found to be predictive of

emotional functioning at follow up in the multiple regressions. In most cases, the variable accounting for most of the variance in the different measures of functioning at follow up was that measure of functioning at initial assessment, and the equations were no longer significant when this variable was removed.

Although this study demonstrates an association between the use of avoidance coping and distress, again a causal relationship cannot be established. It could be argued that the use of avoidance coping is a result of anxiety, rather than a cause. Thus, the measure of avoidance coping may be a further measure of anxiety, rather than a true measure of the coping strategies used by patients. However, the strength of the relationship between avoidance coping and emotional distress was confirmed by the regression analyses (Section 3.6) in which much of the variance on measures of emotional functioning was predicted by avoidance coping. This relationship is clearly of interest whatever the direction of causality.

Attendance for treatment may be one behavioural strategy which individuals use to cope with infertility (van Balen et al, 1989). IVF patients are known to be optimistic prior to treatment, and this positive outlook may be a way of dealing with infertility which leads to treatment (Johnston et al, 1990).

Although in this study optimism relating to current treatment was not assessed, data from the interview and the inventory present a picture of women and men who were keen to have children and anticipated few difficulties prior to trying to start a family. Most women reported having been optimistic that the problem of infertility could be overcome. Nearly half of the women reported remaining optimistic after diagnosis. The majority of participants felt it was extremely important to them to have children, often stating that it was currently the most important thing in their lives. This is perhaps to be expected but suggests that those who embark upon IVF and DI are particularly optimistic.

Little attention has been paid to the factors which influence the use of coping strategies. Given that the effectiveness of coping strategies depends to a certain extent upon characteristics of the stressor it might be expected that individuals would use different coping strategies to cope with different stressors. Recent research suggests that similar profiles of coping strategies are used by individuals experiencing similar stressors (Vitaliano et al, 1990). The importance of the "fit" between the coping strategy and the demands of the situation have been noted (eg see Miller & Mangan, 1983). However, there is clearly much individual variation within this, and use of coping strategies may be dependent on other factors such as the availability of a particular

strategy. Individuals may use a particular strategy because they are unaware of alternatives, or because they have found it to be effective in other circumstances. In terms of the strategies used to cope with infertility, Woollett (1985) suggests that reactions to infertility are related to success at dealing with other painful events, that is, the ability to cope with infertility may well depend upon an individual's past effective use of coping strategies. However, there has been no systematic investigation of this, and it may indeed be most useful to ask why individuals continue to use strategies that are ineffective in dealing with the stressor.

4.3.5 Sex role

Men in the study did not differ significantly from normative data in terms of sex role type, but more female subjects were classified as feminine. The finding for female subjects tends to confirm the idea that sex role may be a factor influencing clinic attendance, so that infertile individuals who have a traditional sex role type are more likely to undergo treatment. Previous research has found that women with less stereotypic sex roles want fewer children (Vogel et al, 1975). This however is not necessarily in contradiction of the idea that the lack of parenting experience in infertile couples might lead them to have less traditional sex roles. It is possible that infertile women who do not seek treatment or who give up treatment at an earlier stage are less traditional in

terms of sex role, but that women with a traditional role are more likely to attend a clinic and explore all treatment possibilities. The findings of this study are in contrast with those of Hirsch & Hirsch (1989) who found no differences in femininity but that infertile women had higher levels of masculinity. It may be that this difference is due to the different methods of assessing sex role; subjects in Hirsch & Hirsch's study were not categorised into sex role types. Both Callan & Hennessey (1989b) and Dennerstein & Morse (1985) found that their groups of infertile women were more traditional in terms of sex role, and infertile women see themselves as more traditional (Allison, 1979). Whether identification with traditional sex roles does lead women to seek treatment can only be determined by comparison of those who seek treatment and those who do not. If this is the case, it is possible, as Morse & van Hall (1987) suggest, that feminine women may be at particular risk for emotional distress if their role remains unfulfilled through failure of treatment. This may have particular implications for women undergoing IVF, who were most likely to be sex typed, and whose treatment is most likely to be unsuccessful. The importance of successful treatment for this group may be one factor accounting for their high levels of anxiety.

Men in this study however did not differ from the general population in terms of sex role type. This may be a

reflection of the fact that women appear to exert the most influence over fertility related decision making: results from this study suggest that the decision to start a family is made at the time when women are most keen to have children (rather than their partners), women tend to be the initiators of contact with the medical profession when problems are encountered (Edelmann et al, 1988) and in the case of IVF and DI, it is women who undergo treatment irrespective of which partner is infertile. Thus the sex role of men may be less influential.

It was hypothesised that masculinity would exert a stress-buffering effect and that high masculinity scores would be associated with better emotional functioning. This was found only for anxiety, and not depression. The finding that masculinity is related to low anxiety and that men with an undifferentiated sex role had higher trait anxiety and depression is in line with findings on the stress buffering effects of masculinity (Roos & Cohen, 1987). In women, masculine or undifferentiated sex role was also predictive of low trait anxiety. Within couples, where both partners were masculine, trait anxiety was lower than where neither partner was masculine. Roos & Cohen warn that caution should be exercised in inferring causal relationships. It is possible that rather than masculinity protecting against increased distress, infertility influences both of these variables. Thus infertility may increase emotional distress and affect

feelings of masculinity, which may lead to a vicious circle of feelings.

It was expected that high femininity scores would be associated with better marital functioning. However no relationships were found between sex role and marital or sexual functioning: there were no significant correlations between femininity and functioning, nor were there differences in functioning according to sex role type. Although examination of functioning in couples showed better marital adjustment when both partners had feminine sex roles, this difference was not significant. This contrasts with many other studies which have found relationships between sex role and marital adjustment (eg Kalin & Lloyd, 1985; Baucom & Aiken, 1984). This difference may be related to the fact that these are infertile couples who have not usually been included in other studies of the relationship between sex role and marital adjustment. It is also possible that other characteristics may be more important in determining marital adjustment given that different individuals have different views about what constitutes a satisfactory marriage. The views, sex roles and adjustment of both partners probably need to be taken into account to examine this relationship satisfactorily, and larger numbers of participants would be required than provided by this investigation.

4.4.5 Predicting emotional functioning

One of the aims of this study was to assess the extent to which emotional functioning is predictable from other factors, so that individuals at risk for distress might be identified. At follow up, the largest group of patients in terms of outcome was that in which women had not become pregnant and were continuing to have treatment. Women in this group were significantly less anxious and depressed than at initial assessment, whereas men were more anxious. The reduction in anxiety in women may be due to a number of factors. At the follow up, unlike the initial assessment, women were not assessed immediately prior to treatment. Thus a reduction in anxiety at the second assessment would not be unexpected if anxiety is in part related to clinic attendance. The reduction in anxiety may also be a result of becoming accustomed to treatment. It is interesting that women were also less depressed, as the failure of treatment up to this point might have been expected to lead to an increase in depression. However, some women in this group were going on to try other treatments (such as GIFT), and perhaps the prospect of a new treatment brought new hope. It is also possible that the reduction in distress is a reflection of the development of ways to cope with the stressful nature of infertility or even the beginning of a reconciliation with childlessness. As already discussed, those who withdrew from the study are likely to be those who were most anxious, and so it is difficult to draw general

conclusions from these results. It is also possible that the reduction in anxiety is due to the fact that this is their second assessment.

Men whose partners were continuing treatment had increased anxiety and depression (although the latter difference was not significant). This difference is hard to explain. Time may operate differentially on members of the infertile couple. It may be inappropriate to draw conclusions from this difference, given that the continued participation of men was dependent to a great extent on their partner's participation.

4.5 THE MARITAL AND SEXUAL RELATIONSHIP

In line with other studies women reported both positive and negative effects of their infertility on their marital relationship (eg Morse & Dennerstein, 1985; Leiblum et al, 1987b). None reported a positive effect on their sexual relationship. This contrasts with studies which have found IVF patients to report positive effects of infertility on their sexual relationship (eg Morse & Dennerstein, 1985; Freeman et al, 1985). The results of this study may have been due to the way in which the question was framed. Women were asked "Did infertility affect your interest in sex?" (see Appendix 2a) and the question may have implied negative effects. However, men were given the option to state that infertility had

affected their interest in sex positively, and none did. Chan et al (1989) report that amongst their sample of IVF and GIFT couples "very few" felt that infertility had affected their sex life. They suggest that this may be a cultural effect and related to the general reluctance among Chinese to discuss sex.

The fact that couples report positive as well as negative effects on their marriage is important; infertility is not perceived to be an entirely negative experience. However, this may only be true for patients who undergo IVF and DI, and does not necessarily apply to those who do not reach this stage because they separate, decide against IVF or DI, or give up treatment at an earlier stage.

As predicted, participants did not exhibit significant levels of marital or sexual problems. Mean scores on measures of marital and sexual functioning were not significantly different from normative data for women. Men did not differ from normative data in terms of sexual functioning, but had lower scores on the measure of marital functioning, indicating better relationships than average. Dennerstein & Morse (1985) and Shaw et al (1988) have reported similar findings to this investigation.

It is particularly interesting to note that 16 women and 9 men had scores on the measure of marital functioning (scores of 1) which suggested exaggeration of the quality

of their marital relationship and which the manual recommends should be treated with caution (Rust et al, 1988). There are a number of possible explanations for this. The manual for the scale suggests that subjects who obtain this score may either be at a very early stage of their relationship, or lying. It is possible that patients need to present a "good image" to the clinic because of concerns about being denied treatment. Alternatively, only those couples who have a good relationship may reach this stage of treatment. Other couples may have given up earlier in order to maintain their relationship, or their relationship may have broken up.

The explanation that couples are at an early stage of their relationship does not appear to be relevant here given that the average length of relationship was 10 years, and that there was no difference in terms of age or length of relationship between those with scores of 1 and the rest. The finding of elevated anxiety also suggests that the participants were not trying to present a stable image. It had been explained to participants that the information they gave would not be revealed to clinic staff. However, measures of distress were correlated; this might imply that those who have emotional problems are also those who have marital and sexual problems, or that some patients are able to reveal their distress and others are not.

The fact that other studies have found these groups of patients to have good marriages lends weight to the explanation that the majority of the couples in this investigation have good relationships. This may be so for a number of reasons. First, they may be a self-selecting sample. Those who do not have a good relationship may not reach this stage of treatment and those whose relationships break up become ineligible for treatment. Second, treatment may improve the relationship. Raval et al (1987) suggest that the process of investigation may operate beneficially on the marital relationship. The feeling that something is being done may be helpful.

Third, infertility itself may improve the marital relationship, bringing couples together to deal with a common problem. Women in this study, and several others (eg Freeman et al, 1985; Leiblum et al, 1987b) have reported the positive effects of infertility on the relationship.

There was only one significant difference between participants and normative data in terms of specific sexual problems: male participants showed significantly less avoidance of sex. This has been found using the same measure with a general sample of infertility clinic attenders (Raval et al, 1987). It is possible that this is a result of clinical intervention. Responsibility for

the timing of sexual intercourse may pass to women during infertility treatment, as doctors recommend to women that they have intercourse to coincide with ovulation, and women pass on this information to male partners. Men in infertile couples may therefore be more likely to acquiesce when their partners suggest having sexual intercourse, because of the importance of having sex at particular stages of the woman's cycle. Initiation of sex by women when "this is the night" has been reported to be associated with increased frequency of sexual intercourse but less satisfaction (Debrovner & Shubin-Stein, 1976). This may be a short term effect. In the long term, however, it may have a beneficial effect on the couples' sexual relationship in that it enables the woman to take a more active role (Pfeffer & Woollett, 1983).

Levels of frequency of sexual intercourse appeared low, with 64% of women and 55% of men having problems of infrequency of intercourse. Leiblum et al (1987b) found the greatest negative effect of infertility reported by IVF patients was a reduction of frequency of sex; however, a greater percentage reported positive effects. In this study, frequency of sexual intercourse was not significantly different from normative data, and did not appear to be related to dissatisfaction with the sexual relationship. It is possible that the expectations of infertile couples are different: they may expect their sexual relationship to be disrupted or affected and

therefore do not become dissatisfied when it is. Other studies with general infertility patients and IVF patients have found little evidence of sexual problems (eg Fagan et al, 1986). There have been no other studies of sexual functioning in DI patients.

It does seem likely that individuals who have severe sexual problems do not reach this stage of treatment. Sexual problems may be more likely to be associated with specific tests such as the post-coital test (eg Drake & Grunert, 1979). In the interview, some women reported on problems that they had had when undergoing specific tests or when given diagnoses. It seems likely that such effects are not long-lasting. This might explain why studies report that large numbers of infertility patients report having had problems in the past, whilst measures designed to assess current functioning reveal only a few individuals who are experiencing problems.

Whilst marital and sexual functioning were good overall, a number of patients were experiencing problems. Eighteen women and five men had a score on the measure of marital functioning indicating problems, and three women and nine men had a score on the measure of sexual functioning indicating problems. Whilst these numbers are no higher than would be expected in a normal population, this does not necessarily imply that such problems should be ignored. It has been suggested that doctors (and even

partners) may avoid or ignore marital and sexual problems (Burns, 1987). As previously mentioned, this may be due to embarrassment or a lack of skill or awareness. It may also be due to a feeling that such problems are an inevitable concomitant of infertility and its treatment. Patients, partners and clinic staff may therefore expect such problems to disappear after the successful treatment of infertility. This is unlikely however, and continuation of such problems may have implications for the "sexual health" of the consequent family (Burns, 1987).

Whilst there were few patients experiencing problems, any such problems in this population are of concern, because of the possible implications of sexual dysfunction for fertility. In a few cases, sexual dysfunction is found to be a primary cause of infertility (eg 5%: Rantala & Koskimies, 1988) and may be a factor in unexplained infertility (Fagan et al, 1986). Receipt of the diagnosis may influence sexual functioning, particularly in men (eg Berger, 1980b) which may in turn influence fertility. Aspects of medical investigations may also influence sexual functioning, which may in turn have a detrimental influence on test results. This has been found to be the case with the post-coital test (De Vries et al, 1984). Such problems may be short-lived but because of the way in which infertility and its investigation and treatment may interact with sexual functioning, careful assessment of

the latter at different stages of the process of investigation and treatment is necessary.

In terms of factors predictive of marital and sexual functioning at initial assessment, marital adjustment in women appeared to be better where both partners had a problem contributing to infertility. It is likely that this diagnosis reduces the possibilities for blame and guilt. However, findings from other studies are contradictory, in finding no differences (eg Daniluk, 1988) or greater difficulties with male infertility (eg Connolly et al, 1987). Lower social class was also predictive of better marital functioning and was the only variable predictive of better sexual functioning.

In men, use of avoidance coping strategies was predictive of sexual functioning and having an undifferentiated sex role was predictive of marital problems. However, good marital and sexual functioning in men at follow up was predicted by both partners having a problem contributing to their infertility. This factor was related to marital adjustment in women at initial assessment but not at follow up. A problem in both partners may encourage perception of infertility as a common problem to be overcome, which may benefit the relationship.

Sexual problems in men were also found to relate to marital problems in women. This appears to be a common

finding (Rust & Golombok, 1986b; Persky et al, 1982) that whilst male sexual problems are related to female marital problems, sexual problems in women have less influence on their partners.

For both men and women, there was a strong relationship between marital and sexual functioning at initial assessment and follow up. For those who were continuing treatment there were no significant differences in scores between the two time points. This tends to confirm the view of these patients as having stable happy marriages. Leiblum et al (1987a) also found no significant difference in marital adjustment before and after IVF, although the second assessment occurred only 5 weeks later. However, as before, it is important to note that those who were having difficulties may well have withdrawn from the study.

Given that the number of individuals in this study experiencing current marital and sexual problems is no larger than in a normal population, it cannot be inferred that their problems are attributable to infertility. It may therefore be inappropriate to look for explanatory factors associated with infertility (such as aetiology) to account for these problems in these particular patient groups. This is confirmed to some extent by the results of the multiple regressions for marital and sexual functioning which predicted little of the variance on

these measures. This was perhaps to be expected, given that participants did not demonstrate significant levels of difficulty in these areas.

Whilst both men and women reported that infertility had affected their marital and sexual relationships, it is possible that this is the result of misattribution (Keye, 1984). One advantage for the patient of such misattribution, as mentioned above, is that successful treatment of infertility would imply that the marital or sexual problems would also be removed. It permits patients (and those responsible for their treatment) not to take any other action. If patients therefore do have marital or sexual problems, it may be beneficial to them (and the clinic staff) if the problems are attributed to their infertility.

4.6 IVF AND DI

It was expected that IVF patients would exhibit greater distress than DI patients and their partners. However, there were no differences between the treatment groups in terms of emotional, marital or sexual functioning. The one exception to this was trait anxiety: female IVF patients showed higher levels of trait anxiety than their DI counterparts.

Given that there were no differences in state anxiety or

depression, this suggests that the prospect of undergoing donor insemination may be as stressful for the patient (and her partner) as the prospect of IVF. The meaning of the treatment, in terms of being a possible "last chance" for a pregnancy, is likely to be similar.

State anxiety for women in the IVF group was higher than for women in the DI group, but not significantly so. The difference in trait anxiety was significant however. As previously suggested, this difference may be related to the fact that female IVF patients tend to be more traditional in terms of their sex role type.

There were no differences between the groups in terms of marital or sexual functioning, or specific sexual problems. As previously discussed, studies of IVF patients have found marriages to be good. There have been fewer studies of DI patients, but David & Avidan (1974) found that couples reported an improvement in their marital relationships after the decision to undergo DI. The lack of difference between the treatment groups in this study suggests that male infertility does not have worse implications for emotional functioning or the marital relationship than female infertility, as has been suggested by some authors (eg Connolly et al, 1987). However, this may be due to the type of patients included in this study. The findings from this study are only applicable to these patient groups and they are unlikely

to apply to infertile individuals as a whole.

There were differences in the reporting of marital problems in the interview however, with women undergoing DI more likely to report negative effects of infertility on their relationship in the past, and IVF patients more likely to report positive effects in the past. Donor insemination patients were also less likely to report current difficulties in the relationship, which appears to be in line with David & Avidan's (1974) finding. However these differences did not emerge on the measure of current marital functioning. It is possible that these differences are a reflection of different events in couples' histories of infertility, given the differing aetiology of infertility in the two treatment groups. Data from the interview suggested that men in the DI group were less involved than those in the IVF group. Nearly half the men in the DI group were said by their partners to be ambivalent about or not keen on having children, in comparison with 16% of men in the IVF group. One of the problems in interpreting the interview data is that recall of events and experiences may have been influenced by later events and emotional reactions. Whilst many patients could vividly recall aspects of their experience which had been associated with a great deal of emotion, such as receiving the diagnosis, other aspects of their experience were not so easy to recall. It is possible that DI women's reporting of their partners' ambivalence

about having children may be been influenced by subsequent discussion of the use of donated sperm in order to achieve a pregnancy.

It is also interesting to note that there were no differences between the treatment groups in terms of discussing their infertility with others, and similar numbers of women (more than half) in each group had a confiding relationship. It has been suggested that many patients perceive their infertility to be a private matter (Menning, 1980). Reports suggest that few DI couples discuss their treatment with their parents (eg 21% reported by Ledward et al, 1979) although many IVF patients do (eg 81% reported by Singer & Wells, 1984). However, in this investigation patients were not asked specifically whether they had talked about their treatment, but about infertility in general. Patients may also have felt it important to discuss their infertility or treatment with family members in spite of negative reactions, for example, from parents-in-law.

There were no differences between the treatment groups in terms of method of coping, but participants in the IVF group used significantly higher levels of information seeking. It is possible that this is a reflection of the complex nature of IVF treatment and perhaps the more complex medical history of these patients which may have encouraged this approach. Female IVF patients also had

higher scores on emotional discharge, which includes tension-reducing strategies. This seems likely to be related to their higher levels of trait anxiety.

As already mentioned in section 4.4, women in the IVF group were more likely to have a feminine sex role and had significantly higher scores on femininity than women in the DI group. This corresponds with the finding of Dennerstein & Morse (1985) that women undergoing IVF have a strong identification with the feminine role.

The problems of examining differences in response to infertility between the sexes have been discussed in Chapter One. It is not possible to interpret the differences in state and trait anxiety given that scores on these measures are different for men and women in normal populations (eg Knight et al, 1983). Sex differences in coping are consistent with sex differences on this measure in other populations (Billings & Moos, 1981). Women were also found to have scores on the measure of sexual functioning indicating better sexual relationships than the men. This may be the result of two factors: women's perceptions of the sexual relationship and the influence of infertility on the men. Women may perceive the sexual relationship differently and, as has been discussed elsewhere, infertility may improve the sexual relationship in some ways for women. Infertility may have a greater effect on the man's sexual

relationship, although a causal relationship cannot be inferred.

Findings from the comparison of the two treatment groups suggest more similarities between them than differences. This is perhaps to be expected as they are both select groups of infertile individuals who have pursued a solution to their infertility to the limits of medical technology.

4.7 CONCLUSIONS

Whilst most participants in the study exhibited good emotional functioning, some did not. One of the aims of this study was to try to identify factors predictive of emotional functioning and thereby to identify individuals "at risk" for difficulties. The use of avoidance coping strategies appeared to be the best predictor of distress, being related to anxiety and depression in both men and women. This is an important finding, given that the use of coping strategies is easily assessed and that coping strategies can be taught.

Sex role appeared to be the other most important factor related to emotional functioning. For women, femininity was associated with greater anxiety and depression. This finding is of particular concern, given that nearly half the sample had feminine sex role types. It would appear

to have greater implications for women undergoing IVF treatment, given that they were most likely to be sex typed and their treatment is most likely to be unsuccessful. This finding emphasises the importance of counselling provision within infertility services, to ensure support after treatment failure, and the opportunity to explore alternatives.

For men, a non-masculine or undifferentiated sex role appeared to be associated with greater anxiety and depression. Infertility might have been expected to more threatening to masculine men, and therefore more distressing. However, this finding is probably a reflection of the stress-buffering effect of masculinity. Again, given that it would be inappropriate and impractical to attempt to alter sex role, the provision of counselling appears to be the best way to ensure that the needs of those who are distressed are met.

Most studies investigating emotional functioning in patients undergoing IVF have found that these patients and their partners may be anxious, but otherwise appear to have few problems. There are several theories (not necessarily opposing) put forward in the literature to explain why this might be the case. These theories apply equally well to patients undergoing DI and their partners:

(1) Patients are not distressed because a long-standing history of infertility and treatment (or prior experience of the stressor) equips them better psychologically for IVF treatment (eg Freeman et al, 1985; Garner et al, 1984);

(2) Patients are not distressed because undergoing treatment is itself beneficial because something is being done (Raval et al, 1987; Daniluk, 1988) and this provides the opportunity for optimism (eg Johnston et al, 1987);

(3) Patients are distressed but they hide their distress for fear of not getting treatment (Greenfeld & Haseltine, 1986);

(4) Patients are well adjusted because they are a self selected group - the less motivated do not undergo IVF treatment (Callan, 1987; Cook et al, 1989).

There is little doubt that these patients have long histories of infertility and infertility treatment and it seems likely that this would have enabled them to develop coping strategies to deal with the stress of treatment. This study did not assess the strategies used by patients to cope with treatment. However, the findings from this study that some patients used strategies to cope with their infertility which were not effective (ie avoidance

coping strategies), suggests that patients may not always be able to develop appropriate coping strategies. As discussed earlier, further research is necessary to establish why particular strategies are used. Thus it seems likely that the development of appropriate coping strategies cannot be the only explanation for lack of problems in these patients. Furthermore, some patients with long histories of infertility do find treatment stressful and give it up. This suggests that a long history of infertility, or prior experience does not always enable patients to be better equipped psychologically. It is possible that the patients who give up treatment are those with a shorter duration of infertility. However, it seems likely that duration of infertility or treatment is not the only factor involved.

The second theory also argues for the beneficial effects of treatment. IVF patients are clearly optimistic about success prior to treatment (Johnston et al, 1987; De Zoeten et al, 1987) as are other groups of infertile patients such as women who undergo tubal surgery (Lalos et al, 1985a) and many participants in this study remained hopeful about the outcome despite having been given a diagnosis which appeared to leave no room for optimism. It is possible that treatment temporarily improves emotional functioning and the marital relationship and that this will decrease after treatment has ended. However, women in this investigation who continued to have

treatment were less anxious and depressed after 9 months than at initial assessment (although men were more anxious). This appears to give support to the view that adjustment is enabled through treatment. Men's adjustment may not be so closely linked to treatment as they do not actually undergo it. Other reasons for this difference have already been discussed.

The third theory is that patients are distressed, but hide their distress for fear of not getting treatment. The majority of both private and NHS infertility clinics only accept heterosexual couples who are married or have a long term relationship. Patients may fear that if they or their relationship is not perceived as stable then they will not be eligible for treatment. However, the number of studies in which patients have been willing to report distress (including this one) is not small. It appears that given the right circumstances, patients are able to express their feelings. Independent research which is clearly not part of a clinical assessment procedure may be important in achieving this. It could also be the case that patients admit to what they feel is acceptable distress (ie anxiety) but conceal other problems, such as marital or sexual difficulties. However, this does seem a rather complex motive to attribute to our participants, when they had the opportunity to decline to take part in the research!

Finally, it has been suggested that these patients are well adjusted because they are a select group. Women do not undergo these treatments unless they are sufficiently motivated and well adjusted. Studies have shown that IVF patients are ambitious and independent in comparison with other infertile patients (Given et al, 1985) and that they are likely to have personalities which enable them to withstand stress. It is possible that the optimism exhibited by these patients is not an effect of treatment (as suggested by the second theory) but rather a factor which leads these patients to treatment.

It appears that all of these theories provide some part of the explanation for the emotional stability of couples who undergo these treatments. The contribution of each factor remains to be determined.

CHAPTER FIVE: IMPLICATIONS

This chapter discusses the implications of the results and the possible directions for future research.

5.1 IMPLICATIONS FOR PRACTICE

The results of this study have a number of implications for clinical practice. First, the fact that there are positive as well as negative effects of infertility is something that patients themselves need to be aware of. Mahlstedt et al (1987) found that 68% of their IVF participants felt that printed information about the emotional impact of the procedures would be helpful. Many women in the current study reported effects on their identity, as well as effects in other areas of their lives. Infertility can make individuals feel different from others and isolated (Lalos et al, 1986). Making patients aware of the experiences of other infertile individuals may well be important in helping to reduce this isolation.

Whilst the results of this study suggests that few patients had sexual problems, the needs of those who do have problems should not be ignored. Other studies suggest that the development of sexual problems may be associated with specific tests. Patients need to be made

aware of the sort of problems they are likely to encounter and ways of dealing with these problems. The inappropriate use of tests such as the temperature chart, and the possible implications for the patient has been noted elsewhere (Winston, 1986). All tests should therefore have a clear purpose which is explained to the patient. Doctors may need further training to ensure that they are comfortable discussing sex with patients and that they are able to assess whether they are able to help the patient, and if not, to whom the patient should be referred for professional help.

Findings from this study suggest that whilst most marriages are happy, some couples are experiencing problems. It might be appropriate to assess current marital and sexual functioning as part of the assessment prior to IVF or DI, not as an assessment procedure for treatment, but to ensure that patients receive help if necessary. Given the long waiting list for treatments such as IVF, this would seem to be an appropriate time to deal with any difficulties that have not been addressed earlier. To ignore such problems may have implications should treatment be successful. Couples may have assumed that such difficulties were specifically infertility-related and may expect difficulties to disappear after successful treatment. There may be implications for the relationship of the couple, and their relationship with their child if this does not happen (eg see Burns, 1987).

Again, causality (ie whether problems are a result of infertility) may be irrelevant for practice. Attributing such problems to infertility and assuming that they will go away somehow is unfair on the patients. In view of the way in which infertility and its treatment interact with sexual functioning, patients should be made aware of the possible effects of testing and ways to overcome these.

The communication skills of professionals in infertility clinics might also benefit from some attention. Women in the current investigation, as in other studies (eg Pfeffer & Woollett, 1983) discussed how it was they (rather than the doctor) who had to convey information about test results and diagnosis to their partners. Given that for most patients in the study diagnosis was made some years ago, it is to be hoped that practice has changed. Clinicians should be aware that the passing on of such information may have repercussions for the couple's relationship. It also encourages the idea of the woman being responsible for the couple's fertility (or fertility problem). Test results should be given to the person who has undergone the test. There are disadvantages of treating the infertile couple as a single unit; it should not imply that members of the couple are interchangeable. Apart from the fact that individual needs may be ignored, it also carries the implication that people cannot be infertile and single!

The fact that infertility services are provided within a health service probably exacerbates communication problems. Doctors are not accustomed to presenting patients with options for treatment or encouraging their involvement in decision making. Dennerstein & Morse (1988) comment that couples who just hopefully go on to the next treatment do not face the personal meaning of childlessness. Traditionally, medicine has tended to ignore the psychosocial aspects of treatment. This clearly creates difficulties when treatment is addressing a psychosocial need, rather than a disease.

5.2 IMPLICATIONS FOR RESEARCH

The results of this study suggest that patients undergoing IVF and DI treatment and their partners are anxious but do not exhibit significant levels of marital or sexual difficulties. However, a minority of patients did appear to have problems, and those who were anxious or depressed tended also to have poorer marital and sexual functioning. There was however no way of assessing whether such problems were causally related to infertility itself or infertility treatment, or whether such problems were pre-existing.

There are numerous difficulties associated with establishing the nature of the relationship between emotional distress and infertility, and the direction, if any, of causality. One of the major problems is a

practical one: any longitudinal study attempting to establish causality definitively would need to start with couples prior to their knowledge of their fertility status.

Patients in this investigation were found to be highly anxious prior to treatment. The difficulties associated with establishing a causal relationship have already been addressed. One way in which further light could be thrown on this question is by the use of intervention studies. Studies which aim to reduce the anxiety-provoking aspects of clinic attendance would provide insight into the extent to which anxiety is a result of clinic attendance. Intervention studies might involve random allocation to groups adopting different methods of anxiety reduction, such as anxiety management training, teaching of coping strategies and information giving. Such studies would also have the advantage of allowing examination of the effects of anxiety management on subsequent conception, given the possibility that anxiety may influence fertility (eg Edelmann & Golombok, 1989).

Despite the uncertainty over causality, given that infertility patients do exhibit difficulties in some areas of psychological functioning, it is important to assess whether these problems persist over time, and to assess the effects of giving up or continuing treatment and of successful treatment and failure.

This study was unable to examine the differential effects of treatment outcome, given the small numbers in different outcome groups that were available at follow up. Studies have been performed with women who have conceived after IVF or GIFT treatment (Reading et al, 1989) and studies are now underway assessing the functioning of families which include children conceived by IVF and DI (eg Golombok et al, 1990). It is still the case, however, that little attention is paid to those for whom treatment is unsuccessful. These factors could not be examined in the current study because of poor response to follow up. Future studies need larger numbers of patients in the initial sample and a longer period of follow up. In this way, differences between patient groups can be examined more systematically and the influence of treatment outcome on patients can be assessed. A follow up study of the psychological functioning of 144 couples undergoing IVF treatment is currently underway (Doctor, 1990).

Future studies also need to obtain a better response to follow up if the results are to be of any value. One way of ensuring this might be to link assessment to clinic attendance. However, infertility and its treatment do not have a natural progression which can easily be followed. The progression of treatment is dependent on many factors such as availability of treatment and financial and emotional resources of patients. Linking assessment to

clinic attendance would also only be appropriate for those who continued to have treatment as those who are unsuccessful no longer attend. Given the fact that emotional distress appears to be linked to clinic attendance itself, this would then make comparisons difficult with those who were not attending clinics. One of the factors which may have contributed to the poor response to follow up in this study was the length of time between assessments. More frequent contact between researcher and participant might encourage better response (eg as in Edelmann et al, 1989). It has been remarked before that patients are keen to participate in research prior to treatment, but less so afterwards (Dennerstein & Morse, 1985). In prospective studies however, response has tended to be better where there is a short time period between assessments, even if this implies that assessments are more frequent.

In this study anxiety and depression were found consistently to be associated with the use of avoidance coping strategies. Further research is needed to examine the effectiveness of strategies that patients use to deal with short term stressors, such as investigations and treatment. Specific examination of the "time by strategy" hypothesis, that avoidance strategies are effective in reducing distress associated with short term stressors, and that approach or attentional strategies are effective in dealing with long term stressors, would be valuable.

Such research would be of theoretical as well as practical importance, given that these are a group of patients who experience both types of stressor - long and short term. Such research would also allow for the examination of hypotheses concerning the factors that influence patients' use of different types of strategies, and would enable the development of interventions to help patients to cope in appropriate ways.

This study, in line with other studies with infertility patients, found that whilst patients reported marital or sexual problems in the past, few patients were currently experiencing difficulties. This suggests that more research should be conducted at earlier stages of infertility investigation and treatment, such as when patients visit a GP for the first time or are first referred to a clinic. This may be the most difficult time for patients, and an appropriate time for intervention to deal with marital or sexual problems. Helping patients with such problems at the time of treatment be less appropriate, as only those who have "survived" are helped. Also, patients might view it as a screening procedure.

Patients undergoing IVF and DI and their partners represent only a proportion of individuals who experience infertility. Estimates vary, but Templeton et al (1990) report a prevalence of infertility from a survey of women in Aberdeen of 14%. This figure is similar to US reports

of the prevalence of infertility (eg see Martin-Matthews & Matthews, 1986). This represents a significant minority of the population. Templeton et al report that 31% of their sample of women did not seek medical help. Most studies of infertility patients have obtained data from couples presenting at infertility clinics, and these may well not be representative of all infertile individuals or couples. An important area for future research is in understanding the factors which influence infertile individuals' decisions relating to seeking and undergoing treatment. It is important to ascertain the reasons for not seeking medical help, particularly to ensure that it is not a result of lack of knowledge. Little is known about (i) those who do not present for treatment, or (ii) those who are ineligible for most treatment (eg lesbian or single women) or (iii) those who give up treatment. It is possible that those who do not seek treatment are less distressed and therefore have not sought help (Shaw et al, 1988). There are however numerous other possible explanations: embarrassment, lack of information, dislike of doctors/hospitals, put off by GP etc. There has been little research examining decision making with respect to infertility treatment. Callan et al (1988) found that attitudes and social pressures were important in predicting the decision to continue or stop IVF treatment. It is possible that patients actually make few decisions about their treatment other than whether or not to start it, although there have been recommendations in the

literature that a proper decision making process be followed (Bombardieri & Clapp, 1984). Research does suggest that one of the most important reasons for deciding to undergo treatment may be in order to prevent later regret, or "anticipated decision regret" (Tymstra, 1989). If this is so, it raises the question of whether this is an appropriate basis on which to make decisions about treatment.

5.3 INTERVENTIONS

In the light of the findings of this study, there are three possibilities for interventions to help patients. Firstly, simple interventions to reduce anxiety at the time of treatment or investigation. Patients were found to experience high levels of anxiety. However, there are psychological techniques that can be used to reduce anxiety, such as anxiety management techniques, which would be appropriate and could be used effectively in this situation.

Second, monitoring of possible negative effects of infertility or its treatment, such as impact on the sexual relationship. Such monitoring would allow for immediate intervention at the appropriate time to deal with the difficulty. This would include the provision of information about possible effects of undergoing specific tests or treatments, in order to prepare patients.

Third, teaching appropriate coping strategies. This study found that anxiety and depression were consistently associated with the use of avoidance coping strategies. Interventions could be developed to teach patients appropriate strategies for dealing with the long-term stressor of infertility. This would benefit patients both in the short and long term.

It is important to remember that infertility is a social problem to which people appear to be increasingly endeavouring to find a medical solution. This has a number of associated problems. First, medicine cannot always provide a solution. Success rates for some treatments are very low; only half of the women in Templeton et al's (1990) epidemiological study of infertility eventually conceived. Second, few clinics have the facilities to help infertile people to pursue a non-medical solution to their infertility, such as reconciliation with the state of childlessness. Third, the length of time that investigation and treatment occupies means that infertile couples may become accustomed to their childless lifestyle, which may produce difficulties and perhaps regrets if the woman does become pregnant (eg see Tulandi et al, 1981).

Other authors have drawn attention to the need for counselling in infertility clinics, and the current lack of provision. Some of the problems experienced by

patients in this study may be dealt with by appropriate interventions. However, the finding that particular characteristics of the patients and their partners (such as sex role) are associated with distress implies an important role for counselling. Policy decisions on the provision of counselling should take account of research findings. The Human Embryology and Fertilisation Bill which is currently going through Parliament is expected to include clauses on the provision of counselling and therefore the situation may improve. However, given the relatively small numbers of people who experience infertility, the re-organisation of services to benefit patients is unlikely to be seen as a priority.

APPENDIX 1a: IVF TREATMENT

There are currently four common indications for IVF treatment:

(1) damaged fallopian tubes;

(2) low sperm counts;

(3) hostile immune factors in the female genital tract;

(4) unexplained infertility.

The procedure: The menstrual cycle is monitored by examining the mucus and taking urine samples; the growth of the egg follicle is monitored by ultrasound scan. Drugs are used to regulate the woman's cycle and stimulate the production of more than one egg, to increase the chance of fertilisation.

Ultrasound scans or urine tests are performed every three hours to determine when the egg is ready to be released from the ovary; or hormones can be administered to stimulate the release of the egg at a predictable time.

Egg collection: a general anaesthetic is given to the woman and her abdomen is inflated with carbon dioxide (or oxygen or nitrogen). The laparoscope is inserted through a slit cut below the navel, the instrument used for collecting the egg is inserted, the needle punctures the follicle containing the egg and the egg is sucked out through a tube.

Eggs are kept for at least 5 hours to mature completely. The man masturbates to produce the semen which is mixed with the eggs 60-90 minutes later. The sperm are left in contact with the eggs for 6 to 23 hours, until it can be seen that fertilisation has occurred. Embryo transfer takes place after division to 8 or 16 cells. This is usually performed via the cervix without anaesthetic. The woman then rests for 24 hours, and "takes things easy" for a further three days.

Although IVF can be performed using donated gametes, the method referred to here uses the woman's egg(s) and her partner's sperm.

Clinics vary in what they define as "success" of IVF, and the success rate, however defined, varies from clinic to clinic. The success rate in terms of "take home baby" rate is probably currently somewhere between 10-15%.

APPENDIX 1b: DI TREATMENT

DI treatment is currently recommended when:

(1) the woman is found to be normally fertile and the man is found to be substantially infertile or sterile;
(2) the man is found to be a carrier of an hereditary disease.

The procedure: Treatment is usually carried out at the fertile period of each month, this being determined by temperature chart or ultrasound scan. The sperm is placed either in:

(1) the mucus at the neck of the womb;
(2) around the outside of the cervix;
(3) just inside the cervical canal;
(4) directly into the uterus.

After this the patient rests for about 20 minutes.

The overall success rate is approximately 50-60%.

APPENDIX 2a: INTERVIEW (FEMALES)

INTERVIEW

NAME

ADDRESS

PHONE

OCCUPATION

SEX AGE

NAME OF PARTNER AGE

PARTNER'S OCCUPATION

LENGTH OF RELATIONSHIP

DATE		RELATIONSHIP	CHILDREN		MISCARRIAGE
TERMINATION					
FROM	TO		SEX	AGE	

BEFORE THE DECISION

What were your attitudes to having children before you decided to have them?

- was being able to have children in the future important to you?
- did you enjoy the company of children?
- did you feel that fertility was part of being a woman/man?

1 = UNFAVOURABLE
2 = NEUTRAL
3 = FAVOURABLE

What were your expectations about having children?

- did you always assume you would be able to?
- did you assume it would be easy/difficult? why?
- how long did you think it would take to become pregnant?

1 = DIFFICULT
2 = UNCERTAIN
3 = EASY

How much did you know about the process of conception?

- how much biology did you understand?
- did that matter? were you interested?
- did you know more about your or your partner's part in the process?
  (how did you think conception took place?)

1 = POOR
2 = AVERAGE
3 = GOOD

Did you want children before your present present relationship?

1 = YES
2 = NO

When did you and your partner first think about having children?

YEARS

How much did you want a child at that time?

- was it a definite decision? were you ambivalent?
- did you start to try to have children straight away?
- whose idea was it? was there conflict? what sort? (describe arguments)
- did you feel you wanted a child more than your partner?
- did you feel your partner wanted a child more than you?

1 = RESPONDENT VERY KEEN
2 = RESPONDENT AMBIVALENT
3 = RESPONDENT NOT VERY KEEN

1 = PARTNER VERY KEEN
2 = PARTNER AMBIVALENT
3 = PARTNER NOT VERY KEEN

What were your reasons for wanting children at that time?

- a positive step? an escape?
- were you pressurised by your relatives?
- what was their attitude?
- with whom did you discuss your feelings about having children? their response?

1 = PRESSURISED
2 = NOT PRESSURISED

AWARENESS OF PROBLEM

When did you first become aware that you might have difficulties in having a child?

- what made you aware?
- who first raised the possibility?

YEARS ☐

How did you feel about it then?

- how did each of you react?
- what decisions did you arrive at?
- how long did you take to make the decision?
- who did you discuss it with?
- how did they react?

1 = HOPEFUL ABOUT OUTCOME
2 = UNSURE ABOUT OUTCOME
3 = DESPONDENT ABOUT OUTCOME ☐

Whose problem did you think it was?

- did you think it was your problem?
- did you blame each other?
- did you think it was the other even if you didn't say so?

1 = WOMAN RESPONSIBLE
2 = BOTH RESPONSIBLE
3 = MAN RESPONSIBLE ☐

When did you first seek professional help?

- how long was this after you became aware of the problem?

YEARS ☐

Whose idea was it?

- did you both agree to go along?
- did either of you react negatively?

1 = WOMAN INITIATED
2 = JOINT DECISION
3 = MAN INITIATED

☐

Who did you approach first?

- what happened? were you referred to a clinic?

1 = APPROACHED GP
2 = APPROACHED CLINIC
3 = OTHER

☐

DIAGNOSIS AND TREATMENT

What tests and treatment have you had? - describe

- how did you feel about the tests/treatment? what about your partner?
- were you embarrassed? determined? anxious?
- were you asked to do certain things? what?
- how easy was it to carry out? what difficulties did you have?
- how did you cope with it?
- what was the worst part of treatment?

LIST TESTS AND TREATMENTS AND RATINGS:

1 = VERY DISTRESSING
2 = MILDLY DISTRESSING
3 = TOLERABLE

FEMALE TESTS:		MALE TESTS:	
HISTORY		HISTORY	
PHYSICAL EXAM		PHYSICAL EXAM	
TEMPERATURE CHART		VARICOCELE SCREEN	
PCT		SEMEN ANALYSIS	
BLOOD TESTS		BLOOD TESTS	
ULTRASOUND		TESTICULAR BIOPSY	
LAPAROSCOPY		VASOGRAM	
INSUFFLATION		CHROMOSOME ANALYSIS	
ENDOMETRIAL BIOPSY			
HSG			
CHROMOSOME ANALYSIS			
OTHER _____			
FEMALE TREATMENT:		MALE TREATMENT:	
DRUGS If so, which?		DRUGS If so, which?	
SURGERY If so, which?		SURGERY If so, which?	
TESTS OVERALL: ☐		TREATMENT OVERALL: ☐	

Were there good aspects of having the tests?

- did you learn a lot? did you feel involved?
- how were you treated? sensitively?
- are you satisfied?

1 = SATISFIED
2 = NEUTRAL
3 = DISSATISFIED

Have you been told the cause of your problem?

FEMALE:

TUBAL BLOCKAGE
INFECTION
SURGERY
ENDOMETRIOSIS
OTHER

OVULATORY FAILURE
RECOVERY FROM PILL
NON SPECIFIC ANOVLUATION
PCO
LUTEAL PHASE EFFECTS
OTHER

UNEXPLAINED

MALE:

TUBAL BLOCKAGE
VAS DEFERENS
EPIDIDYMIS
EJACULATORY DUCTS

AZOOSPERMIA
OLIGOSPERMIA
VARICOCELE
HORMONAL
TRAUMA
OTHER

1 = MALE PROBLEM
2 = MALE AND FEMALE PROBLEM
3 = FEMALE PROBLEM
4 = UNEXPLAINED

How did you react?

- what about your partner?
- do you feel the treatment will be successful?

1 = OPTIMISTIC ABOUT OUTCOME
2 = UNSURE ABOUT OUTCOME
3 = PESSIMISTIC ABOUT OUTCOME

RELATIONSHIP

How has your relationship been affected by infertility?

- put under strain? closer? both?
  (describe arguments)

1 = NEGATIVE EFFECT
2 = NO EFFECT
3 = POSITIVE EFFECT
4 = POSITIVE AND NEGATIVE EFFECTS

Did infertility affect your interest in sex?

- how?
- loss of interest in sex?
- specific sexual problems?

1 = NEGATIVE EFFECT
2 = NO EFFECT
3 = POSITIVE EFFECT
4 = POSITIVE AND NEGATIVE EFFECT

CHILDLESSNESS

How have your difficulties in conceiving a child affected your original desire to have children?

- are they stronger or weaker?
- why is that?
- when did they change?
- what were the circumstances?
- have there been times since you first considered having children that you felt you would prefer not to?

1 = INCREASED
2 = SAME
3 = DECREASED

How important is having children to you now?

- how would having children affect your life?

1 = EXTREMELY IMPORTANT
2 = QUITE IMPORTANT
3 = NEUTRAL

How much have you discussed infertility with others?

- have they been helpful? what has been the most helpful thing someone has said?
  the most unhelpful?
- do you think others discuss your childlessness?
  what do you think they say?
  how does that make you feel?
- do you feel people really understand what you are going through?
  hospital staff? friends? relatives?

FAMILY:
1 = HELPFUL/SUPPORTIVE
2 = UNHELPFUL/UNSUPPORTIVE

FRIENDS:
1 = HELPFUL/SUPPORTIVE
2 = UNHELPFUL/UNSUPPORTIVE

HOSPITAL STAFF:
1 = HELPFUL/SUPPORTIVE
2 = UNHELPFUL/UNSUPPORTIVE

What effect has not having children had on your life?

- on your marriage/relationship?
- on your identity? feelings of self-esteem?
  on your identity as a man/woman?
- on your relationships with family?
- on your relationships with friends?
- on your work?

What are the worst aspects of life without children?
What are the advantages? What are the disadvantages?

IDENTITY:
1 = EXTREMELY NEGATIVE
2 = NEGATIVE
3 = NONE
4 = POSITIVE

FAMILY:
1 = EXTREMELY NEGATIVE
2 = NEGATIVE
3 = NONE
4 = POSITIVE

FRIENDS:
1 = EXTREMELY NEGATIVE
2 = NEGATIVE
3 = NONE
4 = POSITIVE

WORK:
1 = EXTREMELY NEGATIVE
2 = NEGATIVE
3 = NONE
4 = POSITIVE

If you find that you are unable to have children, how will this affect your life?

- what about your marriage/relationship?
  relationships with family/friends?
  work? feelings about yourself?
- what would you do about it?

1 = SEVERE NEGATIVE EFFECT
2 = MODERATE NEGATIVE EFFECT
3 = MINOR NEGATIVE EFFECT

APPENDIX 2b: INTERVIEW CODING GUIDELINES

Attitudes to children

Coded as favourable if woman stated that she always wanted children or always expected to have children and expressed positive attitudes towards children - that she liked/loved children or that she enjoyed the company of children. Rated as unfavourable if she reported that she did not want children or did not plan to have children; that she did not like children or felt uncomfortable with children. Rated as neutral if neither positive nor negative feelings about children expressed and/or if no specific attitudes or plans expressed; or if the woman reported that she had never thought about it.

Expectations about having children

Rated as difficult if the woman either knew of the existence of problems which made it likely that fertility would be impaired, or if thought (either with or without reason to do so) that there might be difficulties. Rated as uncertain if the woman reported not having thought about it or expressed any uncertainty. Rated as easy if the woman assumed she would be able to have children or had never considered that she might not be able to, or anticipated no delay in becoming pregnant.

Pressure

Rated as strong pressure if woman reported direct pressure from family to have children either verbal or behavioural eg frequent comments on childlessness, offering to take woman to doctor or giving suggestions for course of action. Rated as weak pressure if woman reported hints or remarks about childlessness but did not perceive this as pressure. Otherwise rated as no pressure unless respondent reported pressure against having children or disapproval of the decision to have children, in which case rated as pressure against.

Distress associated with treatment

Rated as very distressing if respondent reported extreme pain or shock or emotional distress persisting either (1) in the case of investigative tests, beyond the period of time of testing, or (2) in the case of drug treatment, over the period of treatment or (3) in the case of surgery, after discharge from hospital. Rated as mildly distressing if respondent reported pain, emotional distress, embarrassment, discomfort or shock (eg in cases where the procedure had been inadequately explained prior to undergoing it) associated with the test/treatment. Otherwise rated as tolerable. This rating would include positive and mixed ratings eg if respondent reported mild discomfort on undergoing the ultrasound scan but enjoyed being able to see the scan itself.

Satisfaction with tests

Rated as satisfied if woman reported being satisfied with tests overall, or with the major part of the testing process. Rated as neutral if woman expressed no particular feelings of satisfaction or dissatisfaction, or expressed equal satisfaction and dissatisfaction (usually when woman had attended more than one clinic). Rated as dissatisfied if woman reported being dissatisfied with tests overall, or with the major part of the testing process.

Marital relationship

Rated as no effect if woman was unable to report any ways in which her relationship has been affected by infertility, either general or specific. Rated as positive if reported only positive effects and negative if reported only negative effects. Rated as both positive and negative if reported both. Both general and specific effects were included. For example:

Positive: "We've always been close, but it seems to have brought us closer".

"We can talk about think so much better because of this (infertility)"

Negative: "He wanted to divorce me"

"He gets drunk, gets miserable ... everything is my fault"

Sexual relationship

Coded in similar way to marital relationship. Examples:

Negative: "We live in the same house, we share the same bed - but we don't really make love any more. He says there's no point in it"

"He was impotent for about 3 weeks after that"

Confiding relationship

The section on discussing infertility with others was further rated as to whether the woman reported having a confiding relationship ie whether there was someone other than her partner with whom she could discuss her infertility and who was supportive.

Effect on identity

Rated as extremely negative if woman reported a complete effect on her identity as a woman eg she felt that she was not a woman, or that she was a failure as a woman. Rated as negative if she reported a partial effect on her identity eg she felt different or separate from other women or as though she had failed in some way as a woman. Rated as none if she felt her identity was unchanged.

Effect on relationships with family

Rated as extremely negative if woman reported having lost contact with a family member as a result of infertility or if a family relationship had deteriorated seriously eg she

was reluctant to visit family or avoided seeing them. Rated as negative if she felt aspects of her relationships had deteriorated eg she found it difficult to talk with family members. Rated as none if she felt family relationships were unchanged. Rated as positive if she felt aspects of her relationship had improved eg communication with or support from family members had improved or increased.

Effect on relationships with friends

Rated as family.

Effect on work

Rated as extremely negative if woman had given up work as a result of her infertility because it was perceived either as emotionally or practically impossible. Rated as negative if woman had turned down promotion, or not gone for promotion, or not tried to advance in her career or her career progression or job choice had been restricted eg by the need for clinic attendance; or if she had a part time job when otherwise it would have been full time. Rated as none if the woman reported no positive or negative effects. Rated as positive if she felt that her career had benefitted or that she had got further in her career or had a better job than she would have done if she had had children.

APPENDIX 3: THE QUESTIONNAIRE (MALES)

NAME
ADDRESS

PHONE

OCCUPATION

SEX AGE

NAME OF PARTNER AGE

LENGTH OF RELATIONSHIP

Do you have any children from a previous marriage or relationship? YES/NO

On the following pages, please decide which answer is most appropriate for you, and tick the corresponding box.

Please read all the questions carefully, and answer all those that apply to you.

BEFORE YOU MADE THE DECISION TO HAVE CHILDREN

Was being able to have children in the future very important to you?

NO
UNCERTAIN
YES

Did you assume that it would be easy to have children?

NO
UNCERTAIN
YES

How much did you know about the process of conception?

A LITTLE
AVERAGE
A GREAT DEAL

AFTER YOU HAD MADE THE DECISION TO HAVE CHILDREN

Were you very keen to have a child at that time?

YES
UNCERTAIN
NO

Was your partner very keen to have a child at that time?

YES
UNCERTAIN
NO

Did you feel pressurised by your family into having children?

YES
NO

WHEN YOU FIRST BECAME AWARE THAT YOU MIGHT HAVE DIFFICULTIES IN HAVING CHILDREN

Whose problem did you think it might be?

YOURS
BOTH
YOUR PARTNER'S

Whose idea was it to go and see a doctor?

YOURS
JOINT DECISION
YOUR PARTNER'S

TESTS AND TREATMENT

Please indicate whether you have had any of the following tests:

Physical examination ☐
Varicocele screening ☐
Semen analysis ☐
Blood tests ☐
Testicular biopsy ☐
Vasogram ☐
Chromosome analysis ☐
Other (please specify) _____

If you have had any drug treatment for an infertility problem, please list any drugs that you took:

If you have had any surgery, please say what it was for:

Did you find any part of the tests or treatment distressing?

NOT AT ALL ☐
MILDLY DISTRESSING ☐
VERY DISTRESSING ☐

Are you satisfied with the tests and treatment that you have had?

YES ☐
QUITE ☐
NO ☐

If <u>you personally</u> have had a problem which has contributed to your infertility as a couple, please say what it is:

Tubal blockage or damage ☐
No sperm ☐
Low sperm count ☐
Varicocele ☐
Hormonal disturbances ☐
Other (please specify) _____

RELATIONSHIPS

Have there been any difficulties in your relationship with your partner because of your infertility?

NO
YES

Have the problems brought you closer together?

NO
YES

Have they affected your interest in sex?

YES, BAD EFFECT
NO, NO EFFECT
YES, GOOD EFFECT

Have your difficulties in having a child increased or decreased your original desire to have children?

INCREASED
SAME
DECREASED

Do you feel that your relationship with your family has suffered because of your infertility?

VERY MUCH
SOMEWHAT
NO EFFECT
IMPROVED

Do you feel that your relationship with your friends has suffered because of your infertility?

VERY MUCH
SOMEWHAT
NO EFFECT
IMPROVED

Do you feel that your work has suffered?

VERY MUCH
SOMEWHAT
NO EFFECT
IMPROVED

Do you feel that your identity (as a man or as a husband) has suffered?

VERY MUCH
SOMEWHAT
NO EFFECT
IMPROVED

If you eventually find that you are unable to have children, will this affect you a great deal?

YES, VERY MUCH
YES, QUITE A LOT
YES, A LITTLE
NO

APPENDIX 4: INFORMATION GIVEN TO STUDY PARTICIPANTS

The experience of infertility

We are currently conducting a study which aims to investigate the problems encountered by couples who are having difficulties in having children. There has been very little research in this area, and we hope a better understanding of these problems will result in provision of a better service for infertile couples.

This leaflet gives a short explanation of the work that we are doing, to help you to decide whether you would like to take part.

The study

The study involves an interview in which you will be asked about your experiences of infertility, including any tests and treatment that you may have had. This interview takes approximates 20 minutes.

You would then be asked to complete some questionnaires. These are all quite straightforward, and a research assistant will be available to help if you have any difficulties in completing them, or to answer any questions that you might have.

Taking part

We hope that the information that we receive will help to form a picture of difficulties that couples experience, and that our results will be used to help other infertile couples in the future. For this reason, we hope that you will decide to take part in the study, but would like to stress that you are under no obligation to do so.

Confidentiality

Your interview will be recorded on tape, unless you have any objections to this. This makes it easier for the interviewer to listen to what you are saying. No-one other than the two researchers involved will have access to the tapes. Any information that you give us, both in the interview and on the questionnaires, will be treated as confidential. It will not be made available to staff at the clinic, and taking part in the study will not affect your treatment in any way.

APPENDIX 5: SELF-REPORT QUESTIONNAIRES

(a) Coping section of the Health and Daily Living Form (Moos et al, 1982).

(b) Bem Sex Role Inventory (BSRI) (Bem, 1981)

(c) State-Trait Anxiety Inventory (STAI) (Spielberger et al, 1970)

(d) Beck Depression Inventory (BDI) (Beck et al, 1979)

(e) Golombok Rust Inventory of Marital State (GRIMS) (Rust et al, 1988)

(f) Golombok Rust Inventory of Sexual Satisfaction (GRISS) (Rust & Golombok, 1986b)

APPENDIX 5a

HEALTH AND DAILY LIVING FORM

Please indicate which of the following you have done in connection with your infertility:

	NO	YES, once or twice	YES, sometimes	YES, fairly often
Tried to find out more about the situation	☐	☐	☐	☐
Talked with spouse or other relative about the problem	☐	☐	☐	☐
Talked with friend about the problem	☐	☐	☐	☐
Talked with professional person (eg doctor, lawyer, clergy)	☐	☐	☐	☐
Prayed for guidance and/or strength	☐	☐	☐	☐
Prepared for the worst	☐	☐	☐	☐
Didn't worry about it. Figured everything would probably work out	☐	☐	☐	☐
Took it out on other people when I felt angry or depressed	☐	☐	☐	☐
Tried to see the positive side of the situation	☐	☐	☐	☐
Got busy with other things to keep my mind off the problem	☐	☐	☐	☐
Made a plan of action and followed it	☐	☐	☐	☐
Considered several alternatives for handling the problem	☐	☐	☐	☐
Drew on my past experiences; I was in a similar situation before ...	☐	☐	☐	☐
Kept my feelings to myself	☐	☐	☐	☐
Took things a day at a time, one step at a time	☐	☐	☐	☐
Tried to step back from the situation and be more objective .	☐	☐	☐	☐

	NO	YES, once or twice	YES, some-times	YES, fairly often
Went over the situation in my mind to try to understand it	☐	☐	☐	☐
Tried not to act too hastily or follow my first hunch	☐	☐	☐	☐
Told myself things that helped me feel better	☐	☐	☐	☐
Got away from things for a while	☐	☐	☐	☐
I knew what had to be done and tried harder to make things work	☐	☐	☐	☐
Avoided being with people in general	☐	☐	☐	☐
Made a promise to myself that things would be different next time	☐	☐	☐	☐
Refused to believe that it happened	☐	☐	☐	☐
Accepted it; nothing could be done	☐	☐	☐	☐
Let my feelings out somehow	☐	☐	☐	☐
Sought help from persons or groups with similar experiences	☐	☐	☐	☐
Bargained or compromised to get something positive from the situation	☐	☐	☐	☐
Tried to reduce tension by:				
(a) drinking more	☐	☐	☐	☐
(b) eating more	☐	☐	☐	☐
(c) smoking more	☐	☐	☐	☐
(d) exercising more	☐	☐	☐	☐
(e) taking more tranquillizing drugs ..	☐	☐	☐	☐

BEM INVENTORY

Developed by Sandra L. Bem, Ph.D.

Name _____ Age _____ Sex _____

Phone No. or Address _____

Date _____ 19 ___. _____

If a student: School _____ Yr. in School _____

If not a student: Occupation _____

DIRECTIONS

On the opposite side of this sheet, you will find listed a number of personality characteristics. We would like you to use those characteristics to describe yourself, that is, we would like you to indicate, on a scale from 1 to 7, how true of you each of these characteristics is. Please do not leave any characteristic unmarked.

Example: sly

Write a 1 if it is never or almost never true that you are sly.
Write a 2 if it is usually not true that you are sly.
Write a 3 if it is sometimes but infrequently true that you are sly.
Write a 4 if it is occasionally true that you are sly.
Write a 5 if it is often true that you are sly.
Write a 6 if it is usually true that you are sly.
Write a 7 if it is always or almost always true that you are sly.

Thus, if you feel it is sometimes but infrequently true that you are "sly," never or almost never true that you are "malicious," always or almost always true that you are "irresponsible," and often true that you are "carefree," then you would rate these characteristics as follows:

Sly	3	Irresponsible	7
Malicious	1	Carefree	5

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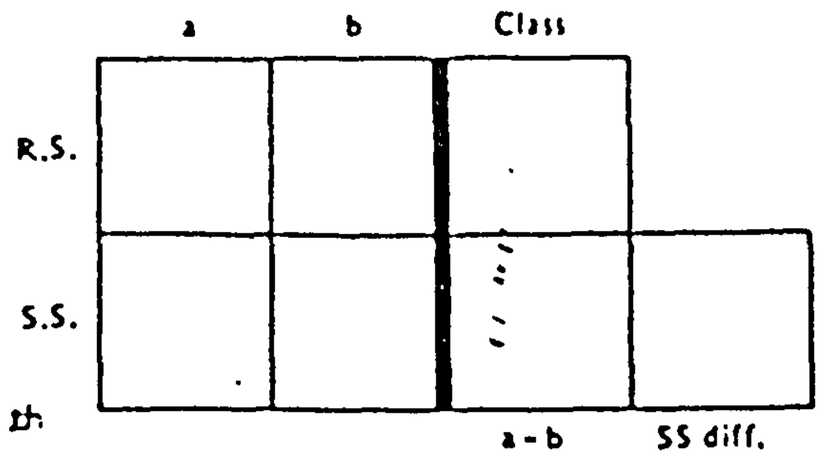
1	2	3	4	5	6	7
Never or almost never true	Usually not true	Sometimes but infrequently true	Occasionally true	Often true	Usually true	Always or almost always true

Defend my own beliefs	
Affectionate	
Conscientious	
Independent	
Sympathetic	
Moody	
Assertive	
Sensitive to needs of others	
Reliable	
Strong personality	
Understanding	
Jealous	
Forceful	
Compassionate	
Truthful	
Have leadership abilities	
Eager to soothe hurt feelings	
Secretive	
Willing to take risks	
Warm	

Adaptable	
Dominant	
Tender	
Conceited	
Willing to take a stand	
Love children	
Tactful	
Aggressive	
Gentle	
Conventional	
Self-reliant	
Yielding	
Helpful	
Athletic	
Cheerful	
Unsystematic	
Analytical	
Shy	
Inefficient	
Make decisions easily	

Flatterable	
Theatrical	
Self-sufficient	
Loyal	
Happy	
Individualistic	
Soft-spoken	
Unpredictable	
Masculine	
Gullible	
Solemn	
Competitive	
Childlike	
Likable	
Ambitious	
Do not use harsh language	
Sincere	
Act as a leader	
Feminine	
Friendly	



APPENDIX 5c

SELF-EVALUATION QUESTIONNAIRE

Developed by C. D. Spielberger, R. L. Gorsuch and R. Lushene

STAI FORM X-1

NAME ..... DATE .....

DIRECTIONS: A number of statements which people have used to describe themselves are given below, Read each statement and then circle the appropriate number to the right of the statement to indicate how you *feel* right now, that is, *at this moment*. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

	NOT AT ALL	SOMEWHAT	MODERATELY SO	VERY MUCH SO
1. I feel calm	1	2	3	4
2. I feel secure	1	2	3	4
3. I am tense	1	2	3	4
4. I am regretful	1	2	3	4
5. I feel at ease	1	2	3	4
6. I feel upset	1	2	3	4
7. I am presently worrying over possible misfortunes	1	2	3	4
8. I feel rested	1	2	3	4
9. I feel anxious	1	2	3	4
10. I feel comfortable	1	2	3	4
11. I feel self-confident	1	2	3	4
12. I feel nervous	1	2	3	4
13. I am jittery	1	2	3	4
14. I feel "high strung"	1	2	3	4
15. I am relaxed	1	2	3	4
16. I feel content	1	2	3	4
17. I am worried	1	2	3	4
18. I feel over-excited and rattled	1	2	3	4
19. I feel joyful	1	2	3	4
20. I feel pleasant	1	2	3	4

APPENDIX 5c

SELF-EVALUATION QUESTIONNAIRE

STAI FORM X-1

NAME ..... DATE .....

DIRECTIONS: A number of statements which people have used to describe themselves are given below, Read each statement and then circle the appropriate number to the right of the statement to indicate how you *generally feel* There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel.

	ALMOST NEVER	SOMETIMES	OFTEN	ALMOST ALWAYS
1. I feel pleasant	1	2	3	4
2. I tire quickly	1	2	3	4
3. I feel like crying	1	2	3	4
4. I wish I could be as happy as others seem to be	1	2	3	4
5. I am losing out on things because I can't make up my mind soon enough	1	2	3	4
6. I feel rested	1	2	3	4
7. I am "calm, cool, and collected"	1	2	3	4
8. I feel that difficulties are piling up so that I cannot overcome them	1	2	3	4
9. I worry too much over something that really doesn't matter	1	2	3	4
10. I am happy	1	2	3	4
11. I am inclined to take things hard	1	2	3	4
12. I lack self-confidence	1	2	3	4
13. I feel secure	1	2	3	4
14. I try to avoid facing a crisis or difficulty	1	2	3	4
15. I feel blue	1	2	3	4
16. I am content	1	2	3	4
17. Some unimportant thought runs through my mind and bothers me	1	2	3	4
18. I take disappointments so keenly that I can't put them out of my mind	1	2	3	4
19. I am a steady person	1	2	3	4
20. I become tense and upset when I think about my present concerns	1	2	3	4

APPENDIX 5d

BECK DEPRESSION INVENTORY

NAME..... DATE.....

Please indicate the statement in each section which best describes the way you have been feeling recently by circling the number next to it.

A

0 I do not feel sad

1 I feel blue or sad

2a I am blue or sad all the time and I can't snap out of it

2b I am so sad or unhappy that it is very painful

3 I am so sad or unhappy that I can't stand it

B

0 I am not particularly pessimistic or discouraged about the future

1a I feel discouraged about the future

2a I feel I have nothing to look forward to

2b I feel that I won't ever get over my troubles

3 I feel that the future is hopeless and that things cannot improve

C

0 I do not feel like a failure

1 I feel I have failed more than the average person

2a I feel I have accomplished very little that is worthwhile or that mean anything

2b As I look back on my life all I can see is a lot of failures

3 I feel I am a complete failure as a person (parent, husband, wife)

D

0 I am not particularly dissatisfied

1a I feel bored most of the time

1b I don't enjoy things the way I used to

2 I don't get satisfaction out of anything any more

3 I am dissatisfied with everything

E

0 I don't feel particularly guilty

1 I feel bad or unworthy a good part of the time

2a I feel quite guilty

2b I feel bad or unworthy practically all the time now

F

0 I don't feel I am being punished

1 I have a feeling that something bad my happen to me

2 I feel I am being punished or will be punished

3a I feel I deserve to be punished

3b I want to be punished

G

0 I don't feel disappointed in myself

1a I am disappointed in myself

1b I don't like myself

2 I am disgusted with myself

3 I hate myself

H

0 I don't feel I am any worse than anybody else

1 I am very critical of myself for my weaknesses or mistakes

2a I blame myself for everything that goes wrong

2b I feel I have many bad faults

I

0 I don't have any thoughts of harming myself

1 I have thoughts of harming myself but I would not carry them out

2a I feel I would be better off dead

2b I have definite plans about committing suicide

2c I feel my family would be btter off if I were dea

3 I would kill myself if I could

J

0 I don't cry any more than usual

1 I cry more now than I used to

2 I cry all the time now. I can't stop it.

3 I used to be able to cry but now I can't cry at all even though I want to.

K

0 I am no more irritated now than I ever am

1 I get annoyed or irritated more easily than I used to

2 I feel irritated all the time

3 I don't get irritated at all at the things that used to irritate me

Q

0 I don't get any more tired than usual

1 I get tired more easily than I used to

2 I get tired from doing anything

3 I get too tired to do anything

L

0 I have not lost interest in other people

1 I am less interested in other people now than I used to be

2 I have lost most of my interest in other people and have little feeling for them

3 I have lost all my interest in other people and don't care about them at all

R

0 My appetite is no worse than usual

1 My appetite is not as good as it used to be

2 My appetite is much worse now

3 I have no appetite at all any more

M

0 I make decisions about as well as ever

1 I am less sure of myself now and try to put off making decisions

2 I can't make decisions any more without help

3 I can't make any decisions at all any more

S

0 I haven't lost much weight, if any, lately

1 I have lost more than 5 pounds

2 I have lost more than 10 pounds

3 I have lost more than 15 pounds

N

0 I don't feel I look any worse than I used to

1 I am worried that I am looking old or unattractive

2 I feel that there are permanent changes in my appearance and they make me look unattractive

T

0 I am no more concerned about my health than usual

1 I am concerned about aches and pains or upset stomach or constipation or other unpleasant feelings in my body

2 I am so concerned with how I feel or what I feel that it's hard to think of much else

3 I am completely absorbed in what I feel

O

0 I can work about as well as before

1a It takes extra effort to get started at doing something

1b I don't work as well as I used to

2 I have to push myself very hard to do anything

3 I can't do any work at all

U

0 I have not noticed any recent change in my interest in sex

1 I am less interest in sex than I used to be

2 I am much less interested in sex now

3 I have lost interest in sex completely

P

0 I can sleep as well as usual

1 I wake up more tired in the morning than I used to

2 I wake up 1-2 hours earlier than usual and find it hard to get back to sleep

3 I wake up early every day and can't get more than 5 hours sleep

G.R.I.M.S. APPENDIX 5e

Name ..... Date .....

Instructions: Each of the statements 1 to 28 below is followed by a series of possible responses - SD = Strongly Disagree, D = Disagree, A = Agree and SA = Strongly Agree. Read each statement carefully and decide which response best describes how you feel about the relationship with your partner. Then put a tick over the corresponding response. PLEASE RESPOND TO EVERY STATEMENT. If you are not completely sure which response is most accurate, put the response which you feel is most appropriate. Do not spend too long on each statement.

Please answer this questionnaire without discussing any of the statements with your partner. In order for us to obtain valid information it is important for you to answer each question as honestly and accurately as possible. ALL THE INFORMATION WILL BE TREATED WITH THE STRICTEST CONFIDENCE.

G.R.I.M.S

		Strongly Disagree	Disagree	Agree	Strongly Agree
1.	My partner is usually sensitive to and aware of my needs	SD	D	A	SA
2.	I really appreciate my partner's sense of humour	SD	D	A	SA
3.	My partner doesn't seem to listen to me any more	SD	D	A	SA
4.	My partner has never been disloyal to me	SD	D	A	SA
5.	I would be willing to give up my friends if it meant saving our relationship	SD	D	A	SA
6.	I am dissatisfied with our relationship	SD	D	A	SA
7.	I wish my partner was not so lazy and didn't keep putting things off	SD	D	A	SA
8.	I sometimes feel lonely even when I am with my partner	SD	D	A	SA
9.	If my partner left me life would not be worth living	SD	D	A	SA
10.	We can "agree to disagree" with each other	SD	D	A	SA
11.	It is useless carrying on with a marriage beyond a certain point	SD	D	A	SA
12.	We both seem to like the same things	SD	D	A	SA
13.	I find it difficult to show my partner that I am feeling affectionate	SD	D	A	SA
14.	I never have second thoughts about our relationship	SD	D	A	SA
15.	I enjoy just sitting and talking with my partner	SD	D	A	SA
16.	I find the idea of spending the rest of my life with my partner rather boring	SD	D	A	SA
17.	There is always plenty of "give and take" in our relationship	SD	D	A	SA
18.	We become competitive when we have to make decisions	SD	D	A	SA
19.	I no longer feel I can really trust my partner	SD	D	A	SA
20.	Our relationship is still full of joy and excitment	SD	D	A	SA
21.	One of us is continually talking and the other is usually silent	SD	D	A	SA
22.	Our relationship is continually evolving	SD	D	A	SA
23.	Marriage is really more about security and money than about love	SD	D	A	SA
24.	I wish there was more warmth and affection between us	SD	D	A	SA
25.	I am totally committed to my relationship with my partner	SD	D	A	SA
26.	Our relationship is sometimes strained because my partner is always correcting me	SD	D	A	SA
27.	I suspect we may be on the brink of separation	SD	D	A	SA
28.	We can always make up quickly after an argument	SD	D	A	SA

APPENDIX 5f

G.R.I.S.S./FEMALE

PLEASE COMPLETE THIS SECTION IN BLOCK CAPITALS BEFORE BEGINNING THE QUESTIONNAIRE

DATE .....

NAME .....

AGE .....

NAME OF PARTNER .....

.....

LENGTH OF RELATIONSHIP

YEARS ..... MONTHS .....

INSTRUCTIONS

Each question is followed by a series of possible answers:

N NEVER
H HARDLY EVER
O OCCASIONALLY
U USUALLY
A ALWAYS

Read each question carefully and decide which answer best describes the way things have been for you recently; then fill in the circle surrounding the corresponding letter.

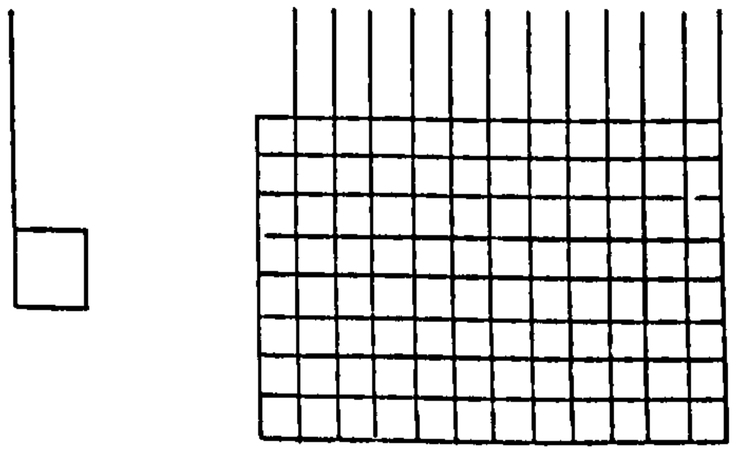
PLEASE ANSWER EVERY QUESTION. If you are not completely sure which answer is most accurate, fill in the circle corresponding to the answer which you feel is most appropriate.

Do not spend too long on each question.

Please answer this questionnaire without discussing any of the questions with your partner. In order for us to obtain valid information it is important for you to answer each question as honestly and as accurately as possible.

ALL THE INFORMATION WILL BE TREATED IN THE STRICTEST CONFIDENCE.

		NEVER	HARDLY EVER	OCCASIONALLY	USUALLY	ALWAYS
1	Do you feel uninterested in sex?	N	H	O	U	A
2	Do you ask your partner what he likes or dislikes about your sexual relationship?	N	H	O	U	A
3	Are there weeks in which you don't have sex at all?	N	H	O	U	A
4	Do you become easily sexually aroused?	N	H	O	U	A
5	Are you satisfied with the amount of time you and your partner spend on foreplay?	N	H	O	U	A
6	Do you find that your vagina is so tight that your partner's penis cannot enter it?	N	H	O	U	A
7	Do you try to avoid having sex with your partner?	N	H	O	U	A
8	Are you able to experience an orgasm with your partner?	N	H	O	U	A
9	Do you enjoy cuddling and caressing your partner's body?	N	H	O	U	A
10	Do you find your sexual relationship with your partner satisfactory?	N	H	O	U	A
11	Is it possible to insert your finger into your vagina without discomfort?	N	H	O	U	A
12	Do you dislike stroking and caressing your partner's penis?	N	H	O	U	A
13	Do you become tense and anxious when your partner wants to have sex?	N	H	O	U	A
14	Do you find it impossible to have an orgasm?	N	H	O	U	A
15	Do you have sexual intercourse more than twice a week?	N	H	O	U	A
16	Do you find it hard to tell your partner what you like and dislike about your sexual relationship?	N	H	O	U	A
17	Is it possible for your partner's penis to enter your vagina without discomfort?	N	H	O	U	A
18	Do you feel there is a lack of love and affection in your sexual relationship with your partner?	N	H	O	U	A
19	Do you enjoy having your genitals stroked and caressed by your partner?	N	H	O	U	A
20	Do you refuse to have sex with your partner?	N	H	O	U	A
21	Can you reach orgasm when your partner stimulates your clitoris during foreplay?	N	H	O	U	A
22	Do you feel dissatisfied with the amount of time your partner spends on intercourse itself?	N	H	O	U	A
23	Do you have feelings of disgust about what you do during lovemaking?	N	H	O	U	A
24	Do you find that your vagina is rather tight so that your partner's penis can't penetrate very far?	N	H	O	U	A
25	Do you dislike being cuddled and caressed by your partner?	N	H	O	U	A
26	Does your vagina become moist during lovemaking?	N	H	O	U	A
27	Do you enjoy having sexual intercourse with your partner?	N	H	O	U	A
28	Do you fail to reach orgasm during intercourse?	N	H	O	U	A



APPENDIX 5f

G.R.I.S.S./MALE

PLEASE COMPLETE THIS SECTION IN BLOCK CAPITALS BEFORE BEGINNING THE QUESTIONNAIRE

DATE .....

NAME .....

AGE .....

NAME OF PARTNER .....

.....

LENGTH OF RELATIONSHIP .....

YEARS MONTHS

INSTRUCTIONS

Each question is followed by a series of possible answers:

N NEVER
H HARDLY EVER
O OCCASIONALLY
U USUALLY
A ALWAYS

Read each question carefully and decide which answer best describes the way things have been for you recently; then fill in the circle surrounding the corresponding letter.

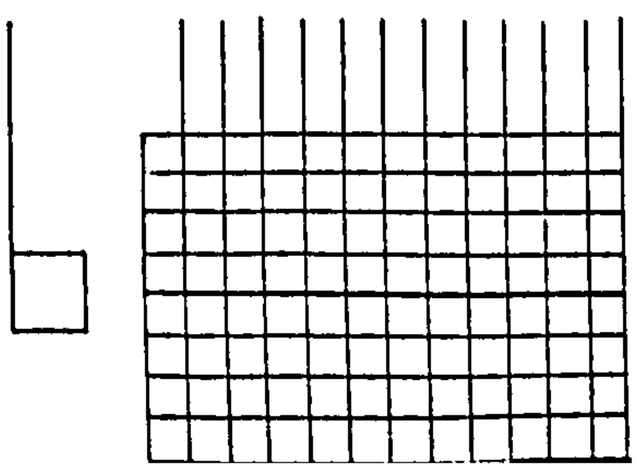
PLEASE ANSWER EVERY QUESTION. If you are not completely sure which answer is most accurate, fill in the circle corresponding to the answer which you feel is most appropriate.

Do not spend too long on each question.

Please answer this questionnaire without discussing any of the questions with your partner. In order for us to obtain valid information it is important for you to answer each question as honestly and as accurately as possible.

ALL THE INFORMATION WILL BE TREATED IN THE STRICTEST CONFIDENCE.

		NEVER	HARDLY EVER	OCCASIONALLY	USUALLY	ALWAYS
1	Do you have sexual intercourse more than twice a week?	N	H	O	U	A
2	Do you find it hard to tell your partner what you like or dislike about your sexual relationship?	N	H	O	U	A
3	Do you become easily sexually aroused?	N	H	O	U	A
4	Are you able to delay ejaculation during intercourse if you think you may be 'coming' too quickly?	N	H	O	U	A
5	Are you dissatisfied with the amount of variety in your sex life with your partner?	N	H	O	U	A
6	Do you dislike stroking and caressing your partner's genitals?	N	H	O	U	A
7	Do you become tense and anxious when your partner wants to have sex?	N	H	O	U	A
8	Do you enjoy having sexual intercourse with your partner?	N	H	O	U	A
9	Do you ask your partner what she likes and dislikes about your sexual relationship?	N	H	O	U	A
10	Do you fail to get an erection?	N	H	O	U	A
11	Do you feel there is a lack of love and affection in your sexual relationship with your partner?	N	H	O	U	A
12	Do you enjoy having your penis stroked and caressed by your partner?	N	H	O	U	A
13	Can you avoid ejaculating too quickly during intercourse?	N	H	O	U	A
14	Do you try to avoid having sex with your partner?	N	H	O	U	A
15	Do you find your sexual relationship with your partner satisfactory?	N	H	O	U	A
16	Do you get an erection during foreplay with your partner?	N	H	O	U	A
17	Are there weeks in which you don't have sex at all?	N	H	O	U	A
18	Do you enjoy mutual masturbation with your partner?	N	H	O	U	A
19	If you want sex with your partner do you take the initiative?	N	H	O	U	A
20	Do you dislike being cuddled and caressed by your partner?	N	H	O	U	A
21	Do you have sexual intercourse as often as you would like?	N	H	O	U	A
22	Do you refuse to have sex with your partner?	N	H	O	U	A
23	Do you lose your erection during intercourse?	N	H	O	U	A
24	Do you ejaculate without wanting to almost as soon as your penis enters your partner's vagina?	N	H	O	U	A
25	Do you enjoy cuddling and caressing your partner's body?	N	H	O	U	A
26	Do you feel uninterested in sex?	N	H	O	U	A
27	Do you ejaculate by accident just before your penis is about to enter your partner's vagina?	N	H	O	U	A
28	Do you have feelings of disgust about what you and your partner do during lovemaking?	N	H	O	U	A



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